

**PARTICIPATORY GROUP APPROACH FOR
SUSTAINABLE DEVELOPMENT OF
AGRICULTURE IN KERALA**

By

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THESIS

submitted in partial fulfilment of the
requirement for the Degree of

Doctor of Philosophy in Agriculture

(Agricultural Extension)

Faculty of Agriculture

Kerala Agricultural University

Department of Agricultural Extension

COLLEGE OF AGRICULTURE

Vellayani, Thiruvananthapuram

INDIA

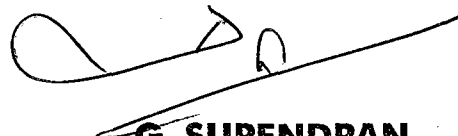
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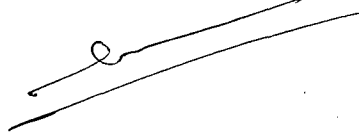
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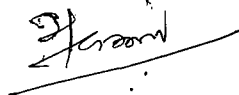
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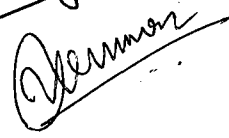
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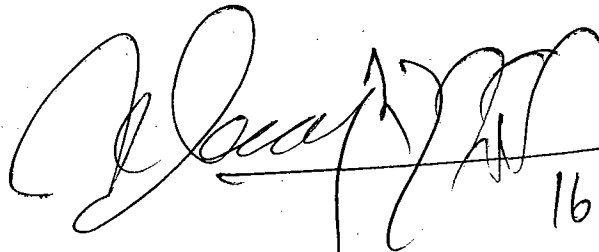
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ACKNOWLEDGEMENT

*I have great pleasure to express my deep sense of gratitude, indebtedness and sincere thanks to **Dr. G. Balakrishna Pillai** , Professor and Head, Department of Agricultural Extension, College of Agriculture, Vellayani and Chairman of the Advisory Committee for his valuable guidance, expertise, critical suggestions and constant encouragement throughout the period of this investigation and preparation of the thesis. I am really fortunate to work under this great educationalist who was earlier UNDP Professor in Ethiopia and at present honorary Chairman of the TEAMS, which is a Non-governmental organization of professionals in agriculture.*

*I record my indebtedness and sincere thanks to **Dr. C. Bhaskaran**, Associate Professor (Agricultural Extension) College of Agriculture, Vellayani and member of the Advisory Committee for his scholarly suggestions, constant support, untiring and generous assistance rendered to me throughout the research programme, without whose assistance, the thesis would not have attained this shape.*

*I am most grateful to **Dr. M. Mohammed Hussain, Dr. S. Shilaja** Associate Professors (Agricultural Extension) and Advisory Committee members for their kind help, guidance and encouragement at various stages of the study. Dr. Shilaja's initiative as well as talent has greatly helped me in deciding the topic of research.*

***Dr. Vijayaraghavakumar** Associate Professor, Department of Agricultural Statistics has contributed so much to my thesis especially in the statistical analysis and interpretation of the results. His sincere effort in guiding me is gratefully acknowledged.*

I record my thanks to all the scientists and other staff members of Department of Agricultural Extension, especially to Dr. N.P. Kumari Sushama and Dr. V.B. Padmanabhan (Associate Professors) for their kind help. Great help has been rendered by Miss. Lakshmi (P.G. student) by way of systematic checking of references and spelling of the script. The assistance of Miss. Lakshmi, Miss. Parvathi, Mr. K.P. Santhosh Kumar and other P.G. students is gratefully acknowledged. Mr. Ajitkumar, Programmer has helped much in analysing the data, for which I am really grateful.

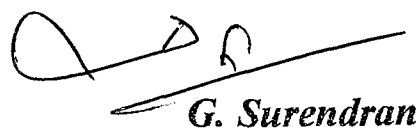
My sincere thanks are also due to Mr. R. Sasidharan, Additional Director of Agriculture (Planning), Mr. G. Sudarsanan, Deputy Director of Agriculture, Mr. M. Subramaniam, Technical Assistant, Mrs. Deepthi Varadan, Agricultural Officer, Mr. M.S. Sasi, Technical Assistant and to many other officers of the State Department of Agriculture in the Directorate of Agriculture and in the districts of Thiruvananthapuram, Alappuzha, Thrissur, Kozhikode and Wynad for their kind help and support received at various stages of the study.

I owe to my parents for their moral support. I record my deep sense of gratitude to my wife Girija (Agricultural Officer), daughter Minu and son Girish for their constant encouragement, sincere help, patience and sacrifice without which I would not have completed this research endeavour.

I acknowledge the service of M/s Sree Matha Computers, Pachalloor for the neat execution of the typing work.

I express my indebtedness and sincere thanks to the Department of Agriculture (Government of Kerala) for having deputed me to this programme of study.

Vellayani
15.03.2000


G. Surendran

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ABBREVIATIONS USED IN THIS STUDY

ALPA	Alappuzha
CADA	Command Area Development Authority
CIAL	Community Committee for Agricultural Investigation
FACT	Fertilizers And Chemicals Travancore Limited
FAO	Food and Agriculture Organisation
GEI	Group Efficiency Index
GEIV	Group Efficiency Index Value
HYV	High Yielding Variety
HYVP	High Yielding Variety Programme
IAAP	Intensive Agriculture Area Programme
IADP	Intensive Agriculture District Programme
IFAP	International Federation of Agricultural Producers
IVLP	Institutional Village Link Programme
KAU	Kerala Agricultural University
KHDP	Kerala Horticulture Development Programme
KMIP	Kerala Minor Irrigation Project
KZDE	Kozhikode
NABARD	National Bank for Agriculture and Rural Development
NGO	Non - Governmental Organisation
NS	No significant difference
ODA	Overseas Development Administration
ODI	Overseas Development Institute
PEI	Participation Efficiency Index
PEIV	Participation Efficiency Index Value
PPS	Pather Parichalana Samithy
S	Significantly different
THSR	Thrissur
TNAU	TamilNadu Agricultural University
TRYSEM	Training Rural Youth for Self Employment
TVPM	Thiruvananthapuram
T & V	Training and Visit
UAS	University of Agricultural Sciences
UNDP	United Nations Development Programme
UNO	United Nations Organisation
WHO	World Health Organisation
WYND	Wynad

INTRODUCTION



CHAPTER - I

INTRODUCTION

1.1 The agricultural scenario in Kerala :

Agriculture continues to be the most important and single largest sector of the State's economy accounting for over one-third of the State's income at present. The sector supports more than 50 per cent of the total workers in the State. The scenario of Kerala agriculture is unique, characterised by predominance of cash crops, wide variety of seasonal, annual and perennial crops, prevalence of mixed farming and intercropping, existence of high value spice crops, dispersed settlement pattern with homestead cultivation, high pressure of population on land resulting in tiny holdings, co-existence of well organised plantation sector, unorganised small farming sector and subsistence food crop sector, emergence of large number of part-time farmers and increasing number of absentee farmers.

In spite of rich resource endowments and high intensity of cropping, the productivity of most of the crops grown in Kerala is lower than those of other States. The contribution of the agriculture sector to the State GDP declined from 66 per cent in the Fifties to 30 per cent in the mid Nineties. The pressure of population has further marginalised the size of holdings from an average of 0.73 ha. (1960-61) to 0.33ha. (1990-91). The internal production of food grains declined from 14 lakhs tonnes in the mid-seventies to 7.6 lakh tonnes during 1997-98, making the State increasingly dependent on external sources for meeting her requirements (Kerala State Planning Board, 1998).

The overall average growth rate recorded by Kerala in the farm front between 1960 and 1990 is estimated to be around 1.60 per cent against the national average of 2.71 per cent. The growth rate in agriculture is lower than the average population growth recorded during the period, thereby making the average per capita income originating from agriculture still lower, inspite of substantial investment of Plan resources during the last decades. (Kerala State Planning Board, 1998).

1.2 Group approach in Kerala :

According to the Agricultural Policy of the State Government, the State will recognise and develop agriculture as a worthwhile occupation capable of ensuring a decent living, dignity and social status to farmers. The intention is to restore and regain vitality and dynamism of Kerala's agriculture through judicious utilisation of scarce resources of land, water, man power and technology with focus on increasing production and productivity in a planned manner. Hence, the emphasis will be creating and restructuring infrastructure, input delivery system, extension and research to meet the requirements of small farmers who constitute the majority of the farming community. The fragmentation and subdivision of land will be encountered through community action and group farming. Farmers' participation is the kingpin of new agricultural development policy. Farmers' participation will be institutionalised with specific functions and responsibilities. Group farming samithi is envisaged as an organisation of farmers constituted on *Padasekharam* (contiguous paddy area) basis for organising cultivation of rice on scientific lines. (Government of Kerala, 1992).

The group farming for rice introduced during 1989 in the State was very effective in revitalising the rice production scenario with new vigour, enthusiasm and mass participation and the productivity of the crops in general was encouraging (Kerala State Planning Board, 1989). The Hundred -Acre Programme for Rice sponsored by F.A.C.T. in the Andoorkonam Panchayat in the *Viruppu* (first crop paddy) of 1968 may be considered as the pioneer and the pro-type of *Yela* project. *Yela* project was the first concerted attempt to organise the small farmers of Kerala who could not rise up to the exacting requirements of co-operative farming with a view to taking full advantage of improved cultural practices and the superior inputs (Kerala State Planning Board, 1970). The *Yela* programme launched towards the middle of 1971 envisaged that the farmers of the *Yela* (paddy fields in a block area) are supposed to act jointly in the procurement and timely application of inputs as well as adoption of improved farm practices. The programme can survive only if there is built in provision for ensuring participation by all or atleast the majority of the cultivators in the programme (Kerala State Planning Board, 1977).

The World Bank (1989) in their project completion report of Kerala Agricultural Extension Project observed that under the Training and Visit system (T and V), extension activities were too heavily biased on contact farmers and suggested that the contact farmer approach be complemented by use of voluntary organisation or use of farmer groups and the visits should be scheduled according to need (*ie.* areas with tree crops require only a lower frequency of visits than areas with annual crops). The evaluation study conducted by Department of Agriculture

Kerala (1991) revealed that group farming programmes have helped to increase the yield of paddy substantially due to increased adoption of high yielding varieties (HYVs), increased adoption of recommended practices and timely plant protection operations. Menon and Bhaskaran (1989) reported that based on the experience in group farming in Java, Bali, Taiwan, Malaysia and Mexico, the Kerala Agricultural University initiated an innovative approach known as *Group Management in rice farming* under lab-to-land programme at Thuravoor in Ernakulam district, by overcoming the constraints experienced in the attempts of various agencies in the State. Kerala State Planning Board (1995, 1997 b) reported that the group farming programme evoked mixed response-success in certain areas in terms of cost reduction as well as increase in yield and failure in other parts. The objectives envisaged under the scheme were not achieved in all the group farming areas uniformly.

1.3 Participatory group approach in agricultural development

Group formation is a pre-requisite for participatory approach (Mukherjee, 1997). Farmer participation comes when the farmers have an organisation to manage their resource at some level. Participation naturally flows from the farmers' organisation when it is effective. (Maloney and Raju, 1994). Extension management by group brings out the best among the individuals of the institutions by promoting democratic decision-making and interaction in its day to day management. This is the participatory style where every one share the we feelings, or feelings of belongingness, partnership in decisions, joy to success, sorrow in failures and thus

promotes a collective responsibility and strengthening of the institutions (Prasad, 1996). Initiative for participation lies with individual citizens, but experiences demonstrated that much needed individual initiative and voluntary actions are not forthcoming. But it can be promoted through institutional participation (Bava, 1997).

Farmers' group enables extension workers to work directly with farmers with the objective of understanding better the farmers' circumstances and influencing the research and extension policies and practices in order to come up with more effective research and extension programmes. (Mattee and Lassalle, 1994). Farmers' organisations can enhance the effectiveness and efficiency of agricultural technology systems (Arnaiz, 1995). Uphoff (1992) reported that farmers' organisations lead to sustainable development through mobilisation of local resources and their regulated use.

Farmer-groups have clear advantages and function well. But not all groups run smoothly. Larger and more heterogenous the group, the less likely is it that all members will regularly participate in group discussions. There tend to be a few more articulate group members who tend to dominate most discussions (Norman *et al.* 1988). In many cases, once the project ends and development agencies withdraw, then the organisations created to work with the project are also likely to die away (Bebbingston *et al.* 1994).

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 Group Approach. Participatory Groups can be promoted

through the formation of *Farmers` Groups, Farmers' Interest Groups, Farmers' Organisations, Self -Help Groups, Community Organisations, User/Beneficiary Associations, Farmers' Samithies* etc.

Kerala State, known for its pioneering attempts aimed at comprehensive agro-social development initiatives in the past, has not lagged behind in the formation of participatory groups to herald agricultural development. Realising the rich potential for these participatory groups in sustaining agricultural/ rural development, a number of participatory groups have been organised in the Governmental, Quasi-governmental and Non-governmental sectors in the recent times. Reports on the functioning of those groups bring to focus a number of externalities which influence the participation efficiency and group efficiency of these groups. It is the fitness of things that a systematic investigation is carried out in the State, facilitating multi-dimensional exploration into the issues involved and on the basis of this comprehension, to suggest a strategy for effective participatory group approach for sustainable development of agriculture in Kerala.

Therefore, the research study entitled *Participatory group approach for sustainable development of agriculture in Kerala* was formulated with the following specific objectives.

1. To identify the components of participation efficiency and to develop a Participation Efficiency Index.
2. To identify the components of group efficiency and to develop a Group Efficiency Index

3. To study the external factors affecting the participation efficiency.
4. To study the external factors affecting the group efficiency.
5. To identify the constraints in the implementation of group approach in agriculture.
6. To study the perception of extension personnel on group approach in agriculture.
7. To suggest a strategy for effective participatory group approach for sustainable development of agriculture in Kerala.

1.4 Scope and importance of the study

Participation has become synonymous with development . One-way of dealing with the shortcomings of conventional extension system is to localise the extension efforts through participatory group approach. The concept of group approach sounds very suitable with the varied agro- eco production systems and socio-economic peculiarities of the State. In Kerala since the last one decade, the concept of group approach has been recognised as the major agricultural extension strategy.

Experiences with group approaches indicate that the efforts made in this line in the State have yielded mixed responses regarding effectiveness of this approach in the farming sector. Moreover, a pilot study conducted by the researcher in Thiruvananthapuram district revealed that many of the participatory techniques are not being followed by the groups and there are no well defined norms and procedures in following group action and due to these and other factors some of the groups are in a decline stage.

As it is, there are no standardised procedures to measure group efficiency and participation efficiency. Hence, evaluation of the functioning of groups becomes difficult. The Participation Efficiency Index and Group Efficiency Index being developed in the study will be useful for monitoring and evaluating of groups formed for agricultural development. The constraints in the implementation of group approach in agriculture, when identified, will be an eye-opener to the planners and policy makers of people's participation. As Kerala State is implementing the People's Plan programme at present, the results would benefit the State Planning Board and Government of Kerala. The study would ultimately provide a better appreciation on the dynamics of participatory group functioning and suggest a suitable strategy for the implementation of participatory group approach in the farming sector of the State.

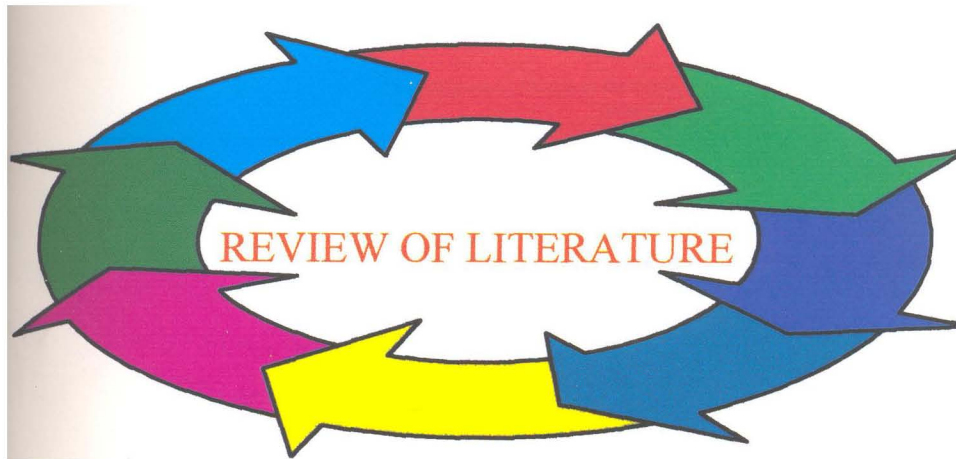
1.5 Limitations of the study

The present research formed a part of the Doctorate Degree programme and hence it has all the limitations of time, money and other resources. These limitations determined the restricted selection of districts and panchayats as the locale of the study and also forced to restrict the sample size.

This being the pioneer study in the field in Kerala, the important limitation was the dearth of sufficient literature pertaining to functioning of participatory group approach in the State. In a study of this nature, one cannot hope for comprehensive and exhaustive analysis of participatory group approaches in all sectors in the State. However, careful and rigorous procedure has been adopted to carry out the research systematically.

1.6 Presentation of the study

The report of the study has been spread out under five chapters as given below: The first chapter deals with the introduction, wherein the scenario of agriculture in Kerala, group approaches in Kerala and the importance of participatory group approach in agricultural development, objectives, the scope and limitations of the study are discussed. The second chapter covers the review of the studies related to the investigation. The third chapter relates to the details of the methodology used in the process of investigation. In the fourth chapter, the results and discussion are clubbed and in the fifth chapter, the summary and conclusion of the study are given. Finally the references and annexures are furnished.



CHAPTER - II REVIEW OF LITERATURE

A review of previous research studies helps in delineating the problem areas and provide a basis for developing a conceptual frame work for the study. This will also help in operationalising the variables and concepts, on the basis of which required data could be collected. Since participation efficiency and group efficiency are new areas of social research, there is a dearth of literature of research studies on these fields for exhaustive review to project the results of similar studies. In the circumstances, everything possible has been done by the researcher to use INTERNET and collect references of international literature relevant to these areas.

In accordance with specific objectives set, the review of literature relates to the study is furnished below under following subheads :

- 2.1. Major agricultural development efforts in the State following group approach
- 2.2. Participation
 - 2.2.1. Participatory approaches in development
 - 2.2.2. Concept of participation
 - 2.2.3. Typology of participation
 - 2.2.4. Factors affecting participation
- 2.3. Group approach
 - 2.3.1. Concept of group
 - 2.3.2. Group approaches in agriculture development
 - 2.3.3. Benefits of participatory group approach in agricultural development

- 2.3.4. Factors affecting group efficiency
- 2.4. Components of participation efficiency
- 2.5. External factors affecting participation efficiency
- 2.6. Components of group efficiency
- 2.7. External factors affecting group efficiency, and
- 2.8. Constraints to group approach
- 2.1. Major agriculture development efforts in the State following group approach**
- 2.1.1. Efforts by State Department of Agriculture**

Planned agricultural development efforts started in the State during 1952 through Community Development Blocks and in 1953 through National Extension Service Projects. Till 1972, agricultural development activities in the State were centered around the Block Development programmes. Intensive Agricultural District Programme (IADP), Intensive Agricultural Area Programme (IAAP) and High Yielding Variety Programme (HYVP) were some of the programmes implemented during these periods. During 1971-72, the State has launched the Intensive Paddy Development (IPD) Programme commonly known as *Yela* programme to maximise rice production.

A change in the agricultural extension system was effected through the implementation of World Bank assisted Training and Visit system (T&V) in 1980. This approach ensured regular contact with farmers, regular training of grass root

level extension workers and subject matter specialists, with due importance to regular feed back to researchers to solve field problems in order to improve farm productivity and farm income.

In 1987 a major restructuring of agricultural development sector in the State was effected through establishment of the existing panchayat level agricultural development office *Krishi Bhavan* through out the State. Each *Krishi Bhavan* is being staffed by one Agricultural Officer and two or three grass root level extension workers known as Agricultural Assistants. Under *Krishi Bhavan* set up, the agricultural extension activities are proposed to be undertaken through farmers' groups rather than following individual contact approach. This was followed by the launching of group farming programme for rice cultivation in 1989 by adopting the concept of group approach and community action to maximise rice production on *padasekharam* basis.

The encouraging results of the group farming programme for rice paved the way for implementation of group management programme for coconut in 1989 and group management in pepper in 1990, following the concept of group approach and community action. In 1997-98, with the objective of attaining self sufficiency in vegetable production, the State Department of Agriculture has launched the Intensive Vegetable Development Programme through promotion of self-help groups of farmers.

Kerala State Planning Board (1997 b) in their Ninth Five Year Plan document indicated that group approach through functional farmers' groups would be the

agricultural extension strategy for agricultural development during the Plan Period in the State. The National Watershed Development Project for Rainfed Areas which was launched as a centrally sponsored scheme in the State during the Eighth Plan period and continuing in the Ninth Plan period also envisages group approach for watershed development.

2.1.2. Kerala Horticultural Development Programme

Kerala Horticultural Development Programme (KHDP) supported by the Commission of European Communities has been in operation in the State since 1992, with the objective to increase and stabilise the income of farmers by cultivating high value horticultural crops, such as vegetables and fruits through formation of self-help groups of cultivators. This programme has been in operation in seven districts of the State viz., Thiruvananthapuram, Kottayam, Ernakulam, Thrissur, Palakkad, Malappuram and Kozhikode.

2.1.3. Command Area Development Authority

Command Area Development Authority (CADA) has been implementing agricultural development activities in the ayacut areas of the 14 completed irrigation projects of the State through farmers' associations formed at the base level. The farmer beneficiaries in the area of the spout in the canal form the members of the farmers' associations. Agricultural development activities will be initiated and implemented through these farmers' associations.

2.1.4. Lab-to-Land programme of the Kerala Agricultural University

From 1984 onwards the Kerala Agricultural University has been implementing Lab-to-Land programme assisted by ICAR through their sister organisations with the objectives to transfer the technologies generated in the university to the farmers' field and to get necessary feed back. They adopt the group approach as the extension strategy to implement Lab-to-Land programme and the Institutional Village Link Programme (IVLP).

2.1.5. Non-governmental organizations

Many non-governmental organizations in the State such as Mithranikethan, Malanad Co-operative Society, Peerumedu Service Society and Santhigram started agricultural development activities, following group approach.

2.2. Participation

2.2.1. Participatory approaches in development

Milton (1966) observed that one of the tasks of nation-building and development is to bring members of the National community into a network of relationships and institutions which enables them to participate actively in decisions affecting their individual and group welfare. Kerala State Planning Board (1977) in their study report on *Yela* programme observed that the *Yela* programme can survive only if there is a built in provision for ensuring participation by all or at least majority of cultivators in planning and implementation of the programme. Morris *et al* (1978) reported that active involvement of farmers in the planning and implementation of

extension programmes was the major determinant of success in programmes designed for small farmers.

FAO (1984) recommended that opportunities should be made available to small farmers to participate in the design and implementation of programmes to use their unique experience to explain constraints to form their own organisations through which they can exercise influence in expressing their needs. Mishra (1984) reported that 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.

Oakley and Marsden (1990) reported that participation of the poor in development will have a direct access to the resources necessary for development and some involvement and influence in the decisions affecting those resources and the course of events. Swanson and Claar (1984) observed that extension activities must be client centered and must therefore be guided by clients. Fowler (1998) reported that the participatory development has the potential of comparative advantages due to their close relationship with beneficiaries and their organisational form.

Ortiz (1991) developed a participatory model for transfer of technology. In this approach, research and extension (R-E) functionaries adopt new joint effort towards active participation of farmers in different phases in the model rather than towards educating them. The features of the new model are :

(1) developing a strong and wide interface between research and extension; (2) directly involving farmers throughout all phases of the technology innovation process; (3) rural leaders, participating to generate a multiplier effect of technology transfer; (4) emphasising the transfer and promotion of new technologies; and (5) facilitating adoption of new technologies.

Seth (1991) reported that group action is the stimulating need of watershed management . Community action for management of common property resources is possible only through group action and participatory approach. MORAE (1994) observed that government programmes have recently increased the scope for participation in planning and management.

World Bank (1994) reported six sets of mechanisms of participatory involvement. They are: (1) information sharing mechanisms; (2) consultative mechanisms; (3) joint assessment mechanisms; (4) shared-decision making mechanisms; (5) collaborative mechanisms; and (6) empowering mechanisms. The potential costs of participation are : (1) risks of generating or aggravating conflict between stake holders with different priorities and interests; and (2) risks of raising expectations which may prove impossible to fulfill.

Ashby *et al* (1995) reported that farmer participation in agriculture development helped to involve small farmers as active decision-makers in the development programmes and transfer of new technology. 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 rates of adoption and helped to raise small farmers' income.

According to Chambers (1995) a reversal of normally dominant behaviour and attitudes of outsiders are crucial for participatory development.

Desai (1995) observed that the novelty of community participation as a development initiative however derives from the fact that it involves intervention by and co-operation with the State and/or other development agencies.

Singh (1995) observed that local development programme with outside efforts generally do not succeed unless and until beneficiaries and stakeholders find logic in these efforts. Initiative through participatory development is more successful and sustainable.

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. Thrupp (1996) reported that participatory approach to technology dissemination helped farmers to adopt technology to their own conditions and engenders community wide acceptance.

Bava (1997) reported that people's participation renders speedy but less costly implementation of development policies. FAO (1997) observed that people-centered approach will improve the poor's access to productive assets, allow them to participate in designing and implementing development programmes and foster their involvement in institutions from village to National level. Hoggarth and

Mc Gregor (1997) reported that participation is not a neutral concept and involves political issues concerning who has decision making power and who has access to resource. Nagel (1997) observed that Training and Visit system has been a top-down approach leaving little possibility for participation and initiative both for farmers and extension workers. Mukherjee (1997) reported that participatory methods helped to strengthen the process of participation by the involvement of local people in analysis of their issues and making space for them to be creative as individuals and as groups. O'Brien (1997) found that inadequate participation is one of the reasons why development projects are ineffective. Rivera (1997) reported that participatory decision making in extension has shown to increase commitment to programmes associated with extension systems.

Chandel and Jain (1998) reported that Panchayati Raj Institutions promote grass root planning through people's participation. FAO (1998) observed that participatory methods can help to make the distribution of extension services more equitable, making farmers influential and responsible clients rather than passive beneficiaries to improve sustainability. Gilbert (1998) reported that greater participation by farmers and farmer groups in agricultural services expanded the coverage dramatically. Neubert and Hagmann (1998) found that participatory approaches helped in mobilising the local resources in a sustainable manner. Oostrum (1998) reported that remarkable progress has been made in promoting conservation of farming practices like increasing food production and generating income through participatory approach.

Rehman and Rehman (1998) observed the features of participatory approaches such as : (1) help in making assessment of felt needs and constraints of the people easier; (2) help in mobilising resources; (3) minimise the cost of implementation by reducing cost of supervision and by eliminating irrelevant components; (4) set up speed of implementation by mobilising popular support and co-operation between members having diversified objectives and interests; (5) more effective monitoring and evaluation; (6) reduces the leakage of resources both material and human; (7) create conducive environment for formulation and implementation of plan through process of 'pressure group'; and (8) reduce unequal distribution of power among members and positively restructure the society in favour of deprived sections.

Turton *et al* (1998) reported that participatory approach helped in improving productivity and sustainability. Lawrence *et al* (1999) observed that in participatory development, it provides stake holders with a say in their own development. Singh and Venkateswarlu (1999) reported that ensuring community participation was one of the most important pre-requisites for the success of watershed development programme.

2.2.2 Concept of Participation

According to Davis (1969) participation is a mental and emotional involvement of a person in a group situation which encourages him to contribute to goals and shares responsibilities in them.

French (1960) referred participation as a process in which two or more parties influence each other in making certain plans, policies and decisions.

According to Soysal (1966) participation refers to the convergent action by which the citizens take part in the accomplishment of administrative services without belonging to the governing or managing body.

Economic Commission for Latin America(1973) considers participation as a voluntary contribution by people in one or another of public programmes supposed to contribute to national development, but the people are not expected to take part in shaping the programme or criticising its contents.

Baetiz (1975) observed that participation in development means how community members can be assured the opportunity of contributing to the creation of the community's goods and services.

According to Cohen and Uphoff (1977) with regard to rural development, participation includes people's involvement in decision - making process, in implementing programmes, their sharing in the benefits of development programmes, and their involvement in efforts to evaluate such programmes.

According to Kaleel (1978) participation means the involvement of the farmers by taking part in extension programmes, like discussions, meetings, result demonstrations, training camps, campaigns and harvest festivals organised by the Intensive Paddy Development units.

Pearse and Stiefel (1979) referred participation as an organised effort to increase control over resources and regulative institutions in a given social situation on the part of groups, and movements of those hither to excluded from such control.

According to U N O (1979) participation means sharing by people the benefits of development, active contribution by people to development and involvement of people in decision making at all levels of society.

According to Banki (1981) participation means a dynamic group process in which all members of a group contribute, share or are influenced by the inter change of ideas and activities towards problem-solving or decision making.

WHO (1982) defined participation as the process by which individuals, families or communities assume responsibility for their own health, welfare and develop the capacity to contribute to their own and community development.

According to Mishra (1984) participation means direct involvement of people and not involvement through representatives.

Oakley and Mardsen (1990) opined that meaningful participation is concerned with achieving power, that is the power to influence the decisions that affect one's livelihood.

According to Mathur (1986 a) participation means a kind of local autonomy in which people discover the potentialities of exercising choice and thereby becoming capable of managing their own development.

Paul (1987) defined community participation (is) an active process by which beneficiary or client group influence the direction and execution of a development project with a view to enhancing their well-being, of income, personal growth, self-reliance or other values they cherish.

According to Oakley and Marsden (1990) participation is a multidimensional process of creative social involvement by those concerned in defining and fulfilling their needs. It is not a passive taking part in activities designed by others; nor an act of merely consuming the fruits of economic and social activity, it is the taking of initiative to decide what is to be done and how, and to do it.

According to Oakley *et al* (1991) participation in development projects in third world implies voluntary or other forms of contribution by rural people to pre-determined programmes and projects.

Singh (1991) defined participation in watershed development programme as an act of partaking (by farmers) in all stages of the development and management programmes right from designing of various soil and water conservation structures through monitoring and evaluation of their performance.

According to UNDP (1993) participation refers to the close involvement of people in the economic, social, cultural and political process, that affect their lives. People may, in some cases, have complete and direct control over these processes - in other cases, the control may be partial or indirect. The important thing is that people have constant access to decision making and power.

According to Bejar and Oakley (1995) the concept of participation is often defined in terms of NGO's involvement in the running of base groups.

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

Overseas Development Agency (ODA, 1996) reported that participatory management is a process where by those with legitimate interests in a project both influence decisions which affect them and receive a proportion of any benefits which may accrue.

Bava (1997) stated that participation is one of citizens' involvement in the various interfaces of the development : decision - making process, planning, implementation and evaluation (monitoring) of plans and policies.

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

Ray (1997) defined participation as a process of getting one-self involved in thoughts, feelings and actions with others. It may be perceived as a continuum, varying between passive listening to active involvement in benefit sharing.

According to Blackburn and Holland (1998) participation is the full involvement of local population in the identification of priorities, problems and potential solutions with team of scientists, planners and development specialists.

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

According to Mishra and Mishra (1998) participation refers to the role of members of the general public as distinguished from appointed officials, including civil servants in influencing the activities of the government or in providing directly for community needs.

According to Narayanaswamy and Boraian (1998) the concept of community participation refers to the process by people which involve themselves in analysing the local situation, identifying major problems, formulating action plans, mobilising locally available resources, executing development projects and monitoring and evaluating projects in order to assess the benefits extended to the community at large or specific target groups during a given point of time.

Rehman and Rehman (1998) defined participation as a process of learning and sharing. Participation process is a goal directed, objective focussed on activity of an organisation.

2.2.3 Typology of participation

Midgley (1986) formulated a typology of four types of likely State's responses to participation in social development as follows.

- a) **Anti-participatory** - the State acts on behalf of ruling class, furthering their interests, the accumulation of wealth and the concentration of power. Efforts to mobilise the masses for participation will be seen as a threat and suppressed.
- b) **Manipulative** - the State supports community participation, but does so for ulterior motives. The State desires to use participation for political and social

control and a recognition that community participation can reduce costs of social development programmes as it facilitates implementation.

c) **Incremental** - It is characterised by official support for participation ideas, but by an ambivalent approach to implementation that fail to support local activities adequately or to ensure that participatory institutions functions effectively. The State does not oppose participation, but fails to provide necessary backing to ensure its realisation.

d) **Participatory** - the State approves fully of participation and responds by creating mechanisms for the effective involvement of local communities in all aspects of development.

Biggs (1989) identified four models of participation through which farmers/ researchers/extensionists are linked:

a) **contract**-extensionists set the agenda; farmers involvement only is limited to providing land or labour.

b) **consultative**-researchers/extensionists consult farmers in order to diagnose problems and modify the plans but retain control over decision making.

c) **collaborative** - researchers/extensionists and farmers are equal partners and decisions over what to be done and how are made jointly.

d) **Collegiate** - the research / development is farmer-driven with farmers having the final say in all decisions.

All except the first are participatory, in the sense that research/development process takes some account of farmer's opinions and priorities.

Pimbert and Pretty (1997) suggested the following levels of participation.

They are :

- a) **Passive participation** - people participate by being told what is going to happen or has already happened.
- b) **Participation in information giving** - people participate by giving answers to questions posed by extractive research and project managers.
- c) **Participation by consultation** - people participate by being consulted and external agencies listen to their views. External agencies define problems and solutions.
- d) **Participation for material resources** - people participate by providing resources. For example, labour in return of cash or food.
- e) **Functional participation** - people participate by forming groups to meet pre-determined objectives relating to the project, which can involve the development or promotion of externally initiated social organisations.
- f) **Interactive participation** - people participate in joint analysis, which leads to joint action plans and formation of new groups or strengthening of old ones.
- g) **Self mobilisation** - people participate by taking initiatives independent of external institutions to change systems.

2.2.4. Factors affecting participation

Clark (1991) identified the elements essential for securing active participation of farmers' groups such as: (1) small homogeneous group; (2) supplementary income generation activities; (3) institutional credit; (4) group promoters; (5) training to group members; (6) group savings; (7) ready access to extension service; (8) participatory monitoring and evaluation; and (9) group self-reliance. He also observed the indicators of self-reliance of farmers' groups, as (1) regularity of group meetings and level of attendance; (2) shared leadership and member participation in group decision making; (3) continuous growth in group savings; (4) high rate of loans repayment; (5) group problem solving; and (6) effective link with extension and other development services.

Natarajan (1991) found that a majority of the respondents were seen with medium level of participation followed by 8.33 per cent of them with high level of participation in social forestry programme.

Neubert and Haggmann (1998) was of the opinion that participatory methods cannot simply be added on the "existing extension structures as supplementary instruments". Changed processes of these dimensions require deep-reaching changes in the institutional pattern both within organisations and on the part of the individual actors. A basic strategic orientation is required in the core elements such as :

- a) Development-oriented - Participatory Extension departs from traditional TOT model and becomes geared to local learning process. Efforts have to target the reallocation of political decision making structures to local level and creation of opportunities for people to participate.
- b) Agricultural Extension has to closely interact and be redirected towards local needs.
- c) Extension officials are to be capable of initiating and supporting social processes in the local context. Their new qualification profile needs incorporating pedagogic and social competencies, technological and methodological skills, the capacity for a new quality of inter-disciplinary work and an open attitude to small farmers and their view points.
- d) Participatory agricultural development processes require co-operation of partners. Close interaction with action oriented projects, institutions and initiatives appears to be essential if work is to be user-oriented and practical task of sharing is to be achieved.

Mukherjee (1997) observed that the level of participation tends to fluctuate with passage of time. Sometimes it remains at a low key and then takes off and/or dissipate. While on other occasions, there emerges a high level community participation which slowly moderates itself and becomes steady.

Rehman and Rehman (1998) found out the factors which determine the nature of participation of people in development programmes such as: (1) the willingness

to participate; (2) the desirability to participate; (3) the representative nature of participants in the local bodies in terms of society as a whole or classes and castes; (4) the asset distribution pattern among the participants and the resultant dynamics in inter-relationships; and (5) the conflict of interests between the stake holders and direct beneficiaries of the development programme.

Velusamy (1999) in his study reported that 37.11 per cent beneficiaries fall at low level, 34.00 per cent in medium level and 28.89 per cent in high level of participation in poverty alleviation programmes in Tamil Nadu.

2.3. Group approach

2.3.1. Concept of Group

Bales (1950) defined a small group 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 the time or in later questioning, give some reaction to each of the other as an individual person, even though it be only to recall that the other was present.

Cattel (1951) defined a group as a collection of organisms in which the existence of all (in their given relationship) is necessary to the satisfaction of certain individual needs in each.

Verhagen (1987) defined a self-help group (organisation) as an institutional frame work for various individual or house holds who have agreed to co-operate on a continuing basis to pursue one or more objectives.

According to Mullins (1989) a group consists of a number of people who share (1) a common objective or task (2) awareness of group identity and boundary, and (3) a minimum set of agreed values and norms.

According to Uphoff (1992) a group can be defined as self-identified set of persons with a common interest.

According to Maloney and Raju (1994) an organisation is a type of social system in which persons work together for a common purpose. It implies some sort of institutionalised social structure.

Robbins (1994) defined group as two or more individuals interacting and interdependent, who have come together to achieve particular objectives.

According to Fonseka (1995) primary groups refers to group in which relations are face-to-face, relatively permanent and intimate as a family, a village hamlet or neighbourhood. Secondary group refers to a group which have relations through formalistic, artificial, and legal ties.

According to KHDP (1995) self-help group means a group of about 20 farmers who are cultivating fruits and vegetables and whose farms are in the neighbourhood and not scattered in the different wards of Panchayat. 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.

According to Riddell and Robinson (1995) groups are means of raising awareness, empowering power and promoting self-reliance.

Singh (1995) defined self-help group 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 behaviour.

According to Bryson (1997) a group is a collection of people who regularly interact with each other to pursue a common purpose. Basic components of a group are : (1) it needs atleast two people to exist; (2) the individuals must interact regularly in order to maintain the group; (3) all group members must have a common goal or purpose; and (4) there should be a stable structure.

Chopra (1998) observed that organisations are structured entities created by government/quasi-government/NGOs with specific objectives and possessing a well defined internal structure within which they choose to attain specific objectives.

According to FAO (1999) farmers' group is an informal voluntary and self governing association of small farmers formed at local level for the purpose of economic co-operation aimed at improving the economic and social conditions of its affiliated individual members.

2.3.2 Group approach in agricultural development

Milton (1966) observed that one of the tasks of Nation-building and development is to bring members of the national community into a network of relationships and institutions which will enable them to participate actively in decisions affecting their individual and group welfare.

According to Kerala State Planning Board (1970) the "Hundred Acre Programme" implemented in Andoorkonam Panchayat in 1968, organised the small

farmers of Kerala into co-operative farming with a view to take full advantage of improved agricultural practices and superior inputs. The conclusion of the project was that there should be an agency to organize the small farmers in the state.

Devitt (1977) opined that the poor are often inconspicuous, inarticulate and unorganised. Their voice may not be heard at public meetings in communities where it is customary for only the big men to put their views. It is rare to find a body or institution that adequately represents the poor in certain community areas.

Vehra *et al* (1978) observed that the mobilisation of upper-status persons can take place on individual level; lower status groups need a group based process of mobilisation if they are to catch up with upper status group. They need a self conscious ideology as motivation and need organisation as a resource.

The FAO, after the World Conference on Agrarian Reforms and Rural Development (WCARRD Rome, 1979) concentrated its efforts on 'new thinking' and experimented several projects during 1980's in the name of 'People's Participation Programmes' (PPP). PPP believe in the fact that true participation is possible only, when the rural poor are able to pool their efforts and resources in pursuit of objectives they set for themselves. The important means for achieving this objective are small democratic and informal groups composed of 8-15 like minded farmers. This approach has distinct advantages of economics of scale, high productivity, reduced cost and increased efficiency building of democratic organisations and sustainability. The important characteristics of Peoples Participation Programme relevant to extension strategy are forming of group of

clients or target groups, developing group activities and linking the implementing agencies with the groups. (Adopted from Prasad and Reddy, 1991).

Hyden (1983) was of the opinion that peasant organisation could act as a "user constituency" giving resource to poor farmers the capacity to reach up. According to Mathur (1983) the individual farmers can 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. Watts (1984) observed that one of the objectives of extension is to encourage the disadvantaged rural sector to organise themselves into self help groups.

Hali (1987) indicates that in group farming, individual farmer retains his ownerships on land, yield as well as decision on management practices. Menon (1987) while explaining the Kerala Agricultural University's experiences in group farming approaches based on Lab-to-Land programme, concluded that yield could be increased substantially through group approach. Chackacherry (1988) found that only 30 per cent of the water management association of CADA in Kerala are working properly. Swaminathan (1988 and 1989) suggested that the growth of village level associations for sustainable agriculture has to be fostered. Unless the people of every village, watershed or command area of an irrigation project are intimate in the sustainable utilization of resources particularly land and water, it will be difficult to arrest environmental degradation. He emphasised that there is need for immediate attention to promote group co-operation among farming

families. He proposed that in the area of management of technology, particular attention will have to be paid to combine the advantage of individual initiative and group endeavour.

Arnon (1989) observed that it is illusory to expect the disadvantaged sectors like small and marginal farmers to organise themselves successfully for group action. External initiatives and funds are essential to start these groups.

Department of Agriculture Kerala (1989) viewed that in group farming, the individual farmer retains his ownership on land, yield as well as decisions on management practices. Farm operations, purchase of inputs, water management, plant protection etc., are undertaken on group basis. The problems faced by individual farmers are eased out and solved by group activity. Kerala Agricultural University (1989) stated that the group management approach envisages superimposing the group management of key farm operations over individual ownership and initiative of farmers. A conspicuous feature of this approach is that farmers are motivated to form small groups to pool their resources to handle key farm operations without surrendering the ownership of their land.

Raghavan (1989) stated that small and marginal holdings and comparatively high cost of cultivation makes rice cultivation a less attractive occupation. To find a solution to this, Government of Kerala implemented the group farming programme in the State by organising farmers into groups and provided them all inputs to practice the modern rice cultivation techniques by pooling the necessary resources, which they may not be able to procure individually.

The World Bank (1989) in their project completion report of Kerala Agricultural Extension Project (KAEP) noted that under T&V system, extension activities are too heavily biased on contact farmers and suggested that the contact farmer approach be complemented by use of voluntary organisations or use of farmer groups and visits should be scheduled according to the need.

Jacob (1990) reported that group farming which kept ownership rights and management freedom intact but encouraged collective action for reduced operational cost and increased efficiency. Right management decisions and higher productivity was well received by the farming community. Department of Agriculture Kerala (1991) in their evaluation report observed that the Group Farming Programme has helped to increase the yield of paddy substantively due to increased adoption of high yielding crops, increased adoption of recommended practices and timely plant protection operation.

Farmers' organisations can act as interface to mediate the relationships between the concerns of research and extension agencies and indigenous knowledge, innovative capacity and expectations of farmers. (Bebbington, 1991). Organisations are the fundamental instruments of participation (Oakley *et al* 1991). People will participate in collective action when they are organised in small groups (Singh, 1991). Growing interest in farmers' groups for agricultural development is driven by perceptions of their ability to reach small and marginal farmers (Farrington and Lewis, 1993).

According to Heinrich (1993) group approach is more efficient in the cost/benefit sense allowing few resources to go further. It is more effective as farmers learn more through the interactive reasoning and arguments that occur in group meetings. UNDP (1993) observed that people can participate as individuals or as groups. However, people participate more effectively through group action as members of the community organisations. Bebbington *et al* (1994) observed that formation of a group increases the scope of rural people to conceive and manage their own self-development initiatives. Community groups are more likely to succeed because they make more sense to local people and are consistent with local forms of contact.

Maloney and Raju (1994) reported that the farmers' organisation helped significantly increase crop yields and income, reduce conflicts among farmers, resolution of conflicts, decrease opportunity for corruption and better mutual trust and understanding between farmers and officials. Participation naturally flows from farmer organisation when it is effective.

Mattee and Lassalle (1994) reported that farmers of the farmers' organisation were engaged in a constant dialogue to identify problems and suggest solutions based on following principles : (1) multidisciplinary and recognition of the fact that farmers' problems are multifaceted and have to be addressed in multidisciplinary way by involving different areas of expertise; (2) the use of group approaches - in recognition of the fact that decision making is almost always based on group consensus and that in unity lies strength; (3) on-farm development of technical

innovations so as to involve farmers in developing only those innovations which are relevant to their identified needs and problems; (4) assisting in removing the critical bottle necks of farmers' agricultural production activities where such bottle necks cannot be removed with outsiders' assistance; and (5) empowerment of farmers through facilitation of the formation of farmers' group, and the networking of such groups, so that they may be capable of influencing policy decisions and promoting their own development on a self-reliance basis.

Daouda and Pesche (1995) observed that solving many farmers' problems is no longer possible through individual decision making but only through collective decision making. Farmers' organisations can play an important role in soil erosion control, irrigation management, input and credit supply, product processing and marketing, and raising educational facilities and influencing government policies. Riddell and Robinson (1995) reported that group action enables communities to seek over legal wrangles, mediate conflicts or to challenge government legislation. Substantial political leverage acquired by the groups enabled them to influence government policy for their favour. According to Ricker (1995) the outcomes of group action are: (1) effective planning and implementation at local level; (2) sustained benefits from development activity; (3) creation of local capacity so that group can manage development activities; and (4) people gain increased voice in decision making.

The study by Kerala State Planning Board (1995) revealed that group farming for rice cultivation evoked mixed response of success in certain areas in terms of cost reduction as well as increase in yield and failure in other parts.

Prasad (1996) was of the opinion that extension management by group brings out that best among the individuals of the institution by promoting democratic decision making and interaction in its day to day management. This is the participatory style, where every one shares the 'we' feeling, or feeling of belongingness, partnerships in decision, joy in success, sorrow in failure and thus promotes a collective responsibility and strengthening of the institutions.

Nagel (1997) reported that Training and Visit system has been a top down approach leaving little possibility for participation and initiative both for farmers and extension workers. One-way of dealing with the short comings of the large extension system has been to localise extension and utilize self-help potential of rural groups.

Kerala State Planning Board (1997 a) observed group action as the main basis of neighbourhood groups and will be the agricultural development strategy for Ninth Plan Groups will be considered not merely with maximisation of specific crops, instead they will be to optimise farm income and manpower utilisation. Neighbourhood groups are highly feasible to the state and totally democratic.

Kerala State Planning Board (1997 b) reported that the group farming programme introduced in 1989-90 generated high hopes in the initial years by way of slowing down in the fall in area and marginal improvement in productivity.

MANAGE (1997) reported that in Assam, Department of Agriculture encouraged farmers of villages to group into *Pathar Parichalana Samithy* (PPS) (field management committee) by mobilising farmers of contiguous fields. Actual

tillers of the land owner and tenant farmers of a contiguous field (block) join together and apply for registration of a local PPS with District Agricultural Officer. The Agricultural Extension Officer and Village Level Extension Worker act as technical advisors to the PPS and enables the group to acquire new technical and organisational skills. PPS formed the basis for land based extension.

In Rajasthan, Department of agriculture, inserted advertisement in the vernacular press inviting farmers, desirous of technical assistance, to form voluntary groups of atleast 20. The Department of Agriculture provides training to the Executive Committee on leadership and organisational aspects. The individual contact farmers are being replaced by such voluntary farmers' groups (MANAGE, 1997).

Abraham (1998) reported that 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 have taken vegetable cultivation through this scheme. The scheme operates through 620 *Haritha* groups registered under the Charitable societies Act with 28000 members.

Gilbert (1998) reported that extension approach through farmers' group rather than contact farmers ensured that women and poor were well represented. Greater participation by farmers and farmer groups in agricultural services offers means by which coverage can be drastically expanded.

Joshi (1998) revealed that collective action was successful where individual and community have common interest, long felt needs of the society has not been met, the programme has not disturbed the routine of individual farmers and benefits are distributed to the cost incurred.

Neubert and Haggmann (1998) reported that many of the self-help groups were nothing but structure set up to receive development services and rely on corresponding promotion inputs. Creating groups in this way is of paramount importance to that for collective petition for assistance, directed at the potential source of support.

2.3.3. Benefits of participatory group approach in agricultural development

According to Chambers *et al* (1989) the farmers' group can help in : (1) building interactions and communications between researchers and farmers, eliciting and exchanging information from farmer to farmer, from farmer to researchers and from researchers to farmer; (2) analysis by farmers, with researchers' support, of their problems and needs, reinforcing and fostering their own knowledge and capability; (3) research and development with the choice, design, conduct, monitoring and evaluation of experiments; (4) extension from farmer to farmer, and the diffusion of innovation; and (5) empowerment, enabling farmers to organise for action or to share a resource.

Uphoff (1992) observed that farmers' organisations helped (1) to mobilise local resources and regulated their use with the view to maintain a long term base

for productivity; and (2) put available local resources to the local efficient and sustainable use with local specific knowledge which was not best generated and interpreted locally.

According to Garforth (1993) the type of improvements made by farmers' organisations in Agricultural Extension were: (1) **enhanced efficiency** - contact with groups increased the number of farmers a professional can contact thus improving the cost-effectiveness in extension; (2) **enhanced effectiveness** - work in groups increased the rate of farmer learning and the number of ideas exchanged and the extent to which they were discussed (3) **critically enhanced equity** - working with poor people's group, there was more equitable impact than in orthodox extension, poverty was then more alleviated among poor sections; (4) **enhanced demand orientation** - the groups exercised more influence over extension agents and the path taken in extension activities; and (5) **enhanced empowerment** - formation and strengthening of groups acted as a vehicle to rural poor through which raised their voice and pursue for wider concerns.

Heinrich (1993) observed specific benefits from farmers' organisations as: (1) higher adoption rates; (2) wider discussion of and access to knowledge; (3) researchers and extension agents became more aware of farmers' ideas and circumstances; and (4) farmers learn more through interactive reasoning and argument that occurs in group meetings.

Maloney and Raju (1994) reported the advantage of farmers' organisation as: (1) significant increase in crop yields and income; (2) reduce conflict among

farmers and better resolution of conflict; (3) joint procurement of agricultural inputs; (4) less opportunity for corruption; and (5) better mutual trust and understanding between farmers and officials.

Gubbels (1995) listed the capacities of farmers' organisation in agricultural development such as: (1) capacity to negotiate their interests with external agencies; (2) capacity to effectively mobilise local resources; (3) capacity for broad based leadership with mobilising vision, spirit of initiative, ability to conceptualise, animate do awareness raising; (4) capacity to undertake on-going community self development activities such as farmer-to-farmer extension and identify technologies; (5) capacity for problem diagnosis, need assessment, planning, setting objectives, budgeting, monitoring, evaluation and reporting; (6) capacity for intervillage linkage, communication and collaboration with other peasant organisations, crosslearning and coordination; and (7) capacity for democratic, transparent and representative decision making.

According to Kerala State Planning Board (1995) the major factors that contributed to the success of group farming programme were: (1) use of tractor power tiller; (2) adoption of HYVs; (3) increased irrigation facilities; and (4) collective procurement and application of fertilizer and pesticides, provision for credit, technology and markets.

Chowdhry and Gilbert (1996) reported that group approach was helpful to: (1) improve the coverage and cost-effectiveness of extension staff; (2) be equitable, enabling the needs of all the different types of farmers to be addressed, including

those of women; (3) be an efficient way of eliciting farmer needs; and (4) improve the efficiency of technology transfer.

FAO (1997) based on their experience observed that people's participation through small group offers distinct advantages such as: (1) **economics of scale** : participatory groups at grass root receiving system allows development agencies to reduce the unit delivery or transaction costs of their services; (2) **higher productivity** : poor become more receptive to new technologies and services and higher levels of production and income; (3) **reduced costs and increased efficiency** : through poor's savings and their knowledge of local conditions; (4) **building democratic organisations**: small group suited to collective decision-making and development of leadership skills; and (5) **sustainability** : participatory approach leads to increased self-reliance among poor and the establishment of a network of self-sustaining organisations.

Fernandez (1998) while explaining the experiences of MYRADA observed that self help groups are helpful in setting priorities to take decisions and risks, to draw up rules of behaviour, to resolve conflict and apply sanctions effectively for non-compliance.

2.3.4 Factors affecting Group Efficiency

Argyris (1962) reported three core activities for an effective organisation such as: (1) achieving activities; (2) maintaining the internal system; and (3) adapting to the external environment.

According to de Lasson (1976), the key external factors influencing the organisational effectiveness include : (1) the level of development of marketing and transportation infrastructure; (2) the level of development of other sectors in the economy; (3) coherence between government policies and association's goals; (4) natural endowment of the area; (5) an appropriate degree of professionalism among staff; (6) participatory management style; and (7) organisational channels of communication between members, staff and management.

Strauss (1976) observed the factors which affect the effective functioning of organisations such as:

(1) lack of status differentials; (2) innovation; (3) sharing of responsibility; (4) expression of feelings and needs; (5) collaboration; (6) open, constructive conflict; (7) feed back; (8) flexible leadership; (9) involvement; and (10) trust.

Peters and Waterman (1982) identified characteristics of an effective organisation such as: (1) proximity to client; (2) autonomy; (3) productivity through people; (4) hands-on management; (5) concentration of strength; (6) simple structures; and (7) centralisation of core issues and decentralisation of actions/ implementation and day to day control.

Esman and Uphoff (1984) based on case studies identified performance indicators of local organisations as economic gains, social benefits, equity effects, reduced discrimination and participation in decision making. They concluded that physical, economic, social-societal and political administrative factors do not

significantly influence organisational effectiveness. They have also found that effective organisations tend to have participatory decision making procedures, multitiered with ability to establish horizontal and vertical linkages to other organisations.

Schneider (1988) observed that the conditions favouring the foundation and continued viability of farmers' organisations include: (1) members' perception that group action will lead to the fulfilment of personal objectives; (2) a political environment tolerant or favouring association; and (3) a homogeneous membership.

NABARD (1989) in their study concluded that the major features of self help groups to work and sustain are : socio-economic homogeneity of the group, small size participation-voluntary mode, non-political nature and similarities of the needs and problems of group members.

Chinchankar (1986) developed a theoretical model that suggests that act of joining a self managed group consists of the elements such as: (1) coming together for the pursuit of common interest; (2) pooling of resources for communal use and mutual benefit; (3) joint sharing of risks and responsibilities; and (4) the control and management of the group's economic activities through participatory decision-making. He also noted that the internal factors (individual motivation for joining) and external factors (social, political, legal, economic and institutional factors) act together to influence the emergence of self-managed groups.

Norman *et al* (1988) reported that farmer groups have clear advantages and function well, but not all the groups run smoothly. The reasons which limit the

effectiveness are: (1) larger and more heterogeneous the group, the less likely that all members will regularly participate in group discussions; and (2) there tend to be a few more articulate and group members who tend to dominate most discussions.

According to Hunter *et al* (1992) the values relevant to group functioning are: (1) co-operative decision making; (2) open expression of feelings; (3) punctuality; (4) attendance in all group meetings; (5) honesty; (6) commitment to reach agreement; (7) expression of acknowledgement; (8) getting results; (9) congruence between speaking and action; (10) accountability; (11) full participation; and (12) autonomy.

The internal factors contributing to the self-sufficiency of farmers' organisation according to IFAP (1992) include: (1) specific programme objectives; (2) democratic decision making practices; (3) sufficient level of managerial and professional staff; (4) participatory management style; (5) clear lines of responsibility which promote managerial accountability; (6) financial transparency; and (7) strong elected leadership. They also reported that a self supporting farmer organisation requires an effective management capacity, a negotiating capacity and a financing capacity.

Hatti and Heimann (1992) reported that sustainability of farmer organisation depends on factors like extent of conflict within the group, the existence or lack of entrepreneurial traditions in the regions and the like.

According to Uphoff (1992) the essential requirements for the sustainable development of community organisations include individual incentives or persuasion, common expectation and co-operation beyond individual interests, inducements and sanctions, face to face relationship among members and mobilisation and management of local resources.

Bebbington and Thiele (1993) observed that factors which lead to the sustainable and strong organisation were : (1) activities of the organisation had significant impact on members' family income and generated income for the organisation's own administrative costs and this economic impact motivates members for continuing commitment to collective action; (2) the environment gave sufficient political freedom to allow emergence of organisations and gave economic opportunities to allow the organisation to identify a viable economic role for itself which was a favourable enabling environment; (3) the organisation and its members had already received and continued to enjoy a relatively long term programme support; and (4) there was less conflict among and within the local communities.

Gubbels (1993) reported that strong farmers' organisation protected the interests of farmers, influencing policy making and strengthen the accountability of public servants including agricultural researchers and extension workers.

Fisher (1993) reported the factors that are likely to enhance the effectiveness of local institution involved in natural resource management such as : (1) clearly defined boundaries of resource; (2) congruence between appropriation rules and

local conditions; (3) collective choice arrangements; (4) monitors who are accountable to the users or are users themselves; (5) graduated sanctions for people violating rules by other users or officials accountable to users; (6) conflict resolution mechanisms; (7) recognition of rights of users to organise; (8) emphasis on allowing local people's genuine authority to make decisions about resource use; (9) support to local institutions; and (10) role of experts need to be supportive rather than controlling.

Shah (1993) observed that self-help groups can be sustainable only if they serve purposes important to its members.

Krebs and Vogel (1994) identified three conditions of farmers' organisations to generate social development such as : (1) must be flexible, avoid heavy weights of bureaucracy and able to provide effective support, providing the needed human and technical resources timely; (2) there is need to have group of small farmers who are interested in and capable of managing the work with the support of project team; and (3) the project need to identify a crop which is viable and marketable.

According to Reynolds (1994) factors to be considered for the effective management of groups are: (1) good communication skills; (2) a sense of purpose; (3) team members take initiative; (4) a sense of team loyalty; (5) resolution of conflicts; (6) knowledge of external demands on the team; (7) clear objective; (8) an understanding of group works; (9) an ability to deal with feelings as well as ideas; and (10) respect the team leader.

Gubbels (1995) reported that the farmers' organisations failed because of the distinct gradation of wealth, power and influence based on age, family, religion, occupation, gender and access to resources which existed in villages. He also reported that to ensure a truly participatory approach, farmers should be involved in the planning process, prioritization of problems, identification and selection of technologies to be tested, testing and experimentation, evaluation and training of other farmers in the application of technology.

Bryson (1997) observed that the success of an organisation is heavily dependent upon the contribution to its people, leadership style, planning conflict management, decision making and problem solving.

Honore (1997) provided the five guiding principles for successful group activities such as : (1) group should develop an annual joint plan of action and keep each other informed about the progress; (2) programmes and activities should focus on the needs and problems of the members; (3) develop women's participation; (4) assets and infrastructure created should be in the name of local institution; and (5) the activities must be based on principles of sustainability, equity and local justice.

According to Muller (1997) the group characteristics which are conducive for rural development were: interdependence of members, group interaction, group decision making, group leadership, group co-operation, group cohesiveness, participation in group activities, group goal achievement, need satisfaction, interpersonal communication, group competition, interpersonal trust and group motivation.

Kerala State Planning Board (1997 a) reported that earlier experiments have shown that farmers are prepared to co-operate only in arranging the logistic support for farming but not the actual operation themselves. Even in marketing the produce, they prefer individual action. The new models of informal co-operatives should therefore be initiated in the management of the logistical activities rather than actual conduct of the business of farming. This implies that models should be very flexible and group-specific instead of being type design.

Joshi (1998) reported that to make collective action effective, the suggestions include : (1) more flexibility is needed in the government procedures; and (2) avoid political interference in the functioning of community organisations.

FAO (1999) based on their experiences over world wide, identified two fundamental corner stones for successful and sustainable farmers' groups such as: (1) they satisfied base members' felt needs first, not the needs of outsiders; and (2) they generated net positive benefits for their members.

2.4. Components of Participation Efficiency

2.4.1. Involvement in decision making

According to Singh and Singhal (1969) participation in decision making is a social and emotional involvement of person in a group situation which encourages him to contribute to group goals and share responsibility in group activity.

Dubey, Singh and Khera (1982) found that participation in decision making remained mostly same irrespective of their educational level.

According to Nandapurkar (1982) decision making is the degree to which an individual justifies the selection of most effective means from among available alternatives or the basis of scientific criteria for achieving maximum economic profit.

Rexlin (1984) reported that there existed positive and significant relationship between participation in decision making and farming experience. Srinivasan and Chaunawala (1983) observed that involvement in decision making is the core of managerial activity of an organisation.

Seema (1986) reported that there was no significant relationship between size of holdings and extent of participation in decision making by farm women.

Charyulu and Seetharaman (1988) found that participation of rural women in decision making did not correspond to their contribution to agricultural production.

Gubbels (1993) reported that the tendency to adopt traditional structures of decision making was one of the reasons for the failure of farmers' organisations.

Jayasree (1993) reported that 8.48 per cent and 75.76 per cent of the farmers were distributed in medium and low involvement in decision making categories respectively.

Alex (1994) defined decision making as the process of judiciously choosing course of action from available alternatives for the purpose of crop production.

Bebbington *et al* (1994) revealed that the members of farmers' organisation involved at bottom and top end of the decision-making process helped to define research and extension agenda and set priorities.

Rivera (1997) observed that participatory decision making in extension has shown to increase commitment to programmes associated with extension systems.

Muller (1997) reported that involvement of members in decision making was high in effective groups than non-effective groups.

Sindhu (1997) reported that majority of the cut flower growers in the group exhibited high level of involvement in decision making.

Thomas (1998) observed that 72 per cent of the respondents was found to have very low participation in planning watershed programmes and remaining 28 per cent had high participation.

2.4.2. Involvement in implementing decisions

Jaiswal *et al.*, (1985) reported that farmers benefited by soil and water conservation measures of watershed development scheme were not involved in implementing such works.

Seema (1986) reported no significant relationship between extent of participation in implementing decision and knowledge in farming.

Varma (1996) reported that participation in implementing decision had the maximum contribution to the entrepreneurial behaviour of farm women.

Jeya (1999) found that 73.60 per cent of the respondents had medium level of involvement in implementing farm activities whereas 16.80 per cent and 9.60 per cent only had high and low level of involvement respectively.

2.4.3. Involvement in monitoring and evaluation

Uphoff (1989) observed that people on the receiving end are ultimately the best judges of impact, whether benefits have been produced or not. Bebbington *et al* (1994) reported that members of the grass root level farmer groups are involved in the programming, monitoring and evaluation of development programmes and farmers, extension agents and researchers meet regularly and review results and decide upon the priority constraints to address and solutions to test.

Bejar and Oakley (1995) identified two basic elements of monitoring as : (1) the regular follow up of the project through frequent visits and meetings and discussions on appropriate indicators to evaluate the project; and (2) the appointing of a *critical friend* who would serve as a link between sponsoring agency and group.

Shah and Shah (1995) observed that most of NGOs are happy to involve in community institutions in programme monitoring and evaluation but are less active when it comes to evaluating the performance of NGO itself as a support institution.

Mukherjee (1997) was of the opinion that the activities of the group were to be continuously monitored and evaluated for identifying the weakness and limitations of such activities and devising ways to overcome them and also feeding them continuously into the group process.

FAO (1999) reported that monitoring and evaluation was a sustainable element of group activities.

2.4.4. Sharing of responsibility

Moulton (1977) reported that the members of the traditional communal work groups did not expect to share equal responsibility or benefits from mutually generated wealth. They expected the elites to take the largest share in return for protecting the rest of them in the traditional patron-client manner. Chinchankar (1986) observed that one of the pre-conditions for collective action of self managed group is the willingness of the members to share the risk and responsibilities of the group activities.

Gubbels (1993) reported that for farmers' organisation to be sustainable, there require clear lines of responsibility among members. Sharing of decision making and responsibility within farmers' organisation could be used as a method to overcome dominance of traditional elites.

FAO (1999) recommended that members of the farmers' group should share the responsibility of the group decisions.

2.4.5. Communication behaviour

Supe and Singh (1968) opined that the success of agricultural development programmes depends on the farmers' ability to understand and adopt new developed technology. For that, farmers have to collect all possible information about innovations and relate them to their situation and select best alternatives in order

to maximise agricultural production. de Lasson (1976) observed that one of the key external factors influencing organisational effectiveness of farmers' association was the organisational channels of communication between member, staff and management. Subramoniam (1986) defined information seeking behaviour as the extent to which tribal farmers are seeking information from different communication sources.

Gubbels (1993) observed that farmers' organisation acted as a *user constituency* mediating the relationship between researchers and farmers and adopt and disseminate technology in self managed programmes. Sperling (1994) found that the farmers' organisations supported by NGOs were more effective in disseminating technology to other small scale farmers in their communities. Anusuya (1997) reported that majority (71.67 per cent) of the respondents had medium level of information seeking behaviour followed by 16.66 per cent high and 11.67 per cent with low levels.

Lyon and Danguah (1998) observed that seed growers served as a forum for sharing information among members. Jeya (1999) found that 70 per cent of the respondents had exhibited medium level followed by 18.40 per cent low level and 12.80 per cent high level of information seeking behaviour.

2.4.6. Promptness and regularity in attending meetings

Norman *et al* (1988) observed that if group is larger and heterogeneous, the less likely is that all members will regularly participate in group discussions.

Clark (1991) reported that regularity of group meetings and level of attendance of members in the group meetings are important indicators of self-reliant farmers' group.

Hunter *et al* (1992) opined that punctuality and attendance in all group meetings are important values for effective group functioning.

2.4.7. Leadership propensity

According to Barnard (1948) leadership refers to the quality of behaviour of individuals, whereby they guide people in the activities in the organised effort. Parry (1972) reported that leaders played an important role in developing political consciousness and mobilising people and community they represent.

Desai (1995) found that leadership is an important ingredient in the level and form of community participations. Riddell and Robinson (1995) observed that frequent objective of group approach is to try to develop effective leadership among poor.

Ban (1997) reported that a participatory approach requires change in the leadership style and culture of extension agency. Noor (1998) refers leadership as the process of influencing people towards achieving the desired goals. The leader motivates people to behave in the most desired way.

2.4.8. Empowerment

Oakley *et al* (1991) observed that empowering rural people through development of skills and abilities enables them to manage or negotiate with existing

delivery system. Participation is an exercise of empowering rural poor. Garforth (1993) reported that empowerment in farmers' organisation rarely occurred, particularly when these groups were dependent on NGOs or Government. Heinrich (1993) reported that group approach can lead to subtle and gradual process of farmer type of empowerment.

UNDP (1993) reported that participation is a process, not an event. Since participation requires increased influence and control, it also demands increased empowerment in economic, social and political terms : (1) Economic empowerment means being able to engage freely in economic activity. (2) Social empowerment means being able to join fully in all forms of community life without regard to religion, colour, sex or race; and (3) Political empowerment means freedom to choose and governance at every level, from the presidential place to village level. For increased people's participation, increased empowerment is a must.

Desai (1995) reported that power was a key variable to influence decision-making. Haq (1995) observed that empowerment means that people are in a position to exercise their own free will to participate fully in making and implementing decisions. Riddell and Robinson (1995) found that the groups played effective role in empowering their members.

Sreen (1995) observed that when members were empowered, it motivated them to work hard and more sincerely. Mukherjee (1997) reported that when members of a group were not adequately empowered to participate, then the quality of participatory process was not robust as desired.

Oostrum (1998) found that participatory approach helped the farmers to develop new skills and organise their group activities.

2.4.9. Conflict resolutions

Seddon (1987) observed that some form of communal control over resources is needed in order to promote both communal and self-interest in the conservation and regeneration of land.

Gubbels (1993) reported that distinct gradation of wealth, power and influence based on age, family origin, religion, occupation, gender and access to resources existed in most villages and often generated a conflict of interest. Maloney and Raju (1994) observed that formal and informal mechanisms of conflict management are essential for the effective functioning of farmers' groups. In some systems, there are highly formalised methods of dispute resolution based on law, but in others there is virtual absence of formal means, though informal means of resolving disputes exist.

Riddell and Robinson (1995) reported that in groups with unstable membership and unstable conflicts, performance is adversely affected. Bryson (1997) observed that conflicts occur as a result of disagreement, threat or opposition between individuals or groups or individuals within a group. There is need for adaptation to overcome conflicts.

Brown and Korte (1998) reported that conflict played an essentially negative and destructive role in the process of institutional development.

Fernandez (1998) based on MYRADA experience reported that the apex societies played a key role in solving disputes that arose during implementation of programme by self - help groups in watershed management.

Rehman and Rehman (1998) observed that successful participation depends on the extent to which effective and non-frictional participation was secured.

2.4.10 Competitive spirit

Barnett (1953) stated that human beings are inherently lazy and are forced to exert themselves by economic threat of rivals. It is observed that the desire to build up the reputation of one's village is often instrumental in causing acceptance of projects, competition between individuals, families, castes and villages. Badachickar (1985) stated that competition orientation of farmers had a positive relationship with management orientation. Sumathy (1987) reported that majority of the farmers in her study were of high competition orientation.

Bora (1989) revealed a positive relationship between orientation towards competition and return from farm. Anantharaman (1991) did not notice any relationship between orientation towards competition and managerial efficiency of cassava farmers.

2.5. External factors affecting participation efficiency

2.5.1. Achievement motivation

Lowell (1952) observed that high need achievers should perform better than those with low scores.

Mc Clelland (1961) stated that achievement motivation is the desire to do well, not so much for the sake of social recognition or prestige, but to attain an inner feeling of personal accomplishment.

Seema (1986) reported no significant relationship between achievement motivation and participation in implementing decisions by farm women. Shilaja (1990) observed that achievement motivation was found to have a positive and significant relationship with mixed farming productivity.

Anantharaman (1991) reported that achievement motivation significantly contributed to efficient farming of cassava.

2.5.2. Perception of group approach

Crowe and Crowe (1956) defined perception as the meaningful sensation that assumes an important role in the life of an individual. It refers to the ways by which the individual receives, interprets and responds to the stimuli picked by his sense organs. Taylor *et al* (1980) refers perception as the mental process of recognizing the stimuli we receive. One has to both perceive (recognize) and interpret the sensations he receives before they can become perceived messages.

Muthukrishnan (1982) found that majority of the users (93.00 per cent) of biogas plants has better perception towards the attributes of biogas plants.

Sundaram (1986) reported that while majority (75.00 per cent) of the farmers had medium level of perception, 14.00 per cent and 11.00 per cent of the respondents respectively had low and high level of perception about the effectiveness of soil

conservation practices. Regarding the perception of utility of soil test recommendations, Balan (1987) reported that majority of farmers belonged to medium perception category.

Sudha (1987) in her study on lab-to-land programme, found that about 55.00 per cent of the non-tribals and 75.00 per cent of the tribals belonged to the high perception group. Schneider (1988) reported that members' perception that group action will lead to the fulfilment of personal objectives is one of conditions for the viability of farmers' group.

Meera (1995) found that two groups of farmers differed significantly with respect to mean utility perception scores for important agricultural practices.

2.5.3. Innovation proneness

Anantharaman (1991) reported that innovation proneness is the interest and desire of persons to seek changes in techniques and introduce such changes in their avocations. Innovative farmers are more inclined to try new methods and ideas in the endeavour of managing enterprise.

Chakravarthi (1993) stated that more than two-third of the respondents had high level of innovativeness and 31.25 per cent with low level of innovativeness.

Thomas (1998) reported positive and significant relationship between innovation proneness and participation in watershed development programmes.

Jeya (1999) observed that 63.20 per cent of farm women had medium level of innovativeness, 23.20 per cent low level and 13.60 per cent with high level of innovativeness.

2.5.4 Risk orientation

Viju (1985) reported that risk orientation was found to have significant and positive relationship with attitude of tribal farmers towards farming.

Govind (1992) reported that risk orientation showed positive and significant relationship with knowledge. Jaleel (1992) found that risk orientation had positive and significant relationship with extent of adoption.

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 high and low levels respectively.

Sindhu (1997) observed that group members of cut flower farmers exhibited high level of risk orientation. 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.

2.5.5 Education

Vehra (1971) reported that higher level of education was conducive for higher participation rates. Deepali (1979) found that educational profile was positively related with degree of participation of rural women in adoption of agricultural practices. Ayyadurai (1980) observed that education of farmers was positively and significantly associated with the extent of participation in poultry development programmes.

Krishnaiah and Maraty (1989) reported that education was a significant variable in determining the extent of participation in benefits derived.

Bheemappa *et al* (1990) reported that education had shown a positive and significant association with participation in integrated rural development programmes.

Ban (1997) found that farmers with higher educational level were better to play the leadership role in farmers' organisation.

Kareem and Jayaramaiah (1998) and Thomas (1998) found positive relationship between education and participation. But Sumana and Reddy (1998) reported that education has negatively contributed to participation.

Jeya (1999) reported that 44.00 per cent of the participants were educated upto primary level followed by 41.60 percent secondary level.

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

2.5.6. Entrepreneurial behaviour

Ganguly (1990) reported that agro-based industries under integrated development of agriculture and industry, created the local entrepreneurship and generated employment.

Sharma and Singh (1994) found that entrepreneurship in agriculture was significantly related to education. Fernandez (1995) reported that group fosters an entrepreneurial culture where each member realises that he needs the support of

group to achieve his objectives, group in turn requires his support in adequate measure.

Jayalakshmi (1996) found that dimensions viz., economic motivation, risk taking ability, decision making ability, achievement motivation, management and competition orientation contributed more in the entrepreneurial behaviour of trained farm women.

Kareem and Jayaramaiah (1998) reported significant relationship between entrepreneurial ability and participation of farmers in rural development programmes.

2.5.7. Economic motivation

Sabapathi (1988) observed that those who are economically motivated would try to improve their farming practices by acquiring knowledge from localite or cosmopolite sources. Chandran (1989) found positive and significant relationship between economic development and attitude of pepper growers in pepper development programme.

Krishnaiah and Maraty (1989) reported that economic motivation was significantly related to extent of participation. Anantharaman (1991) reported that economic motivation significantly contributed in efficient management of farms.

Jeya (1999) reported that 53.60 per cent of the respondents had medium level of economic motivation and 24.00 per cent belonged to low and 22.40 per cent to high level of economic motivation.

2.5.8. Cosmopolitaness

Ambastha and Singh (1975) reported positive and significant correlation between cosmopolitaness and information input and output indices of farmers.

Siddaramaiah and Rajanna (1984) found that farmers with high cosmopolitaness had significantly higher gain in knowledge about agricultural aspects.

Sabapathi (1988) reported that those who were economically motivated would try to improve their farming practices by acquiring knowledge from cosmopolite sources.

Thomas (1998) observed positive and significant relationship between cosmopolitaness and participation in watershed development programmes.

2.5.9. Knowledge in Farming

Singh (1970) observed that the success of sophisticated technical programme depended on farmers' adequate and correct knowledge in the concerned field.

Rogers and Shoemaker (1971) recognised the knowledge function as one of the four functions in innovation decision process.

Marimuthu (1982) found that majority of small farmers and big farmers possessed only medium level of knowledge about the pest management practices.

Jeyakrishnan (1984) found that 61.82 per cent of the paddy farmers had medium level of knowledge, 21.82 per cent had high level of knowledge and 16.36 per cent had low level of knowledge. Ramalingam (1984) reported that improvement in knowledge and skill in agriculture was there due to participation.

Juliana *et al* (1991) reported that most of the marginal and small farmers possessed only medium level of knowledge about pest management practices. More than half of the big farmers possessed high level of knowledge. In contrast to this, only 2.50 per cent of marginal farmers and one-fourth of small farmers had high level of knowledge.

Binoo (1991) observed that majority of commercial vegetable growers had medium level of knowledge on improved vegetable cultivation practices.

Zinyama (1992) reported that local farmers' organisation provided farmers with technical expertise particularly on application of modern agricultural techniques.

Jeya (1999) found that 60.00 per cent of farm women had medium level of knowledge about paddy cultivation practices, 20.80 per cent and 19.20 per cent had high and low level of knowledge respectively.

2.5.10. Scientific orientation

Poovannan (1995) stated that 44.00 per cent of the trainees had high level and 40.00 per cent had low level of scientific orientation.

Thomas (1998) observed positive and significant relationship between scientific orientation and extent of participation among the farmers of watershed development programme.

Jeya (1999) reported that 72.80 per cent of the respondents belonged to medium level of scientific orientation followed by low (10.40 per cent) and high (16.80 per cent) levels of scientific orientation in her study on training of women in agriculture.

2.5.11. Experience in farming

Duraiswamy (1981) reported that there existed positive and significant relationship between beneficiary experience and extent of participation. Poovannan (1995) found that more than half (53.00 per cent) had low farming experience (up to 12 years) followed by 30.00 per cent and 17.00 per cent with medium (12 to 18 years) and high (above 18 years) farming experience respectively.

Sumana and Reddy (1998) reported that farming experience significantly contributed to participation. Thomas (1998) observed no relationship between farming experience and participation of farmers in watershed development programme.

2.5.12. Annual income

Vehra (1971) reported that those who had greater economic resources participated more and higher levels of income was conducive for higher participation.

Kailasam (1980) found that income had positive and significant association with extent of participation.

Mercoiret *et al* (1990) reported that farmers' organisations were more likely to sustain when they have impact on family income. Rajasekharan (1995) found that majority of the participants fall in the category of low income group (85.85 per cent) followed by 11.60 per cent in medium and 2.05 per cent in high income groups. Riddell and Robinson (1995) based on their Indian experience reported that majority of the groups lacked community participation but all were successful

in raising incomes. Sumana and Reddy (1998) reported that annual income was negatively correlated to participation in watershed development programme, while Thomas (1998) reported positive and significant relationship between income and participation of farmers in watershed development programmes.

2.5.13 Farm size

Sawer (1973) observed that women's participation in decision making was negatively associated with farm size.

Ayyadurai (1980), Kailasam (1980); Surendran (1981) and Ponnappan (1982) reported that farm size had significant association with extent of participation in development programmes.

Sripal (1983) found that farm size had significant relationship with extent of participation in the utilization of programmes. Kareem and Jayaramaiah (1998) reported significant relationship between farm size and participation in rural development programmes, whereas Thomas (1998) observed no relationship between farm size and participation of farmers in watershed development programmes.

2.5.14. Credit orientation

Ponnappan (1982) found that credit orientation had significant association with extent of participation of fish farmers of Tamil Nadu.

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 decreases 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.

Peterson (1997) reported that access to credit was one of the ways to improve farmer's access to new production technology and increased productivity.

Kareem and Jayaramaiah (1998) observed significant relationship between loan amount received and extent of participation in integrated rural development programmes by beneficiaries.

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

FAO (1999) reported that in Nepal, farmers' associations were provided with credit. But experiences indicate that *credit carrot* alone was not always the best approach. Since it too often induced harmful dependencies, undermining self-reliance. Local resource mobilisation and savings supplemented by matching credit were more effective and sustainable.

2.5.15. Age

Singh and Chander (1983) observed that age had no significant effect on participation in decision making. Anantharaman (1991) reported that age was directly related to decision making and execution of programmes.

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).

Kareem and Jayaramaiah (1998) found no significant relationship between age and participation while Sumana and Reddy (1998) and Thomas (1998) reported significant relationship between age and participation in development programmes.

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.

2.6. Components of Group Efficiency

2.6.1. Group cohesion

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

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

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 to withstand outside pressure and to triumph over internal factions.

Shaw (1977) reported that members of high-cohesive groups communicate with each other to a greater extent, and the content of group interaction was more positively oriented, whereas members of low-cohesive groups were less communicative and the content of the interaction was more negatively oriented.

Santhanam *et al* (1984) referred group cohesiveness as the forces that hold a group together. In a cohesive group, members are attracted to each other and cohesiveness induces pressure towards uniformity and confirmity leading to group thinking.

Ghosh (1995) opined that group cohesiveness refers to the ability of the group members to relate emotionally to each other and to the given task so as to integrate with each other effectively for achieving the common goal. He found that for enhancing group cohesiveness, the educational status of the members must be raised. Index of group cohesiveness is an index of group effectiveness. Higher the value, more effective is the group.

According to Bryson (1997) group cohesiveness is the extent to which members of the group are attracted to each other and to the group as a whole. Cohesion was high in group where members share similar attitudes, socio-economic background and needs.

Mukherjee (1997) found that cohesive groups will not inflict adverse impact on participatory process. Muller (1997) reported that group cohesiveness was an important characteristic of group which determines the success of the group. There

was significant difference in the mean score of group cohesiveness between effective and non-effective groups.

2.6.2 Team spirit

According to Mehta (1989) the measures to improve team spirit are: (1) all members are to be encouraged and involved in formulating plans for achieving the objectives with such involvement occurring at all levels; (2) social contacts outside work should be encouraged; and (3) at all levels instead of forcing any thing, encourage them to make suggestions and initiate action.

Mukherjee (1997) reported that some people in community have individualistic approach and do not easily get involved in community effort. Participatory group approach depends largely on collective action, initiative and effort.

2.6.3 Group interaction

According to Thibaut and Kelly (1959) by interaction it is meant that they emit behaviour in each other's presence, they create products for each other, or they communicate with each other. In every case that we would identify an instance of interaction there is at least the possibility that the actions of each person affects the other. Hare (1952) pointed out that members of group in interaction with one another share a common goal and set of norms, which give directions and limits to their activity. Beal (1962) reported that group productivity can be increased through efforts both of the entire membership and individual members to improve their, human relation skills to foster both group interaction and also by continued

evaluation of progress towards goals and the means used to attain such progress. Collins and Guetzkow (1964) remarked that interaction enhances confirmity of opinions. Bochner (1975) pointed out that interaction helped to spread information.

Hussain (1992) defined group interaction as the extent of interaction the respondents have with other group members, wherein he is a member. Muller (1997) found that the mean scores of group interaction between effective and non-effective groups were 47.83 per cent and 35.85 per cent respectively. Group interaction has affected the confirmity of group opinion and created friendly atmosphere in the effective groups.

2.6.4 Group leadership

According to Barnard (1948) leadership refers to the quality of behaviour in individuals whereby they guide people in the activities in an organised effort. Stogdill (1948) defined leadership as a process (act) of influencing the activities of an organised group in its efforts towards goal settings and goal achieveness. He also observed that an average group leader exceeds an average group member in abilities such as intelligence, scholarship, knowing how to get things done, insight into situation, verbal facility and adaptability.

Kouzer and Posner (1987) observed that leaders appear to adopt three phase strategy in getting people to follow them which they call VIP (Vision, Involvement and Persistence). Harikumar (1990) reported that the success of group farming programmes depend on effective leaders. Neog (1991) reported that prevalence

of common felt needs among group members was the basic requisite of group farming success and it was significantly associated with dynamic leadership. Hussain (1992) reported that lack of sustained group leadership was one of the reasons for failure of earlier group approaches.

Desai (1995) found that leadership was an important ingredient in the level and form of community participation.

Ban(1997) reported that participatory approach requires change in the leadership style. Muller (1997) reported that there existed significant difference between leadership ineffective and non effective groups with mean leadership score of 43.04 and 34.92 respectively . Leaders influenced group activities, helped to create a harmonious situation in the group and effectively coordinated group activities.

Noor (1998) refers leadership as the process of influencing people towards achieving the desired goals and motivating people to behave in the most desired way.

2.6.5 Accountability

Fox (1992) reported that although accountability is a desirable organisational characteristic, study indicates that both leaders and subordinates in public and private organisations seek to avoid accountability. One means of making the groups accountable is by increasing number of subgroups within the group in a way that makes them a constituent part of the group.

Bebbington *et al* (1993) found that accountability of the group can be achieved by improving the level of education among members of the organisation. Sub-groups can be formed in administration of activities and finances.

According to Edwards and Hulme (1994) accountability is generally interpreted as the means by which individuals and organisation report to a recognised authority or authorities and are held responsible for their actions.

Shah and Shah (1995) states that accountability in development programmes at grass root level relates to the wider process of information exchange, decision making, management, negotiation and bargaining that takes place between different stake holders. They also found that Participatory Rural Appraisal (PRA) methods increased the accountability of office bearers and leaders of community institutions to members and among members. Current experience of accountability is mostly upward, towards donors and governments.

Sreen (1995) reported that where the member accountability was high, the benefits and fruits of development accruing to members was also in high order thereby establishing a direct and positive correlation between member accountability of NGOs and their efficient performance at development front.

According to Bava (1997) the three-fold criteria for high degree of accountability are: (1) adequately addressing and redressing members' grievances, complaints and problems by providing support and assistance to them; (2) empowering the members by sharing the power of decision-making with them; and (3) managing, administering the affairs of the group in accordance with rule of law and with sense of ethical, social and political responsibility, transparency and efficiency.

Carney (1998) reported that accountability contributes to the effectiveness of the organisation. Mishra and Mishra (1998) observed that participation brings accountability in the sense that the decision makers live and work in close contact with the user and such are exposed to more effective scrutiny and greater pressure to deliver goods.

FAO (1999) observed that group should be fully accountable to its members. There should be a system of keeping of accounts and keeping of minutes and decisions arrived to ensure necessary transparency in group activities.

2.6.6. Transparency

O'Brien (1997) is of the opinion that good governance involving participation and transparency were essential for sound development.

Camdessus (1998) observed that increasing transparency of government operations decreases the chances for corruption and enhances public accountability.

Fernandez (1998) while explaining MYRADA experiences on watershed management reported that commitment of self-help group members were increased by establishing transparent procedure in assessing work, handling cash and maintaining records. Turton *et al* (1998) reported that farmers' organisations in watershed development influenced the panchayat for more transparency in their way of working for development programmes.

FAO (1999) observed that transparency has to be built into management function in farmers' organisation no matter whether leadership was shared or not.

2.6.7. Sustained profit

Salvi and Pawar (1966) concluded that adoption of recommended farm practices was positively related to its profitability. Barbier (1988) observed that profitability is a powerful motive even for resource poor rural people.

Jeya (1999) reported that majority of the respondents (92.00 per cent) achieved medium level of profitability, where as 4.80 per cent was under low and 3.20 per cent under high level of profitability. The characteristics such as education, risk orientation and extent of involvement in farming activities had positive and significant correlation with profitability.

2.6.8. Productivity

Schiller (1959) reported that co-operative use of mechanical plough, joint plant protection measures and the like were made possible in Germany and this resulted in more yield.

Moczarski (1973) reported that in a successful project in Lesotho, by adopting mechanised farming and supplying fertilizer, seeds and other inputs on a group basis, the yield of their cultivation was considerably increased.

Kerala State Planning Board (1977) in their evaluation report on 'Yela' programme observed that the programme has not resulted in a large break through in rice production or any significant reduction in cost.

Venkataramiah *et al* (1989) reported that the corn yield was increased in Pubela valley, Mexico due to group farming.

Jacob (1990) reported that the initial survey of group farming in paddy cultivation in Kerala indicated that the cost of cultivation was found to be reduced by 5 to 7 per cent. Productivity of rice increased from 2949 kg/hectare during Kharif 1988-89 to 3916 kg/hectare in Kharif 1989-90.

Vijayachandran (1990) revealed that Andoorkonam experience of group farming in paddy increased yield of rice by 25-30 per cent. Hussain (1992) reported that 79.41 per cent of the farmers got medium yield and of 17.65 per cent got high yield for paddy under group management programme.

Oostrum (1998) reported that participatory approach helped small farmers' association to increase food production and generation of more income from their lands.

Jeya (1999) observed that majority of the respondents (83.20 per cent) had medium level of productivity followed by 9.60 per cent with high and 7.20 per cent had low productivity in her study on women in agriculture.

2.6.9 Equity

Garforth (1993) reported that in Thailand, extension approaches based on rural people's organisation did not increase equity of extension need. Bebbington *et al* (1994) observed that group meetings were influenced by a minority and often relatively elite section of society. The poorest families may not be able to absorb the cost of participation.

Arnaiz (1995) reported that increased involvement leads to more equitable representation of small scale and resource poor farmers. Ashby *et al* (1995) found that an important factor of effectiveness of farmers' group is equity i.e., how equitably benefits are distributed. Haq (1995) observed that equity means people enjoy equitable access to opportunities. Development without equity means a restriction of choices of many individuals in society.

Fernandez (1998) reported that for the sustainability of self-help groups, the equity should be ensured. Smith (1998) reported that one way of reducing inequality is to use variable subsidy rates on house hold basis according to socio-economic class. Turton and Reddy (1998) reported that to ensure even a moderate degree of equity, there requires high level of social organisations.

2.6.10. Employment generation

Mencher (1980) observed that eventhough wage rates are high in Kerala, number of days for which employment available for agricultural labourers are less, and Padmanabhan (1981) found that the average period of employment in a year for men labourers was 138.87 days.

Santhanam *et al* (1982) inferred in their study that about 30 per cent of the respondents in Kerala were employed for more than 181 days. Those employed for less than 120 days in a year in Kerala was 18 per cent. Senthilnathan (1991) opined that seasonal unemployment and under-employment were the biggest problems faced by the agricultural labourers.

2.7 External factors affecting group efficiency

2.7.1 Group action plan

For the implementation of group farming programme for rice, an action plan for the on farm development activities like land development work and water management has to be prepared for each crop season based on which activities of the group are undertaken, (Department of Agriculture Kerala, 1989). Honore (1997) opined that group should develop an annual joint plan of action and keep each other informed about the progress.

2.7.2 Group size

Esman and Uphoff (1984) reported that larger the local organisation, greater the level of intra-organisational conflict. NABARD (1989) in their study concluded that group size may be 10-15 depending on the nature of activity, level of participation and democratic and homogenous nature. Romanoff (1990) and Ashby (1991) observed that larger groups were prone to high rates of non-participation and do not lend themselves to interactive learning and few farmers dominate in discussions.

According to Clark (1991); Maloney and Raju (1994) homogenous groups of 8-15 members were suitable for active participation of farmers' group. Bebbington *et al* (1994) reported that increasing the size of the group above 25-30 tends to have low participation rates and higher rates of dropouts. Wadhwa (1994) found that small groups of 10- 25 poor farmers based on homogenous socio-economic factors were very effective in development sector.

Kerala State Planning Board (1997a) observed that the ideal size of neighbourhood groups would be 50 farm families and may be formed according to crops on a need based pattern.

Mukherjee (1997) and Turton *et al* (1998) reported that small groups are better than large groups because such groups can have inter linkages. Beyond a point, large groups become counter productive and the members are loosely tied, less cohesive with less face to face interaction and often chaotic than small groups.

Fernandez (1998) reported that compared to small group, the sponsoring agency had to spend more time and energy for keeping large groups together than is actually helping them to acquire the skills necessary to manage resources.

2.7.3. Clear cut procedures

Santhanam *et al* (1984) found that the members who are aware of the structure and functioning of their organisation were high in the extent of participation.

Fernandez (1995) observed that for the sustainability of the groups, they should have the freedom to develop their own rules and regulations and to include and exclude members according to the norms which they lay down.

FAO (1999) reported that necessary rules and procedures should be formulated so as to make groups fully accountable to its members and ensure necessary transparency in group transactions. There should be rules, regulations

and procedures to govern the basic functions and activities of farmers' groups. This will also determine the legal status of the group whether it is formal or informal.

2.7.4. Effective supply of inputs

Stavis (1974) reported that farmers' associations in Taiwan performed tasks at the township level including the distribution of fertilizers and seeds, the purchase of government supports, crops and the provision for credit and this strengthened the farmers' associations.

Tendler *et al* (1983) reported that farmers' co-operatives in Bolivia had undertaken activities such as provision of production, supply of agricultural inputs and a small winery including technical and credit programme for grape wine growers.

Uquillas and Navas (1993) reported that farmers' organisations have undertaken a service role which provided members' access to agricultural support services which facilitated the adoption of new technology.

MANAGE (1997) reported that in Assam, the farmers' group, called *Pathar Parichalana samity* (PPS) evolved an innovative input acquisition system to back up technological messages into adoption. A few members of the Executive Committee form the input procurement group. This group assesses the members' demand for seeds, fertilizers and procures the same from the dealers in the district; thereby ensuring timely availability at the farm gate and deriving economics of scale through centralised operation.

Peterson (1997) opined that farmers need inputs to increase production but timely access to these are often a major problem to the majority of the farming community.

Saran *et al* (1998) found that farmers get more than half of their requirement of agricultural labour in time. They get hardly 10 to 20 per cent of their seeds and fertilizers in time. More than 80 per cent of the inputs are not available at all. Resources like irrigation, seeds, fertilizer, plant protection chemicals, scientific know-how, marketing facility and agricultural labour are available in varying degrees in time but with difficulty.

2.7.5. Diversification of activities

Tendler *et al* (1983) reported that farmers' organisations undertake activities such as rice marketing, rice milling, rice processing, equipment and vehicle rentals, retail store, the provision of production loans, and supply of agricultural inputs.

FAO (1998) reported that too many activities simultaneously in farmers' associations often led to management problem and hence it is better to focus on core livelihood inter-related activities.

Ammour (1994) observed that young and women members of community organisation were particularly interested in diversifying local production system.

Ashby *et al* (1995) found that members of the CIAL with desire to diversify their activities identified alternatives, to traditional cash crops (coffee and cassava) and increased their food sufficiency by growing crops like potatoes, beans and maize.

2.7.6 Information back stop

Sadasy and Yero (1989) reported that administrative training was an important pre-requisite for involvement in village organisation. FAO (1998); Uquillas and Navas (1993) reported that farmers' groups provided assessment of training needs of their members and also assisted service delivery agencies in member training through demonstrations of certain technologies. They also demonstrated the process of parboiling and processing of rice.

Participatory training gave the farmers a sense of ownership of technology and encouraged them to share it with other farmers (Thrupp, 1996). Farmers' organisation in Ecuador trained their members on modern agricultural technologies through contracted agronomists and guest lecturers to increase their knowledge (Bebbington, 1993).

Sumana and Reddy (1998) found that training undergone was significantly related to participation of farm women in watershed development programme.

FAO (1999) opined that training should be a part of farmers' group activities. The whole process of group formation should be the foremost training need because small and poor farmers lack training in group formation, group dynamics, production, processing and marketing.

2.7.7 Co-operation from other departments

Regarding co-operation with other organisations, Mosher (1975) expressed that fostering of linkage with complementary organisations is a strategic task. It

can be done by taking a genuine interest in the work of other organisations, acknowledging the mutual dependence that exists and getting personally acquainted with the administrator of programme.

Surendran (1982) found that there was lack of co-ordination between the Agricultural University and State Department of Agriculture in implementing Operational Research Project on rice production.

Department of Agriculture Kerala (1989) reported that in the implementation of group farming scheme of rice, the Department of Agriculture would undertake inter-departmental co-ordination for successful implementation of programme. Clark (1991) observed that effective link with extension and development services is an important indicator of self-reliance of farmer's group.

Fernandez (1995) reported that the farmers' group provided a firm base for dialogue and co-operation in programmes with other institutions like government department, co-operatives, financial institutions and Panchayati Raj Institutions.

Turton *et al* (1998) observed that even without the support of panchayat, the watershed committees are likely to succeed. Better developed link between groups and line agencies like bank etc., greater the prospect for sustainability.

2.7.8 Risk compensation

Bunch (1985) reported that small scale experimentation with proven recommendations was proposed as a way to minimise the risk.

Ashby *et al* (1995) reported that CIAL proposed a fund (managed by the committee but owned by the community) which acted as a *safety-net* to absorb the

losses of experimentation of proven technology which fail, for whatever reason to cover costs.

2.7.9 Lobbying power

Strong farmers' organisations protect the interest in development issues, influence policy making and strengthen accountability of public servants including agricultural extension workers (Gubbels, 1993). They also exercised more powerful pressure on policy makers and helped to nominate delegates in policy making bodies (Bebbington *et al*, 1994). Mw Makumbe (1994) reported that national farmers' association in Zimbabwe, successfully lobbied for land reform and pricing policies favourable to communal area farmers.

Group membership makes individual more active and try to shift political power patronage in order to use the governmental leverage to improve its economic position (Desai, 1995; Korten, 1995 and Riddell and Robinson, 1995).

Fernandez (1998) reported that NGOs played an important role in lobbying with government for release of revenue records. Turton *et al* (1998) found that farmers' organisation in watershed has influenced the panchayats and other establishments for support on development activities.

2.7.10 Incentives

Pre-requisite of a high level participating institution is incentive structures. (Aumann, 1976). Poor groups virtually always need external assistance to organise effectively (Oakley and Marsden, 1990). Repetto (1987) reported that input

subsidies although found attractive in theory, proved risky in practice where only the better off-are benefited. Tendency of farmers is to expect subsidies from government and other sources, often refusing to carry out necessary maintenance unless they are paid to do so. (Sanders, 1988).

Schneider (1988) found that members in the farmers' organisation placed greater importance on the type of indirect benefits received from collective action including greater community solidarity and material assistance and individuals joined farmers' group on the basis of economic and social incentives.

Kerr *et al* (1996) pointed out that subsidised watershed development programme has been used for employment generation, to convince farmers to try new methods, and to compensate for externalities.

Kareem and Jayaramaiah (1998) found significant relationship between subsidy amount received and extent of participation. Smith (1998) reported that payment of subsidies has strengthened groups and led to a reduction in the level of indebtedness to money lenders. He opined that one way of reducing inequality is to use variable rate of subsidy on house hold basis according to socio-economic class.

Sutherland *et al* (1998) opined that material incentives should be reduced to a minimum for participation, so that the desire for new knowledge become the main motivator. According to Turton *et al* (1998) an incentive is something that motivates a person to act and they observed that subsidy undermined the objectives of watershed programme. FAO (1999) observed that external financing should only be used as an instrument to induce internal resource mobilisation possibly

through *matching loans* that were not more than two-third of the amount put up by the group.

2.7.11 Political determinism

Sanwal (1985) reported that selection of beneficiaries in the development programme possessed pressure of local rich and politicians. Runge (1986) observed that recently local political institutions are becoming more powerful.

Gubbels (1993) reported that experience in West Africa indicated that political environment has obstructed the emergence of farmers' organisations. Krishna (1996) observed that watershed associations have become a hunting ground for political parties, partly as a result of placing considerable funds at their disposal.

Participation involves a set of political issues concerning decision making and access to resource (Hoggarth and Mc Gregor, 1997). Political differences within the groups are sizeable and complex and rather intraceable to be levelled off by consensus building (Mukherjee, 1997).

Kareem and Jayaramaiah (1998) observed no significant relationship between political participation and extent of participation in development programme. Neubert and Hagmann (1998) reported that successful participation demands an open political climate. Turton *et al* (1998) observed that farmers' new bodies must need the support of local political institutions if they are to be successful.

2.7.12. Guidance and Supervision

Uphoff (1992) reported that extension agents and institutional organisers were important in the foundation and development of farmer groups.

According to Garforth (1993) and Smith (1994) the extension agent is no longer seen as the expert who has all the useful information and technical solutions. The scale of extension support required is thus often larger than individual farm and extension workers, need new skills of negotiation, conflict resolution and the nurturing of emerging community organisations. Ammour (1994) reported that community organisation projects succeed because the co-ordinators worked closely with community leaders and farmers to identify an economic activity around which farmers could organise.

Riddell and Robinson (1995) observed that the quality and effectiveness of the management of project staff constitute one of the key factors playing a major role in project effectiveness. The calibre of the staff, their commitment to its philosophy, and overall objectives and their degree of empathy with participants played an important part in meeting objectives.

2.7.13 Client-driven agenda

Swanson and Claar (1984) observed that extension activities must be client centred and must therefore be guided by clients.

Chambers *et al* (1989) opined that farmers' organisations are required to push feedback up through the systems and make it more client oriented.

According Heyzer *et al* (1995) people-centred development is based on the needs and rights of people with accountability to the poorest, the most powerless and indigenous society.

FAO (1999) reported that people centred approach improved the poor's access to productive assets, allowed them to participate in designing and implementing development. Farmers' groups were successful only when they satisfied base farmers' felt need first, not the needs of outsiders.

2.7.14 Non-antagonistic goals

Community based organisations should consider common interests held by most members of the community, rather than on the basis of individual (or house hold) interests, Uphoff (1992).

Joshi (1998) reported that collective action was successful when individual and community had common goal and interest.

2.7.15 Satisfaction

Katz (1944) and Hare (1952) revealed that members of the small groups were more satisfied than larger groups.

Thibaut and Kelly (1959) while explaining their exchange theory of groups reported that the existence of the groups is based solely upon the participation and satisfaction of individuals in the group. Cartwright and Zander (1960) stated that the group itself may be the object of need or the group may simply be the means for satisfying some need that lies outside the group.

Collins *et al* (1964) found that group member's satisfaction was affected by member's role in the group, its prestige, direct rewards and benefits received.

Shaw (1977) opined that groups that fail to satisfy the need or needs of individual group members usually disintegrate. Shah (1993) observed that a self-help group can be sustainable only if it serves the purpose important to its members.

Muller (1997) reported that there was significant difference between members of the effective groups and non-effective groups with respect to their need satisfaction. Need satisfaction is an important characteristic in determining the success of a group.

2.8 Constraints to group approach

Kerala State Planning Board (1977) in their evaluation report of *Yela* programme identified that lack of community participation in planning and execution of programme was the important constraint of *Yela* programme.

Mc Callum (1981) observed that proliferation of units and staff, absence of effective coordination, conflicts, slow decision making, rigidity of rules etc. were the features which hindered development operations.

Esman and Uphoff (1984) based on case studies of rural organisations in Asia, Africa and Latin America identified the vulnerabilities that impede their development as : (1) organisations representing the rural poor face active and passive resistance from multiple sources including local and regional elites and government; (2) they were vulnerable to external factors including government, local elites,

local leaders and outside agencies; (3) they were vulnerable to internal conflict and between rival groups ie. factionalism; and (4) lack of appropriate in-house political, organisational and technical skills. Rao and Rangaswamy (1989) identified low level of skills, lack of training, misutilisation of funds and lack of supervision as the major constraints in development programmes.

According to Singh (1984) lack of knowledge, inadequate training facilities and corruption were the major problems in implementation of rural development programmes. According to Anuradha and Sinha (1985) implementation of TRYSEM faced problems relating to : (1) credit; (2) raw materials; and (3) services and marketing.

Satyanarayana and Petar (1985) in a study observed the constraints such as uneven, untimely and inadequate financial support, traditional dominance of rich and potentials and lack of qualified staff.

Seetharaman (1988) noted non-availability of timely credit, uneconomic land holdings, inadequate credit and non-availability of inputs as the major constraints in development activities.

Prakash (1989) identified the production constraints of rice as: (1) conversion of lands; (2) drought; (3) lack of irrigation; (4) non availability of farm yard manure; (5) low profitability and high cost of production; (6) difficulty in cultivation; (7) high wage rates for labour; (8) indebtedness; (9) lack of knowledge about fertilizer; and (10) negative attitude towards plant protection. The

production constraints of coconut were: (1) lack of irrigation; (2) drought; (3) high wage rate; (4) low adoption of fertilizers; (5) high cost of fertilizer; (6) low adoption of plant protection measures; and (7) incidence of root (wilt) disease.

Singh and Ambedkar (1989) observed planning, unsuitable implementation of projects, low wage rates and poor continuing employment as the problems of rural employment programme.

Gautam and Singh (1990) identified the constraints in group approach as: (1) improper selection of group activities; (2) lack of co-operation among group members; (3) non-availability of raw materials; (4) high cost of raw materials; (5) lack of local demand for products; and (6) lack of marketing facilities.

According to Melkote and Vallath (1992) the factors that affect development programmes were :

(1) lack of adequate, reliable and relevant information , knowledge and skills among farmers; (2) lack of people's involvement; (3) financial and material constraints; (4) inadequate market development; (5) lack of sufficient infrastructure development; and (6) lack of employment opportunities. Gubbels (1993) reported the weakness of farmers' organisation such as (1) vulnerability to external influence; (2) the tendency to adopt traditional structures of decision making; and (3) authority which exclude women and poor farmers from leadership and managerial positions.

Mattee and Lassalle (1994) identified the problems in group approach such as : (1) poor facilities in handling, storage and transportation of fresh product

leading to heavy losses due to spoilage; (2) over production of some vegetables leading to very low producer price offered by middle men; (3) high prices of inputs (agrochemicals and seeds); (4) environmental deterioration due to poor soil and water conservation practices; (5) over use of agro-chemicals and (6) continued planting of the same crops.

Maloney and Raju (1994) identified the reasons for the failure of farmers' organisation such as: (1) absence of official commitment; (2) pseudo participation; (3) abuse of position by leaders; and (4) politicalization of farmers' organisations.

Mw Makumbe (1994) identified the major weaknesses of national farmers' association as : (1) lack of management and administrative skills; (2) poor financial management; (3) dependence of external funding sources; (4) poor leadership skills at the national and middle levels; (5) weak internal structures of accountability; and (6) a rigid top - down organisational structure.

According to ODI (1994) the main problems encountered with the functioning of organisations were : (1) insufficient academic training of staff, (2) difficulty in understanding the research activities which respond to production needs; and (3) lack of experience in inter-disciplinary work.

Rannorey (1994) listed out the problems related to people's participation such as : (1) religion; (2) caste; (3) pattern of education; (4) ignorance of people; (5) lack of information among people; (6) lack of initiative; and (7) lack of ability to execute.

Dhillon and Hansra (1995) identified the problems pertinent to participation such as: (1) low level of awareness ; (2) village factionalism; (3) illiteracy; (4) poverty of people; and (5) non- involvement of the community.

Prasad and Krishna (1995) observed lack of sufficient year-round employment as the major constraint of integrated rural development programmes. Chowdhry and Gilbert (1996) reported problems in group formation viz. (1) field staff generally lack experience in forming groups; (2) standard guide lines without regard to the existing groups and differences within and between regions and areas; (3) lack of proper consultation with farmers in the area before forming the group; and (4) identification of group leaderships rest with extension staff.

Muller (1997) identified the problems with respect to functioning of women groups in rural development such as : (1) high cost of raw materials; (2) low economic status; (3) improper repayment of loans; (4) non-availability of adequate raw materials; (5) lack of interest among officials; (6) wrong selection of beneficiaries; and (7) lack of team spirit.

Thomas (1998) observed major problems of watershed development programme as: (1) inadequate financial assistance; (2) non-availability of quality planting materials; (3) non-availability of agricultural inputs in time; (4) political interference; and (5) inadequate training.

The FAO (1999) identified the constraints in functioning of groups. They are : (1) lack of storage facilities; (2) poor roads; (3) lack of sufficient capital to

purchase inputs; (4) lack of marketing information; (5) tight control by local business men and traders of agricultural market; (6) lack of transparency in transaction; (7) weak accounting systems; and (8) weak leaders.

Velusamy (1999) identified the problems in poverty alternation programmes such as : (1) inadequate loan amount; (2) delay in sanctioning loan; (3) inadequate marketing facilities; and (4) lack of training.

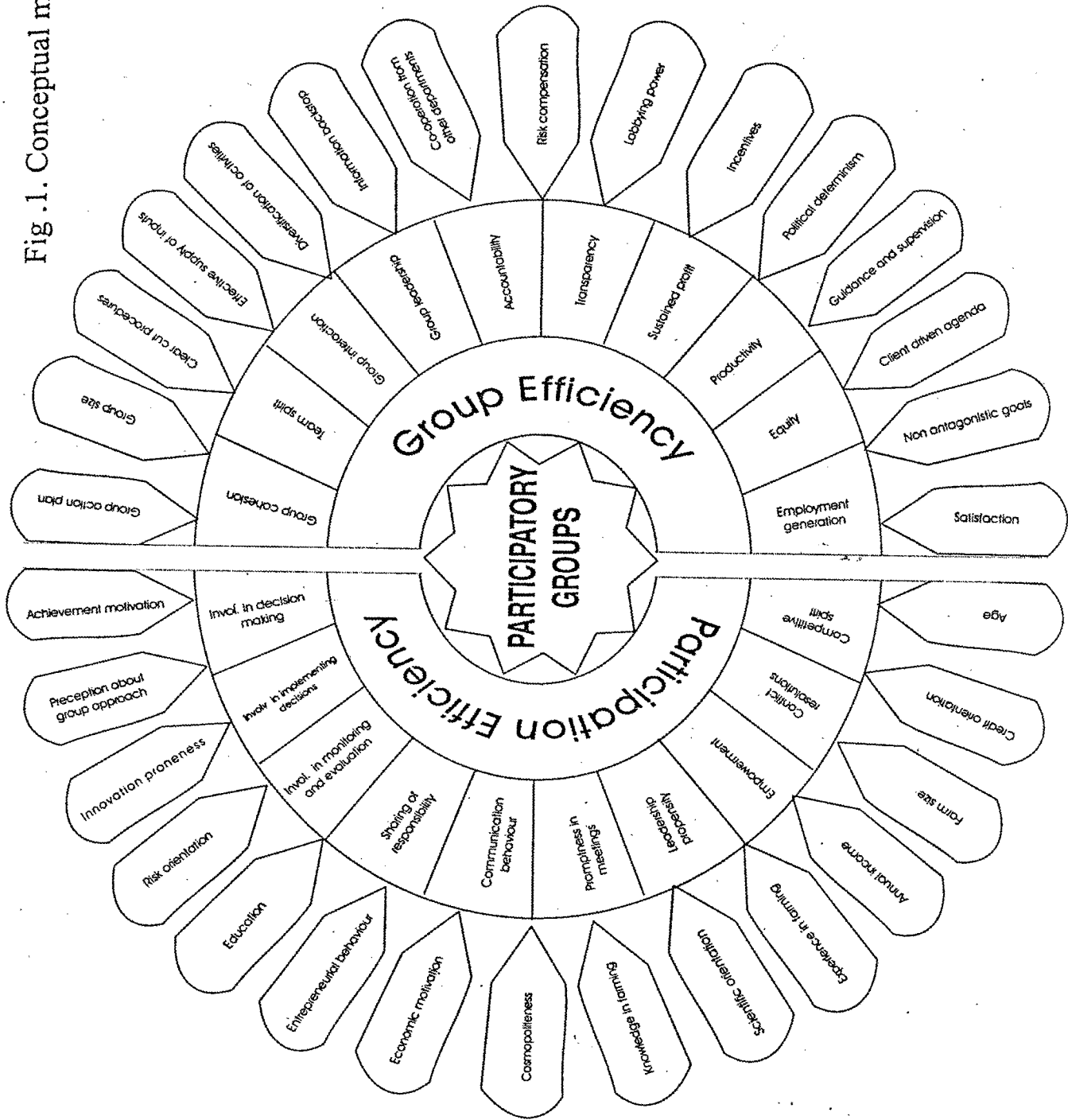
It was inferred from the above reviews that participation efficiency of members and group efficiency of farmers' groups were influenced by various components and external factors. The proposed empirical validation of the components and external factors would provide much insight to understand the phenomenon of participatory group approach for sustainable development of agriculture.

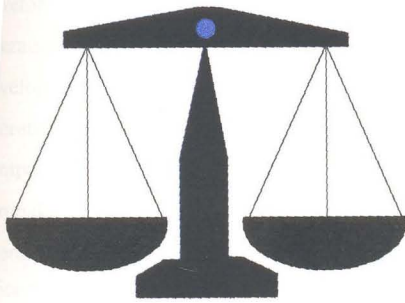
The conceptual model and methodology for the present study were designed keeping in view the inferences from the review of literature.

2.9 Conceptual model of the study

Conceptual model of the study developed based on the objectives and review of literature is diagrammatically presented in Fig. 1.

Fig. 1. Conceptual model of the study





METHODOLOGY

CHAPTER - III

METHODOLOGY

In accordance with the specific objectives of the study, the procedures followed in conducting the research are furnished in this chapter under the following sub-headings:

- 3.1 Locale of the study
- 3.2 Profile of the study area
 - 3.2.1 General agricultural characteristics of Kerala State
 - 3.2.2 Description of agro-climatic zones
- 3.3 Variables and their measurement
 - 3.3.1 Selection of external factors of participation efficiency and group efficiency
 - 3.3.2 Development of Participation Efficiency Index (PEI)
 - 3.3.3 Operationalisation and measurement of components of PEI.
 - 3.3.4 Development of Group Efficiency Index (GEI)
 - 3.3.5 Operationalisation and measurement of components of GEI.
 - 3.3.6 Computation of Participation Efficiency Index Value (PEIV)
 - 3.3.7 Computation of Group Efficiency Index Value (GEIV)
 - 3.3.8 Operationalisation and measurement of external factors of Participation Efficiency and Group Efficiency
- 3.4 Identification of constraints in the implementation of group approach in agriculture
- 3.5 Perception about group approach
- 3.6 Strategy for effective participatory group approach for sustainable development of agriculture in Kerala
- 3.7. Sampling design and data collection
- 3.8 Statistical tools used for the study

3.1 Locale of the study

Eventhough Kerala is a small State, it is divided into five agro-climatic zones based on its physiography, climate, soil characteristics, sea water intrusion, irrigation facilities and land use pattern. The zones are : (i) Southern, (ii) Central, (iii) Northern, (iv) High altitude(High range) and (v) Special zone of problem areas (Fig 2). The study was conducted in all the five agro-climatic zones of the State.

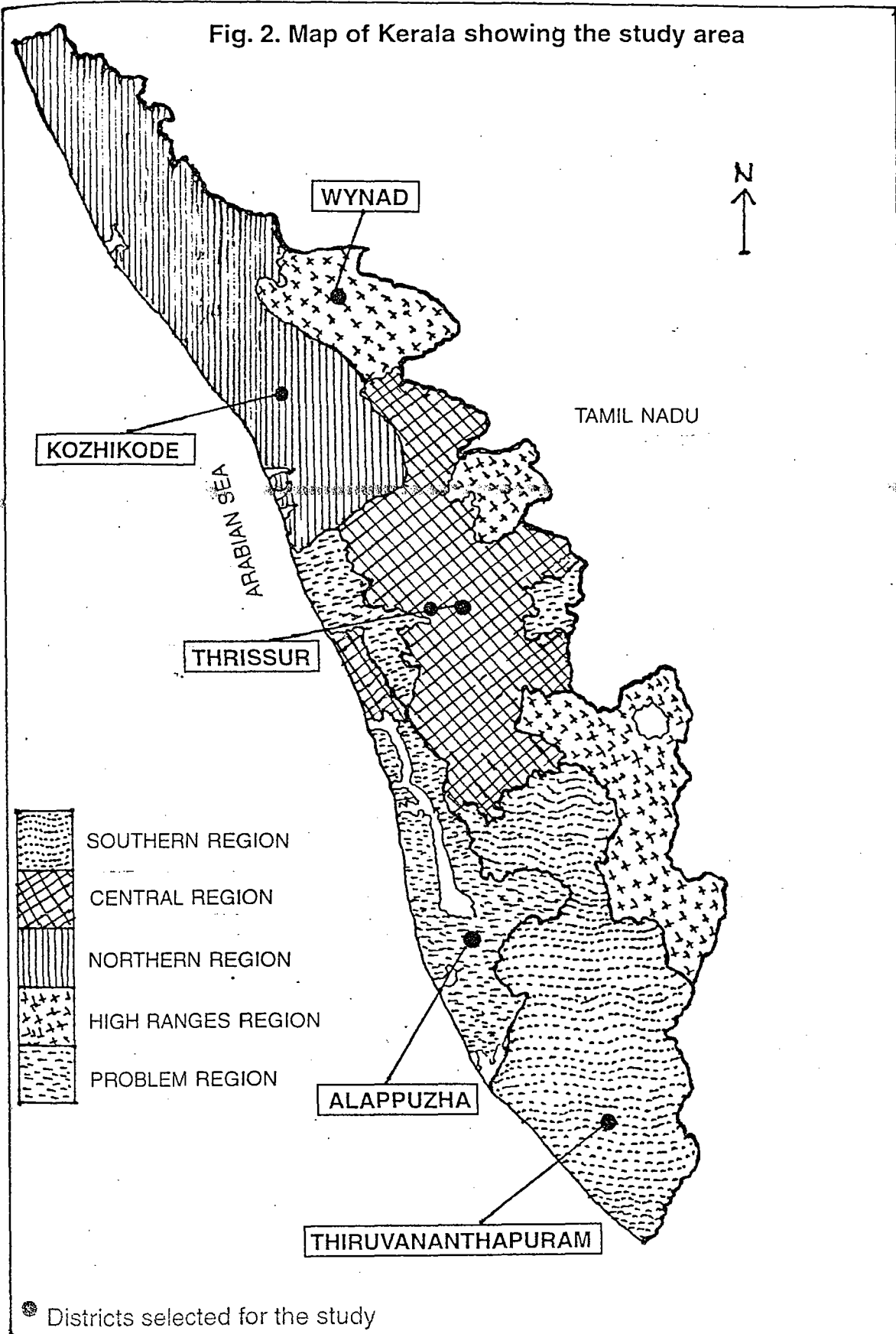
3.2 Profile of the study area

3.2.1 General agricultural characteristics of Kerala State

Kerala State lies in the South-West corner of the Indian Peninsula between 8°18" and 12°40" north latitude and 74° 52" and 77° 22 " east longitude as a long narrow strip of land, 32 to 133 km wide, between the Western Ghats in the east and Arabian sea in the west with a 580 km long coastal line. In the south, the State is bounded by TamilNadu and in the north by Karnataka.

The total geographical area of Kerala is 38.85 lakh ha. Of this, 10.81 lakh ha (27.86 per cent) is under forest. The net area sown is 22.38 lakh ha. The gross cropped area is 30.43 lakh ha. The cropping intensity is 136 per cent. The major crops grown in the State are rice, coconut, rubber, pepper, arecanut, banana, cashewnut, tapioca etc. The area, production and productivity of major crops grown in the State are furnished in ANNEXURE - I. Soil erosion, coastal salinity, land slides, sea erosion, stream bank erosion, degraded forests, drought and floods are the major causes of land degradation in Kerala. It is estimated that 9.52 lakh hectares of land is subjected to moderate to severe soil erosion. Steep to undulating terrain

Fig. 2. Map of Kerala showing the study area



characteristics, erratic nature of occurrence of monsoons and high intensity, precipitation have made the land mass of the State an erosional land scape.

Kerala is administratively divided into 14 revenue districts encompassing 61 taluks covering 1362 revenue villages. The other administrative sub units of the State are :

1.	Village panchayats	-	987 Nos.
2.	Corporations	-	3 Nos
3.	Municipalities	-	56 Nos
4.	Krishi Bhavans (Grass root level Agricultural Development Office)	-	1048 Nos
5.	Block level Office of Assistant Directors of Agriculture units	-	151 Nos.
6.	Principal Agricultural Office units (District level agricultural administration)	-	14 Nos

3.2.2. Physiography

Kerala is highly diversified in its features and agro-ecological conditions. The undulating topography ranges in altitude from below mean sea level (MSL) to 2694 m above MSL. Topographically the State can be divided into four well defined natural divisions viz. the high ranges (750 m above MSL), the high land (75-750m above MSL), the mid land (7.5-75 m above MSL) and low land (upto 7.5 m above MSL). All these natural divisions run almost parallel in north-south orientation.

3.2.3 Climate and rainfall

The State is a high rainfall area. In the high land regions there is cool climate for most part of the year, whereas other regions have tropical climate. The most

important rainy season in the State is during the south-west monsoon, commencing from June and ending in September. The other rainy season is the north-east monsoon which generally lasts from October to November. The total rainfall received in the State during 1998 was 3120 mm. The mean temperature varies from 25.4°C to 31.0°C.

3.2.4 Description of agro-climatic zones

3.2.4.1 Southern zone

The southern zone comprises the districts of Thiruvananthapuram, Kollam, Pathanamthitta, Alappuzha and Kottayam with total geographical area of 726, 200 hectares, forming 18.68 per cent area of the State. The soils are generally lateritic, the texture ranging from sandy to sandy loam, clay loam. The major crops grown in the region are rice, coconut, vegetables, tapioca, pepper, arecanut, banana etc.

3.2.4.2 Central zone

The Central zone consists mainly of three districts: Ernakulam, Thrissur and Palakkad excluding the high ranges, central saline tracts and other isolated areas like kole lands with special soil and physiographic conditions. Geographical area of the zone is 973,689 hectares forming 25 per cent area of the State. The soil type is generally laterite. This zone is the major rice growing tract of the State. Coconut, arecanut, vegetables, banana are the other important crops grown in the region.

3.2.4.3 Northern zone

Northern zone consists of four districts viz. Malappuram, Kozhikode, Kannur and Kasargode. The total geographical area of the region is 1,094,600 hectares covering 28.2 per cent area of the State. The major soil types are coastal alluvium, laterite and forest loam. Nearly 88 per cent of the population of the region depends on agriculture and allied activities. Rice, coconut, vegetables, arecanut, pepper, cashew, banana and rubber are the important crops grown in the region.

3.2.4.4 High range zone

This zone comprises Wynad and Idukki districts, Nelliampathy and Attappady hill ranges of Palakkad district, Thannithode and Seethathode panchayats of Pathanamthitta district, Ariyankavu, Kulathupuzha and Thenmala panchyats of Kollam district and Peringamala, Aryanad, Vithura, Kallikad and Amboori panchayats of Thiruvananthapuram district. The total geographical area of the region is 2,177, 280 hectares. Pepper, cardamom, tea and coffee are the important crops grown in the region.

3.2.4.5 Special zone of problem areas

This zone comprises sub regions viz. Onattukara, Kuttanad, Pokkali and Kole spread over the six districts viz. Alappuzha, Kollam, Kottayam, Ernakulam, Thrissur and Malappuram. Rice, coconut, sugarcane, vegetables and sesamum are the important crops grown in the region.

3.3 Variables and their measurement

3.3.1 Selection of external factors of participation efficiency and group efficiency

The study envisages the analysis of the participation efficiency and group efficiency of farmers' groups. It is conceptualised that besides the components of participation efficiency and group efficiency, there would also be the overwhelming influence of a score of external factors which may affect the participation efficiency and group efficiency of farmers' groups.

To identify these external factors, an attempt has been made to gather all available literature relating to participation of farmers in groups and their functioning through review of official documents and surfing of INTERNET. Besides, the researcher held discussions with representatives of farmers' groups, conducted pilot study in farmers' groups and identified a number of external factors which may influence participation efficiency and group efficiency of farmers' groups. The identified factors were subjected to relevancy rating by a panel of judges on a five-point continuum ranging from 'most relevant' to 'least relevant' with scores ranging from 5 to 1. The complete list of the factors with proper instructions for judgement was sent to 75 judges comprising the extension personnel of State Department of Agriculture, Scientists and Teachers of various Agricultural Universities and ICAR Institutes in the Country, (ANNEXURE -II).

Out of the 75 judges, 54 responded. Of these, four responses were incomplete and hence rejected. Thus 50 responses were finally considered for the study. Each

factor was compared on the basis of relevancy rating for consideration in the study. The factors were selected based on the Relevancy Index. Relevancy Index was worked out as follows.

$$\text{Relevancy Index (RI)} = \frac{\text{Total actual score obtained by the factor}}{\text{Total maximum possible score that factor could secure.}} \times 100$$

In this study, the Relevancy Index of the items/factors ranged from minimum of 64.60 to a maximum of 94.00. The average of minimum and maximum was taken as the cutting point for the selection of factors for inclusion in the study. Thus 15 factors each for participation efficiency and group efficiency which secured a Relevancy Index of above the cutting point were selected for inclusion in the study.

The lists of finally selected external factors of participation efficiency and group efficiency are shown in the Tables. 3.1 and 3.2 respectively.

Table 3.1. External factors of participation efficiency

Sl.No	External factors	Relevancy Index
1	Achievement motivation	94.00
2.	Perception about group approach	93.60
3	Innovation proneness	90.80
4	Risk orientation	88.80
5	Education	88.40
6	Entrepreneurial behaviour	87.20
7	Economic motivation	85.20
8	Cosmopolitaness	85.20
9	Knowledge in farming	84.80
10	Scientific orientation	83.60
11	Experience in farming	83.60
12	Annual income	83.20
13	Farm size	82.40
14	Credit orientation	81.20
15	Age	80.50

Table 3.2. External factors of group efficiency

Sl.No	External factors	Relevancy Index
1	Group action plan	92.00
2.	Group size	89.60
3	Clear cut procedures	89.20
4	Effective supply of inputs	88.40
5	Diversification of activities	85.60
6	Information backstop	85.20
7	Co-operation from other departments	85.20
8	Risk compensation	84.20
9	Lobbying power	84.40
10	Incentives	84.00
11	Political determinism	83.60
12	Guidance and supervision	82.40
13	Client driven agenda	82.00
14	Non antagonistic goals	81.80
15	Satisfaction	80.90

3.3.2 Development of Participation Efficiency Index (PEI)

Development of Participation Efficiency Index (PEI) to measure the participation efficiency of members in the group is one of the specific objectives of the study.

Participation efficiency refers to the propensity of the members to actively associate in planning, execution and monitoring and evaluation of activities related to farmers' group. Participation Efficiency Index (PEI) is the yardstick or standard to measure the level of participation of members in the various activities related to farmers' group. The index consists of various participation efficiency components and the cumulative expression of the performance of the farmers in relation to the components of participation efficiency is the Participation Efficiency Index Value (PEIV) of the member in the group.

There is no universally acceptable measure or index that could be used to evaluate the participation efficiency of farmers in a group. But the researchers constructed different types of indices for measurement based on specific objectives.

Singh (1991) measured the participation of farmers in watershed development programme through parameters such as proportion of target group of people participated in the various stages of a programme, adoption of various recommended measures and practices and spending time and money on participation in collective action.

Ganesan and Muthiah (1992) measured participation of farm leaders in agricultural development scheme by working out the participation index of each respondent by measuring the involvement of farmers in 12 identified agricultural development schemes.

Anwar *et al.* (1997) measured the participation of rural youth in household activities by selecting the household activities and developing a participation index.

In this study, participation efficiency of farmers in farmers' groups was measured by using the Participation Efficiency Index (PEI) 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 in the farming sector.

3.3.2.1 Generation of components

By viewing the available literature on participation, conducting discussions with resource persons in the field of specialisation of agriculture and management and INTERNET surfing, a comprehensive and exhaustive list of items (components) associated with participation efficiency of farmers' groups was prepared. The collected items were then subjected to a thorough sifting and sieving based on discussion with experts. The items were pre-tested with a group of farmers for its appropriateness and feasibility.

3.3.2.2 Relevancy rating of judges.

The list consisting of 19 items was sent to judges comprising experts in the field of agricultural extension of Agricultural Universities, ICAR institutes in the Country and officials of State Department of Agriculture of Kerala. They were asked to rate the items critically and also to include additional items if found necessary. The judges were requested to rate the relevancy of each items on a five-point continuum such as 'most relevant', 'more relevant', 'relevant', 'less relevant' and 'least relevant' with scores of 5,4,3,2 and 1 respectively. It is also conceptualised that components of participation efficiency have differential significance and hence the judges were requested to assign weightages to the components ranging from 1 to 10.

Out of the 75 judges, 54 responded. Of these, four responses were incomplete and hence rejected. Thus, 50 responses were finally considered for the study. The relevancy of the items to be included as the components of the participation efficiency was decided based on their Relevancy Index, which was found out by using the following formula.

$$\text{Relevancy Index (RI)} = \frac{\text{Total actual score obtained for the component}}{\text{Total maximum possible score that component could secure}} \times 100$$

Application of RI as the criterion for selection of items as components was similar to that in the case of selection of external factors. This exercise yielded ten components.

The weightages of these components were worked out by summing up the weightage scores obtained for each component and dividing it by the number of the judges responded as given below.

$$\text{Weightage of component (W)} = \frac{\text{Total weightage score obtained for the component}}{\text{Total number of judges responded}}$$

Components selected and included in the PEI, their Relevancy Index and Weightage are given in Table 3.3.

Table 3.3. Components of participation efficiency

Sl.No	Components	Relevancy Index	Weightage
1	Involvement in decision making	96.40	9.38
2.	Involvement in implementing decisions	92.30	8.94
3	Involvement in monitoring and evaluation	92.00	8.82
4	Sharing of responsibility	90.80	8.80
5	Communication behaviour	88.40	8.46
6	Promptness and regularity in attending meetings	88.20	8.40
7	Leadership propensity	88.00	8.38
8	Empowerment	85.20	8.32
9	Conflict resolutions	81.60	8.26
10	Competitive spirit	80.50	8.18

The above ten components constitute to form the Participation Efficiency Index (PEI).

3.3.3 Operationalisation and measurement of components of PEI

3.3.3.1 Involvement in decision making

Refers to the involvement of the members in generation of ideas, evaluation of options and making choice from among options.

3.3.3.2 Involvement in implementing decisions

Refers to the extent of physical and moral presence, involvement in physical working and sharing of responsibility by the member in group activities.

3.3.3.3 Involvement in monitoring and evaluation

Refers to the involvement by the member in reviewing progress of implementing programmes, suggesting modifications and evaluating the achievements with respect to group goals.

3.3.3.4 Sharing of responsibility

Refers to the processes involved such as voluntarism and capability - potentiality considerations in sharing responsibilities by the members of group.

The above four components of PEI were measured by using the schedules developed for the study. The schedules contained five statements each. To measure the first three components, ie. Involvement in decision making, Involvement in implementing decisions and Involvement in monitoring and evaluation, the respondents were asked to respond to the statements in a three-point continuum as 'Always', 'Sometimes' and 'Never' which carried scores 2, 1 and 0 respectively. In the case of Sharing of responsibility there were four positive statements and one negative statement and responses were obtained in a five-point continuum as 'Strongly Agree' to 'Strongly Disagree' with scores ranging from 4 to 0 for positive statements. The scoring was reversed in the case of negative statements. Summation of the scores obtained for the statements in the schedule formed the total score of respective component.

3.3.3.5. Communication behaviour

Refers to information listening, seeking, processing and sharing behaviour by the member in the group.

It was measured by using the procedure used by Kareem (1984) with slight modifications. Information input, Information processing, Information output and Information feed back were the sub-components considered to measure communication behaviour. Responses to the items were obtained in a three-point continuum as 'Most often' 'Sometimes' and 'Never' with scores of 2,1 and 0 respectively. The score of communication behaviour of the respondent was obtained by adding score of each item included in the sub-components.

3.3.3.6 Promptness and regularity in attending meetings

Refers to the frequency, punctuality and readiness of the member in attending the group meetings.

3.3.3.7 Leadership propensity

Refers to the degree of ability of the member to influence the group, in deciding and implementing group activities.

3.3.3.8 Empowerment

Refers to the extent to which the group members have gained the authority to get involved in decision making and in implementing the programmes.

3.3.3.9 Conflict resolutions

Refers to the availability of techniques/methods to overcome disagreement, disputes, clashes, quarrel or differences of opinion on group activities.

The above four components: Promptness in attending meetings, Leadership propensity, Empowerment and Conflict resolutions were measured by using the schedules developed for the purpose. In the case of Promptness in attending meetings, Leadership propensity and Conflict resolutions, the schedules consisted of five statements each and the responses were obtained in a three-point continuum as 'Always' 'Sometimes' and 'Never'. The scoring pattern was 2,1, and 0 for positive statements and 0,1 and 2 for negative statements respectively. The schedule on Empowerment, contained four statements and responses were obtained in 'Yes' or 'No' option with score of 1 and 0 respectively. The summation of the scores of each schedule formed the score of respective component of the respondent

3.3.3.10 Competitive spirit

Refers to the competitive nature of members in achieving the objective of each task in a better way.

Competitive spirit was measured by adopting the scale of Anantharaman (1991). The scale consisted of six statements. Responses were in a five-point continuum ranging from 'Strongly Agree' to 'Strongly Disagree' with score of 4,3,2,1 and 0 for positive statements and 0,1,2,3 and 4 for negative statements. Summation of the scores formed the score of competitive spirit of the respondent.

3.3.4 Development of Group Efficiency Index (GEI)

There is no universally accepted measure or index developed that could be used to evaluate the group efficiency of farmers' group.

Development of Group Efficiency Index (GEI) to measure the group efficiency of farmers' group is one of the specific objectives of the study.

Group efficiency refers to the extent to which group fulfills its objectives through increased involvement of members in group related activities.

Group Efficiency Index (GEI) is the yardstick or expression or standard to measure the level of efficiency of group in the various activities related to farmers' group. The index consists of various group efficiency components and cumulative expression of these components is the Group Efficiency Index Value (GEIV).

In this study, the group efficiency of farmers' group was measured by using the Group Efficiency Index (GEI) developed for the purpose. The procedure used for developing the index was similar to that of Participation Efficiency Index. The procedure is explained below.

3.3.4.1. Generation of components

By reviewing the available literature on group functioning, conducting extensive discussions with resource persons in the field of specialisation and INTERNET surfing, a comprehensive and exhaustive list of items (components)

associated with group efficiency of farmers' group was prepared. The collected items were then subjected to thorough sifting and sieving based on discussion with experts. The items were then pre-tested with a group of farmers for its appropriateness and feasibility.

3.3.4.2. Relevancy rating by judges

The list consisting of 17 items was sent to judges. They were asked to examine the items critically and also to include additional items if found necessary. The scoring pattern of relevancy and weightage was same as that of PEI.

Out of the 75 judges, 54 responded. 50 responses which were complete in all respects were finally considered for the study. Relevancy of the items was decided based on the Relevancy Index worked out as similar to that of PEI.

$$\text{Relevancy Index (RI)} = \frac{\text{Total actual score obtained for the component}}{\text{Total maximum possible score that component could secure}} \times 100$$

Application of RI as the criterion for selection of items as the components was similar to that in the case of external factors. This exercise yielded ten components.

The weightages of these components were worked out by the formula and procedure adopted for PEI.

The components selected and included in GEI, their Relevancy Index and weightage are given in Table 3.4.

Table 3.4. Components of group efficiency

Sl.No	Components	Relevancy Index	Weightage
1	Group cohesion	96.00	9.40
2.	Team spirit	95.20	9.04
3	Group interaction	94.40	9.00
4	Group leadership	92.80	8.88
5	Accountability	92.40	8.59
6	Transparency	91.60	8.44
7	Sustained profit	91.60	8.30
8	Productivity	86.00	8.28
9	Equity	84.00	8.26
10	Employment generation	81.40	8.24

The above ten components constitute to form the Group Efficiency Index (GEI).

3.3.5. Operationalisation and measurement of components of group efficiency

3.3.5.1 Group cohesion

Refers to the degree to which group members are affiliated to one another and are motivated to remain in the group.

3.3.5.2 Team spirit

Refers to the extent to which joint action behaviour is exhibited by group members through co-ordinated efforts to achieve common goals.

3.3.5.3 Group interaction

Refers to the tendency of members to get in touch with other members of the group and freely mix with them without any formality or inhibition.

3.3.5.4 Group leadership

Refers to the effectiveness of the leaders in promoting the stability and success of the group.

3.3.5.5 Accountability

Refers to the extent to which members are answerable for performance of responsibilities or achievement of objectives as agreed upon.

3.3.5.6 Transparency

Refers to the extent to which the activities of the group are open and clear to the members of the group.

3.3.5.7. Sustained profit

Refers to the extent to which activities of the group provide continued profits and monetary benefits to the members.

The above seven components were measured by applying the schedule developed for the study. The schedules of Group cohesion, Transparency and Sustained profit contained four statements each, whereas the schedules of Group leadership and Accountability had five statements each. These statements were measured on a three-point continuum as 'Always', 'Sometimes' and 'Never'. Positive

statements carried scores of 2,1 and 0 and negative statements 0,1, and 2 respectively. Team spirit and Group interaction schedules consisted of four statements each and responses were obtained on a five-point continuum ranging from 'Strongly Agree' to 'Strongly Disagree'. The scoring pattern ranged from 4 to 0 for positive statements and 0 to 4 for negative statements. Summation of scores of each schedule formed the score of the respective component of the respondent.

3.3.5.8. Productivity

Refers to the output from unit area cultivated.

The productivity was measured in terms of increase of yield in percentage for crops viz: paddy/coconut/vegetable/other crops. The scoring procedure followed is given below.

Sl.No	Yield	Score
(a)	No increase	0
(b)	Increase upto 25 per cent	1
(c)	Increase 26 to 50 per cent	2
(d)	Increase 51 to 75 per cent	3
(e)	Increase 76 to 100 per cent	4
(f)	Increase above 100 per cent	5

3.3.5.9 Equity

Refers to how far the group approach minimises or eliminates inequalities in the distribution of production inputs and outputs among its members.

Equity was measured by using the schedule developed for the purpose. The schedule consisted of five statements. Responses to these statements were obtained in a five-point continuum ranging from 'Strongly Agree' to 'Strongly Disagree' and scoring pattern followed was 4 to 0 for positive statements and the scoring was reversed in the case of negative statements. Summation of scores of statements formed the score of equity.

3.3.5. 10. Employment generation

Refers to the extent to which the activities of the group can generate additional employment opportunities.

Hardikar (1998) measured employment generation in the sectors like enterprise, agriculture and allied occupation as the additional employment opportunities gained by the beneficiaries on these areas after availing the benefits of the programme. In this study the employment generation was measured in terms of percentage increase of employment opportunities in eight areas of crop production starting from nursery management to marketing of the produce by developing a scoring procedure. The scoring procedure followed is given below.

Sl.No	Employment opportunities	Score
(a)	Decrease more than 50 per cent	0
(b)	Decrease less than 50 per cent	1
(c)	Unchanged	2
(d)	Increase upto 50 per cent	3
(e)	Increase above 50 per cent	4

3.3.6. Computation of Participation Efficiency Index Value (PEIV)

Participation efficiency of the members in the group was measured by computing the PEIV of each respondent and compared.

Ganesan and Muthiah (1992) measured the participation of farm leaders in 12 agricultural development schemes by computing the participation index by using the following formula.

$$\text{Participation index} = \frac{\sum w_i e_i}{\sum w_i E_i}$$

where, $i = 1, 2, \dots, 12$

w_1, w_2, \dots, w_{12} were relevancy weightage of each scheme

e_1, e_2, \dots, e_{12} were extent of participation score of each scheme

E_1, E_2, \dots, E_{12} were maximum participation score of each scheme

Anwar *et al.*, (1997) measured the participation of rural youth in ten selected house hold activities by computing the participation index by applying the following formula.

$$\text{Participation Index} = P_{np} Y_0 + P_{op} Y_1 + P_{rp} Y_2$$

where,

P_{np} = percentage of respondents with no participation

P_{op} = percentage of respondents with occasional participation

P_{rp} = percentage of respondents with regular participation

Y_0 = score assigned to no participation

Y_1 = score assigned to occasional participation

Y_2 = score assigned to regular participation

In this study the Participation Efficiency Index Value (PEIV) of each respondent was computed by applying a modified version of the above two formula. PEIV of each respondent was worked out by considering extent of participation score, the maximum possible score and weightage used of each component. The formula used for this purpose was

$$PEIV = \frac{\sum \left(\frac{e_i}{E_i} \right) w_i}{\sum w_i}$$

$$ie = \frac{\left(\frac{e_1}{E_1} \right) w_1 + \left(\frac{e_2}{E_2} \right) w_2 + \dots + \left(\frac{e_{10}}{E_{10}} \right) w_{10}}{w_1 + w_2 + \dots + w_{10}}$$

where

w_1, w_2, \dots, w_{10} , were the weightage of ten components

e_1, e_2, \dots, e_{10} , were the extent of participation score of ten components

E_1, E_2, \dots, E_{10} , were the maximum possible participation score of ten components

In the modified formula (1) $\frac{e_i}{E_i}$ takes care of the unequal distribution in the range of scoring of the components and (2) the index takes a minimum value of zero and maximum one. Hence the efficiency can be easily identified and compared.

3.3.7. Computation of Group Efficiency Index Value (GEIV)

Group efficiency of the farmers' groups was measured by computing GEIV of each respondent and compared.

GEIV of each respondent was computed by applying the method similar to that of PEIV. Extent of group efficiency component score, the maximum possible

score and weightage of each component were applied in the following formula to arrive GEIV of each respondent

$$GEIV = \frac{\sum \left(\frac{g_i}{G_i}\right) w_i}{\sum w_i}$$

i.e.,

$$\frac{\left(\frac{g_1}{G_1}\right) w_1 + \left(\frac{g_2}{G_2}\right) w_2 + \dots + \left(\frac{g_{10}}{G_{10}}\right) w_{10}}{w_1 + w_2 + \dots + w_{10}}$$

where

w_1, w_2, \dots, w_{10} were the weightage of ten components

g_1, g_2, \dots, g_{10} were the extent of group efficiency score of ten components

G_1, G_2, \dots, G_{10} were the maximum possible group efficiency score of ten components

3.3.8. Operationalisation and measurement of external factors

3.3.8.1. External factors of participation efficiency

3.3.8.1.1. Achievement motivation

Refers to the striving of farmers to do good work and attain a sense of accomplishment.

It was measured by applying the achievement motivation scale of Desai (1981). The scale consisted of five incomplete sentences, each having three choices and the respondents have to choose answers felt appropriate, one of the choices indicated high achievement motivation. Farmers who responded with proper choice for each of the five sentences were given a score of '2' and for other choice '1' each. Summing up the scores obtained on the five sentences, the respondent's achievement motivation score was obtained.

3.3.8.1.2. Perception about group approach

Refers to recognition of the stimuli and interpretation about group approach in farming.

It was measured by applying the schedule developed for the purpose. The schedule consisted of nine statements both positive and negative reflecting the respondent's perception about group approach. The respondents were asked to give their responses in a five-point continuum as 'Strongly Agree', 'Agree', 'Undecided', 'Disagree', and 'Strongly Disagree'. The scoring pattern was 5, 4, 3, 2 and 1 respectively for positive statements. The scoring was reversed in the case of negative statements. Total score of all nine statements was the respondent's score on perception about group approach.

3.3.8.1.3. Innovation proneness

Refers to the keenness of the respondent in accepting new ideas and seeking changes in farming techniques and to introduce such changes into their farming operations when practical and feasible.

In this study it was measured by using the scale developed by Moulik (1965) for the purpose. The scale consisted of three sets of statements, each set containing three separate statements with weights 3,2 and 1 indicating high, medium and low degree of innovation proneness respectively. After obtaining the 'most' to 'least' choice for each of the three sets of statements, the score was arrived at by summing up the weights of the most liked statements to the weights of the least liked statements.

3.3.8.1.4. Risk orientation

Refers to the degree to which the farmer is oriented towards encountering risk and uncertainty in adopting new ideas in farming.

It was measured using the scale developed by Supe (1969). The scale consists of six statements of which one statement was negative. The scoring was in a five-point continuum as 'Strongly Agree' (5), 'Agree' (4), 'Undecided' (3), 'Disagree' (2) and 'Strongly Disagree' (1). The scoring was reversed in the case of negative statement. The total score of each statement is the score of risk orientation.

3.3.8.1.5. Education

Refers to the extent of informal and formal learning achieved by the respondent.

Education was measured by using scoring pattern suggested by Trivedi (1963) with slight modification. 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
7.	Professional Degree	7

3.3.8.1.6. Entrepreneurial behaviour

Refers to the ability of the farmer to exploit opportunities and initiate activities to increase income from farming.

The schedule followed by Varma (1996) with necessary modifications was adopted for measuring the entrepreneurial behaviour. The responses were obtained in a five-point continuum ranging from 'Strongly Agree' to 'Strongly Disagree' and the scoring pattern was 5 to 1. Total score formed the score of entrepreneurial behaviour.

3.3.8.1.7. Economic motivation

Refers to the extent to which a farmer is oriented towards profit maximisation and relative value he places on monetary gains.

The scale developed by Supe (1969) was used to measure economic motivation. The scale consisted of six statements of which fifth and sixth were 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 six statements formed the score for economic motivation.

3.3.8.1.8. Cosmopolitaness

Refers to the tendency of the farmers to be in contact with outside village on the belief that all the needs of an individual cannot be satisfied within his own village.

The scoring pattern suggested by Desai (1981) and adopted by Nelson (1992) with suitable modifications was used to measure the cosmopolitaness. The scoring pattern was as given below.

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.	All visits related to his farming	4
2.	Some visits related to his farming	3
3.	Other purposes	2
4.	No purpose	1
c) Membership in organisation outside the village		
1.	Office bearer	3
2.	Member	2
3.	No membership	1

The sum of scores obtained for (a), (b) and (c) formed the score on cosmopolitaness of the respondent.

3.3.8.1.9. Knowledge in farming

Refers to the quantum of scientific information possessed by the farmer on crop production.

The scale developed by Prasad (1978) was used to measure the knowledge of farmer with slight modifications. The scale consisted of six questions which the respondent had to answer. A score of 3 was given to correct answer, 2 for partially correct answer and one for wrong answer. The sum of scores obtained for all items indicated the knowledge score of the respondent.

3.3.8.1.10. Scientific orientation

Refers to the degree to which the farmer is oriented to the use of scientific methods of decision making in farming.

The scale developed by Supe (1969) was used with slight modifications to measure the scientific orientation of the farmers. The scale consisted of six statements. The scoring pattern was 5, 4, 3, 2 and 1 for 'Strongly Agree', 'Agree', 'Undecided', 'Disagree', and 'Strongly Disagree' responses respectively. The scoring was reversed in the case of negative statement. Summation of the scores of all the items gave the score of the scientific orientation of the respondent.

3.3.8.1.11 Experience in farming

Refers to the total number of years the respondent has been engaged in farming.

The method adopted by Ramanathan (1995) was used in this study with slight modification. The scoring procedure was.

Sl.No	Experience	Score
(a)	Upto 5 years	1
(b)	6 to 10 years	2
(c)	11 to 25 years	3
(d)	Above 25 years	4

3.3.8.1.12. Annual income

Refers to the total earnings of all the members of the family of the respondent for one year. This was obtained by adding the income earned by all adult members of the family and income from the land and crops for one year.

The scoring pattern followed in this case was as below:

Sl.No.	Income (Rs.)	Score
(a)	Upto 2000	1
(b)	2001 to 5000	2
(c)	5001 to 10000	3
(d)	10001 to 100000	4
(e)	Above 100000	5

3.3.8.1.13. Farm size

Refers to the extent of area possessed by the respondent.

Following was the scoring pattern followed in this case.

Sl.No.	Size of holding	Score
(a)	Upto 25 cents	1
(b)	26 to 50 cents	2
(c)	51 cents to 1 acre	3
(d)	1.01 to 2 acres	4
(e)	Above 2 acres	5

3.3.8.1.14. Credit orientation

Refers to the orientation to avail credit by respondent.

It was measured by 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 in four-point continuum as 'Very difficult', 'Difficult', 'Easy', and 'Very Easy' with scores 1, 2, 3 and 4 respectively. The third item was measured in a four point continuum as 'Very badly', 'Badly', 'Fairly', and 'Very Fairly', with scores 1, 2, 3 and 4 respectively. Fourth item was measured in a four-point continuum of 'Strongly Agree', 'Agree', 'Disagree' and 'Strongly Disagree' with scores of 4, 3, 2 and 1 respectively. Summation of the scores of all the items was the credit orientation score of the respondent.

3.3.8.1.15. Age

Refers to the number of calender years completed by the farmer respondent at the time of interview.

Scoring pattern suggested by Sindhudevi (1994) was adopted in this study as given below.

Sl.No.	Age	Score
(a)	Upto 35 years	1
(b)	36-50 years	2
(c)	Above 50 years	3

3.3.8.2. External factors of group efficiency

3.3.8.2.1. Group action plan

Refers to the availability of specific plan of action for group for each crop season.

It was measured by applying the schedule developed for the study. The schedule consisted of three questions. The answers to these questions were obtained in a three-point continuum. For the first question, response was obtained as : 'Yes', 'No knowledge' and 'No' and for the second and third questions the range was of response 'Agree', 'Undecided and 'Disagree. The scores were in the order of 3, 2 and 1 respectively.

3.3.8.2.2 Group size

Refers to the specific number of members in the group.

The yardstick followed in categorising the groups and scoring pattern are given below:

Sl.No.	Number of members in the group	Category/Size	Score
(a)	1 - 25	Small	1
(b)	26-50	Medium	2
(c)	51 - 100	Big	3
(d)	Above 100	Very big	4

3.3.8.2.3 Clear cut procedures

Refers to the stipulation of rules and regulations for the operation of the group, fixed by the sponsoring agency.

It was measured by applying the schedule developed for the study. The schedule consisted of four questions. The answers to the questions were obtained in 'Yes' or 'No' options with score of 2 and 1 respectively. The summation of the scores of all answers form the score of 'clear cut procedures.'

3.3.8.2.4 Effective supply of inputs

Refers to the availability of critical production inputs like seeds, fertilizer, pesticides, irrigation water and credit in correct time and sufficient quantity.

Effective supply of inputs was measured by using the scoring procedure developed for the study. Availability of five essential inputs was measured in the range of 'Always', 'Sometimes' and 'Never'. The scoring pattern was as follows.

Sl.No.	Availability of inputs	Score
1.	Always in correct quantity	3
2.	Always in correct time	3
3.	Sometimes in correct quantity	2
4.	Sometimes in correct time	2
5.	Never in correct quantity	1
6.	Never in correct time	1

The summation of the scores of five inputs formed the score of effective supply of inputs

3.3.8.2.5 Diversification of activities

Refers to the extent to which crop production activities are diversified to generate additional income.

In this study, Diversification activities was measured by applying the schedule developed for the purpose. The schedule consisted of four items and the responses were obtained as 'Yes' or 'No' which carried a score of 2 for 'Yes' and 1 for 'No'. The summation of the scores of all items formed the score of the Diversification of activities.

3.3.8.2.6 Information backstop

Refers to the availability of facilities and opportunities to the members for updating of information regarding formation, functioning and evaluation of groups.

It was measured by applying the schedule developed for the study. The schedule consisted of five statements. The respondents were asked to respond to the statements in a three-point continuum as 'Always', 'Sometimes' and 'Never' which carried a score of 3, 2 and 1 respectively. Summation of the score of all the statements gave the score of the respondent on Information backstop.

3.3.8.2.7 Co-operation from other departments

Refers to the timely assistance rendered by other development departments for effective group functioning.

Co-operation from other departments was measured by using the measurement procedure developed for the study. Names of six development departments were listed in the schedule and the group members were asked to indicate nature of co-operation they receive from these departments as 'Always', 'Sometimes' and 'Never' and the responses carried a score of 3, 2 and 1 respectively. Summation of the score was the score of 'co-operation from other departments'.

3.3.8.2.8 Risk compensation

Refers to the extent of assistance which group members are likely to receive for crop failure due to natural calamities, pests and disease attack and failure of new technology.

It was measured by applying the schedule developed for the study. The schedule consisted of three positive statements and one negative statement. Responses to these statements were obtained in a three-point continuum as 'Always', 'Sometimes' and 'Never' and carried a score of 3, 2 and 1 respectively. The scoring was reversed in the case of negative statement. Total score of all the four statements formed the Risk compensation score.

3.3.8.2.9 Lobbying power

Refers to the degree to which the group can exert pressure and influence in promoting policies to their advantage.

In this study, Lobbying power was measured by applying the schedule developed for the purpose. The schedule consisted of five statements. First two

statements related to the special assistance received by the group from government or other bodies and the last statement related to their efforts to influence officials or policy makers to receive special assistance. Responses to these statements were obtained as 'Yes' or 'No' with score 2 and 1, respectively. The third statement is related to the amount sanctioned to the scheme and this was measured in three-point continuum as 'upto one lakh', '1 to 5 lakhs' and '5 to 10 lakhs' with scores 1, 2, and 3 respectively. Fourth statement related to the involvement of people's representatives in the group as member or as office bearer. The scoring pattern followed for this was: Minister =4, MP/MLA=3, Ex-minister/ExMP/Ex MLA=2, Member of District Panchayat (MDP)/Member of Block Panchayat(MBP)/Member of Village Panchayat (MVP)/Member of Nagara Palika (MNP)=1. Summation of scores of the five items formed the score of Lobbying power.

3.3.8.2.10 Incentives

Refers to the subsidies and assistance provided by Government and sponsoring agency to motivate farmers to follow group approach in farming.

It was measured by using the schedule developed for the study. Schedule consisted of four statements of which one statement is negative. Responses to these statements were obtained in a five-point continuum ranging from 'Strongly Agree' to 'Strongly Disagree'. The scoring pattern was 5, 4, 3, 2 and 1 respectively and this was reversed in the case of negative statement. Summation of the scores of the four statements formed the score of Incentives.

3.3.8.2.11 Political determinism

Refers to the degree to which overemphasis is given to political consideration in the functioning of the group.

Political determinism was measured by using the schedule developed for the study. The schedule consisted of five questions. The responses to these questions were obtained as 'Yes' or 'No' and they carried a score of 2 and 1 respectively. Summation of the scores of the answers gave the Political determinism.

3.3.8.2.12 Guidance and supervision

Refers to the regular guidance and supervision on group activities and technical aspects provided by extension staff.

3.3.8.2.13 Client driven agenda

Refers to the extent to which group members are involved in deciding the programmes and activities of the group based on their perceived needs.

3.3.8.2.14 Non-antagonistic goals

Refers to the existence of goals which are consistent as viewed by members of the group.

The above three factors: Guidance and supervision, Client driven agenda, and Non-antagonistic goals were measured by using the schedules developed for the study. The schedules for guidance and supervision and client driven agenda consisted of three and four statements respectively. The responses were obtained

in a three-point continuum as 'Always', 'Sometimes', and 'Never' and they carried a score of 3, 2 and 1 respectively. The schedule for Non-antagonistic goals consisted of four statements of which one statement was negative. The responses were obtained in a five-point continuum ranging from 'Strongly Agree' to 'Strongly Disagree' and scoring was 5, 4, 3, 2 and 1 for positive statements and it was reversed in the case of negative statement. Summation of the score of schedule formed the score of the particular factor.

3.3.8.2.15 Satisfaction

Refers to the degree to which the members of the group achieve happiness with respect to group operations.

It was measured by adopting the scale developed by Sinha and Sharma (1980) with slight modifications. The scale consisted of eight statements and response was obtained in a five-point continuum. Scores 5, 4, 3, 2 and 1 were assigned for 'Not satisfied', 'More satisfied', 'Satisfied', 'Less satisfied' and 'Least satisfied' respectively. Summation of the scores of the statements was the score of Satisfaction.

3.4 Identification of constraints in the implementation of group approach in agriculture

In this study, identification of constraints in group approach was done in two stages.

First Stage :

In the first stage, the respondents (farmers in the groups) were asked to identify the constraints faced or felt by them in following group approach in

agriculture. For this, the constraints were grouped into seven categories in the interview schedule and the respondents were asked to rate the constraints in a three-point continuum as 'Important', 'Undecided', and 'Not important' which carried a score of 3, 2 and 1 respectively. They were also asked to add any other constraints which they considered important in following group approach. The information was collected through personal interview.

The constraints for which responses were obtained were ranked based on rank score calculated for each constraint. Summation of score divided by number of farmers responded gave the rank score of each constraint. Constraints which scored above mean rank score were selected for inclusion in the second stage.

Second stage :

In this stage, the constraints were subjected to rating by extension personnel, office bearers and project staff of the farmers' groups. They were asked to rate the constraints in a five-point continuum ranging from 'Most Important' to Least important'. They were also asked to add any constraint if they desired so. The scoring pattern was 5 to 1. In this case also, the selection of constraints was done based on rank score using mean rank score as cutting point similar to the procedure followed in the earlier stage.

3.5 Perception about group approach

With a view to assess the evaluative perception about group approach in farming sector, information was gathered from one hundred extension personnel

comprising extension staff of State Department of Agriculture, Scientists of Kerala Agricultural University, Project staff of Quasi-governmental and Non-governmental organisations, planners and policy makers in the farm sector. Questionnaire developed for the purpose was used to gather required information.

3.6 Strategy for effective participatory group approach for sustainable development of agriculture in Kerala

Based on the results and inferences obtained from the study, a draft strategy of participatory group approach for sustainable development of agriculture in the State was formulated by the researcher. The draft strategy was then subjected to refinement by the panel of experts in the field. The results of the refinement formed the strategy suggested for *Participatory group approach for sustainable development of agriculture in Kerala*.

3.7 Sampling design and data collection

Stratified random sampling procedure was followed for the purpose of drawing sample for the study. The sample selection procedures adopted for the study are indicated herewith.

3.7.1 Selection of districts for the study

One district was selected from each of the agro-climatic zones of Kerala. The districts selected for the study were Thiruvananthapuram district from Southern zone, Thrissur district from Central zone, Kozhikode district from Northern zone and Wynad district from High range zone, Alappuzha district which covers the Onattukara and Kuttanad regions from Special problem areas.

3.7.2 Selection of farmers' groups for the study

Based on the sponsorship, the farmers' groups functioning in the study area were classified into three categories :

- a) farmers' groups in the governmental sector sponsored by State Department of Agriculture for rice, coconut, pepper and vegetables.
- b) farmers' groups sponsored by the quasi-governmental sector such as groups of Kerala State Horticultural Development Programme (KHDP), Beneficiary groups of Command Area Development Agency (CADA) and Kerala Agricultural University (KAU).
- b) farmers' groups in the non-governmental sector sponsored by non-governmental organisations (NGOs).

It is estimated that about 12000 farmers' groups are functioning in the State under the category of governmental sector, 2000 groups in the quasi-governmental sector and around 300 groups in the non-governmental sector.

Ten groups were selected randomly from each selected district by giving due proportional representation to each category by adopting the following method.

- (a) six groups from governmental sector
- (b) three groups from quasi-governmental sector.
- (c) one group from non-governmental sector (NGO).

A comprehensive sample at the rate of ten groups from each selected district constituted the total of 50 groups.

For the selection of groups, the list of groups functioning under Department of Agriculture was collected from the Principal Agricultural Office of the concerned district and the list of quasi-governmental groups was gathered from the respective project offices of KHDP, CADA and KAU. The list of NGO groups was collected from Mitraniketan, a prominent NGO functioning at Vellanad, Thiruvananthapuram and the concerned office of the district Registrar. The required samples of groups were selected at random, from the above lists.

3.7.3 Selection of respondents

The ultimate unit of analysis in the study was individual farmer of the group. The list of farmers in the selected groups was collected from the Krishi Bhavans of Agriculture Department, quasi-governmental and non-governmental organizations. Five respondents were selected at random from each group, making the total sample size of 250.

3.7.4 Selection of respondents to study the perception about group approach:

To evaluate the perception about group approach in farming, a cross sectional sample of 100 respondents comprising of Agricultural Officers of Krishi Bhavans, project staff of quasi-governmental and non-governmental organisations and their supervisory officers, planners, researchers and office bearers of farmers' groups were selected from the study area.

3.7.5 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.

3.7.6 Method of data collection

The data were collected using the pre-tested interview schedule and questionnaire developed for the study. Pre-tested interview schedule was used to collect data from farmers of the groups. The interview schedule prepared in English was translated into Malayalam before administering to the respondents. Information regarding the evaluative perception of group approach in farming sector was gathered through mailed questionnaire.

3.8. Statistical tools used for the study

The data collected from the respondents were scored, tabulated and analysed using suitable statistical methods. Described below are the statistical methods, used apart from the ones included and explained under the index development procedure. Assuming that the data were normally distributed, more of parametric tests were preferred as per suggestions of Mc Nemar (1962).

3.8.1 Pearson correlation

The Pearson's product moment correlation is defined by the formula

$$r = \frac{\text{Cov}(X \text{ and } Y)}{\text{SD}(X) \text{ SD}(Y)}$$

where r = correlation coefficient

$\text{Cov}(X, Y)$ = Covariance between variables of X and Y

$\text{SD}(X)$ and $\text{SD}(Y)$ are standard deviation variables of X and Y

The variables of X and Y are taken pairwise both from the components and external factors of participation efficiency and group efficiency.

The correlation co-efficients have limits between +1 and -1. A coefficient of +1 indicates perfect positive correlation and a coefficient of -1 indicates perfect negative correlation. A positive correlation indicates a similar trend of relationship between two variables, that is, as one increases, the other also increases or as one decreases, the other also decreases.

This measure was used to assess the nature and degree of relationship between external factors and components of participation efficiency and group efficiency, and for working out the intercorrelation among various components and external factors of participation efficiency and group efficiency. The computed 'r' values were tested for their significance using the student's 't' table values at (n-2) degree of freedom, where the 'n' denotes the number of pairs of observations.

3.8.2 ANOVA

Analysis of variance (ANOVA), is a powerful test of significance when comparisons across more than two categories are involved. In this study ANOVA was utilized to make comparisons between governmental sector, quasi governmental sector and non-governmental sector for variables of participation efficiency and group efficiency.

3.8.3 Step-wise multiple regression analysis

Step-wise multiple regression analysis was employed to obtain information regarding the best sub-group of external factors (independent variables) and the relative contribution of each of these external factors (X_i) towards the variations in the dependent variables (Y), i.e., the PEI and GEI. Step-wise multiple regression analysis selects the best subset of external factors in predicting variations in the dependent variable in such a manner that

- (a) it yields the largest multiple correlation among all subjects
- (b) inclusion of the remaining variables does not significantly improve the prediction of dependent variable .

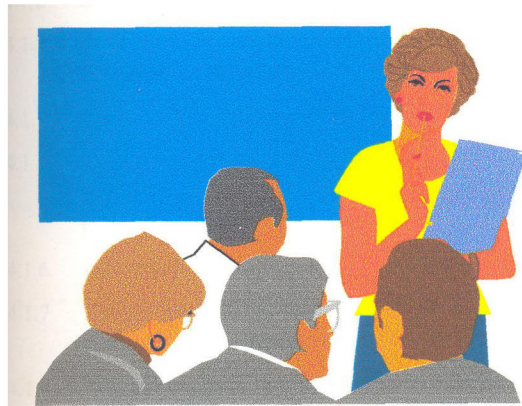
3.8.4 Principal components analysis

The components determining participation efficiency and group efficiency 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

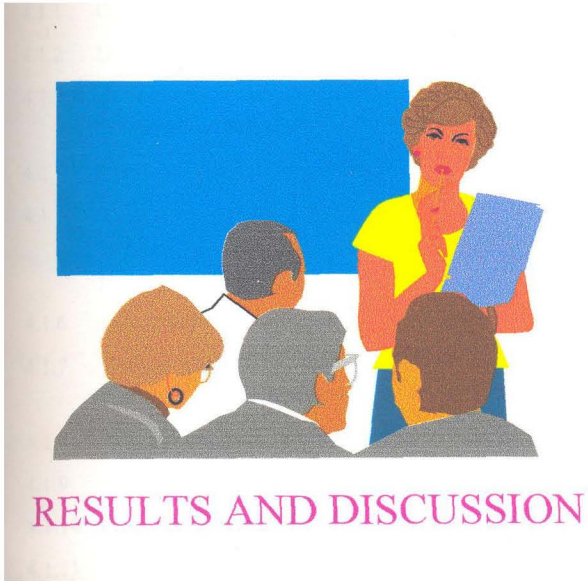
between the respondents. The total variability present in the data are divided into different components (equal to the number of factors) such that each component is a linear combination of the different factors. These combinations (or functions) are called principal components.

The procedure of finding these functions is by applying orthogonal transformation to the original set of variables (Hotelling, 1933). Here a multidimensional data set are 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. Data on the finally selected ten components each of participation efficiency as well as group efficiency were used in the present study.



RESULTS AND DISCUSSION



RESULTS AND DISCUSSION

CHAPTER - IV

RESULTS AND DISCUSSION

Keeping the objectives of the study in view, the results and discussion are presented in the following sections.

SECTION - I

4.1 Participation efficiency

- 4.1.1 Components of participation efficiency
- 4.1.2 Development of Participation Efficiency Index (PEI)
- 4.1.3 Correlation of components of participation efficiency with Participation Efficiency Index Value (PEIV)
- 4.1.4 Intercorrelation among components of participation efficiency
- 4.1.5 Comparison of Government, Quasi-government and NGO sponsored farmers' groups and districts with respect to the components of participation efficiency
- 4.1.6 Distribution and classification of respondents based on PEIV
- 4.1.7 Comparison of Government, Quasi-government and NGO sponsored farmers' groups and districts with respect to PEIV
- 4.1.8 Principal components analysis of components of participation efficiency
- 4.1.9 External factors of participation efficiency
- 4.1.10 Correlation of external factors of participation efficiency with PEIV
- 4.1.11 Intercorrelation among external factors of participation efficiency
- 4.1.12 Relative importance of external factors in influencing participation efficiency
- 4.1.13 Comparison of Government, Quasi-government and NGO sponsored farmers' groups and districts with respect to external factors of participation efficiency

SECTION - II

4.2 Group efficiency

- 4.2.1 Components of group efficiency
- 4.2.2 Development of Group Efficiency Index (GEI)
- 4.2.3 Correlation of components of group efficiency with Group Efficiency Index Value (GEIV)
- 4.2.4 Intercorrelation among components of group efficiency
- 4.2.5 Comparison of Government, Quasi-government and NGO sponsored farmers' groups and districts with respect to the components of group efficiency
- 4.2.6 Distribution and classification of respondents based on GEIV
- 4.2.7 Comparison of Government, Quasi-government and NGO sponsored farmers' groups and districts with respect to GEIV
- 4.2.8 Principal components analysis of components of group efficiency
- 4.2.9 External factors of group efficiency
- 4.2.10 Correlation of external factors of group efficiency with GEIV
- 4.2.11 Intercorrelation among external factors of group efficiency
- 4.2.12 Relative importance of external factors in influencing group efficiency
- 4.2.13 Comparison of Government, Quasi-government and NGO sponsored farmers' groups and districts with respect to external factors of group efficiency

SECTION - III

4.5. Constraints in implementation of group approach in agriculture

SECTION - IV

- 4.6. Perception of extension personnel on group approach and suggestions to improve group approach in agriculture.
 - 4.6.1 Perception of extension personnel on group approach in agriculture.
 - 4.6.2 Suggestions to improve the implementation of group approach in agriculture.

SECTION - V

- 4.7. Strategy for effective participatory group approach for sustainable development of agriculture in Kerala.

SECTION - I

4.1 Participation efficiency

4.1.1 Components of participation efficiency

Ten components of participation efficiency of farmers were identified and selected for the purpose of study based on review of literature, judges' rating and Relevancy Index. The procedure adopted in this regard was described in the Methodology Chapter. The components of participation efficiency identified were: (1) Involvement in decision making, (2) Involvement in implementing decisions, (3) Involvement in monitoring and evaluation, (4) Sharing of responsibility, (5) Communication behaviour, (6) Promptness and regularity in attending meetings, (7) Leadership propensity, (8) Empowerment, (9) Conflict resolution and, (10) Competitive spirit.

It could be observed that the ten components of participation efficiency objectively arrived represented fairly the major functional dimensions of participation as conceptualised in the review of literature part.

The components emerged were also in line with the view of Mishra (1984), who reported that involvement of people in participatory approach are in the scenes such as: decision making; implementing programmes; monitoring and evaluation and sharing of benefits of development. Similar finding was reported by World Bank (1994) on mechanisms of participatory involvement such as information sharing

mechanisms, shared decision making mechanisms and empowering mechanisms. Shah and Shah (1995) found that participation in development process supported formation of accountable institutions. Puhazhendi and Jayaraman (1999) also reported that regularity in meetings, regular attendance and effective leadership are the major factors contributing to good participation.

4.1.2 Development of Participation Efficiency Index (PEI)

The PEI was used as a tool to assess the participation efficiency of the respondents. The ten components of participation efficiency constitute to form the PEI (Table 3.3). Based on the scores obtained by applying the PEI, the Participation Efficiency Index Value (PEIV) of the respondents were calculated to measure and compare the participation efficiency of the farmers. The procedure adopted in the development of PEI and computation of PEIV were described in the Methodology Chapter.

4.1.3 Correlation of components of participation efficiency with Participation Efficiency Index Value (PEIV)

The degree of the linear relationship of the ten components of participation efficiency with PEIV was found out by calculating the Pearson's product-moment correlation coefficient. The results are presented in Table 4.1.

The perusal of the data presented in Table 4.1 indicates the relationship of components of participation efficiency with PEIV. The test for statistical significance for correlation coefficient (r) was made at 0.05 and 0.01 level of probability.

All the ten components viz., Involvement in decision making, Involvement in implementing decisions, Involvement in monitoring and evaluation, Sharing of responsibility, Communication behaviour, Promptness and regularity in attending meetings, Leadership propensity, Empowerment, Conflict resolution, and Competitive spirit had significant and positive association with PEIV at 0.01 level.

The high correlation coefficients obtained in the present study clearly indicate that the components included in the study were not extraneous but rather form part of PEI. The positive and significant correlation of all components to PEIV justified the important assumption that components included in the PEI have significant association with participation efficiency of the members in the farmers' groups.

Table 4.1. Correlation of components of participation efficiency with Participation Efficiency Index Value (PEIV)

Sl.no.	Components	Correlation coefficient (r)
1.	Involvement in decision making	0.7856**
2.	Involvement in implementing decisions	0.7730**
3.	Involvement in monitoring and evaluation	0.7779**
4.	Sharing of responsibility	0.7261**
5.	Communication behaviour	0.6914**
6.	Promptness and regularity in attending meetings	0.7153**
7.	Leadership propensity	0.5880**
8.	Empowerment	0.6093**
9.	Conflict resolutions	0.7509**
10.	Competitive spirit	0.5700**

** Significant at 0.01 level

4.1.4 Intercorrelation among components of participation efficiency

The degree of intercorrelation among the components of participation efficiency was found out by calculating the Pearson's product-moment correlation coefficients. The results are presented in Table 4.2.

The results of the study indicated that almost all the components exhibited strong positive and significant intercorrelation between components of PEI, as majority of the correlation were significant at 0.01 level of probability. Only the component- Competitive spirit had not exhibited any significant relationship with Empowerment.

These results confirm the findings of correlation of components of participation efficiency with PEIV where the components exhibited strong positive correlation with PEIV. It indicates that components included in the PEI were not extraneous but rather integral components and a high degree of overlap is anticipated in the conceptual frame work of the study itself. The components included in PEI had been identified from extensive review and rating by judges and these precisely delineated components were expected to explain participation efficiency adequately. The positive and significant association of the components with PEIV and the intercorrelation justify their selection and inclusion in the PEI. It clearly shows that relationship among components must also be given prime importance rather than focussing on only one component in isolation, only then a greater understanding of the complexities of the participation efficiency of the members in farmers' group can be achieved.

Table 4.2 Intercorrelation matrix of components of participation efficiency

Components	1	2	3	4	5	6	7	8	9	10
1.	1.0000									
2.	0.6023**	1.0000								
3.	0.7022**	0.6024**	1.0000							
4.	0.5247**	0.6048**	0.5265**	1.0000						
5.	0.5326**	0.4811**	0.4517**	0.5668**	1.0000					
6.	0.4883**	0.4894**	0.5424**	0.4128**	0.3163**	1.0000				
7.	0.4280**	0.3062**	0.3845**	0.2706**	0.2879**	0.4036**	1.0000			
8.	0.3740**	0.4116**	0.3884**	0.3228**	0.3178**	0.4478**	0.2921**	1.0000		
9.	0.4339**	0.5689**	0.4977**	0.4675**	0.4828**	0.5548**	0.3387**	0.4693**	1.0000	
10.	0.3592	0.3460**	0.3678**	0.3963**	0.4287**	0.2490**	0.3762**	0.1656	0.5006**	1.0000

** Significant at 0.01 level

* Significant at 0.05 level

- 1 : Involvement in decision making 6 : Promptness and regularity in attending meetings
 2 : Involvement in implementing decisions 7 : Leadership propensity
 3 : Involvement in monitoring and evaluation 8 : Empowerment
 4 : Sharing of responsibility 9 : Conflict resolutions
 5 : Communication behaviour 10 : Competitive spirit

4.1.5 Comparison of Government, Quasi-government and NGO sponsored farmers' groups and districts with respect to the components of participation efficiency

The Analysis of Variance (ANOVA) was resorted to compare the components of participation efficiency between three categories of groups viz., Government, Quasi-government and NGO sponsored farmers' groups. The 'f' value and Critical Difference (CD) computed through ANOVA were applied to check significance of difference between three categories of groups with respect to each of the components of participation efficiency. The district means were also worked out taking the three categories of groups in districts, for comparison.

The results of the comparison of Government, Quasi-government and NGO sponsored farmers' groups and districts with respect to the ten components are given in Tables 4.3 to 4.12.

4.1.5.1 Involvement in decision making

It could be observed from the results in Table 4.3 that Quasi-governmental groups scored the highest mean score (4.99) followed by Governmental groups (4.18) and NGO groups (3.40). Significant difference was noticed between Governmental and Quasi-governmental groups and between Quasi-governmental and NGO groups. Among the districts, Alappuzha district had the highest mean score (5.82) and Wynad district (3.62) the lowest. It implies that the involvement of respondents in decision making was more in Quasi-governmental groups and groups in Alappuzha district as compared to other categories of groups and districts.

Important decisions related to group activities could have taken after detailed discussion in group meetings. Non involvement of the members in the decision making process would reduce the chance to protect their interests. This could be the reason for high level of involvement of Quasi-governmental group members in decision making. The findings of Morris *et al* (1978) and Muller (1997) indicated that active involvement of members in decision making was a major determinant of success of farmers' groups.

Table 4.3 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Involvement in decision making

<i>Districts</i>	<i>Farmers' Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	5.30	4.80	2.40	4.86
ALPA	5.67	6.27	5.40	5.82
THSR	3.40	5.00	1.80	3.72
KZDE	3.30	5.00	2.20	3.70
WYND	3.23	3.87	5.20	3.62
Group Mean	4.18	4.99	3.40	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F value
	0.57 ^s	0.86	0.92 ^s	7.24

TVPM : Thiruvananthapuram, ALPA : Alappuzha, THSR : Thrissur, KZDE : Kozhikode, WYND : Wynad. S : Significantly different.

4.1.5.2 Involvement in implementing decision

The results in Table 4.4 had shown that Quasi-governmental groups scored the highest mean score (4.32) followed by NGO groups (3.96) and Governmental groups (3.61). Significant difference was noticed between Governmental and Quasi-governmental groups. Among the districts, Thiruvananthapuram scored the highest mean score and Wynad the lowest mean score. It implies that the respondents of

Quasi-governmental groups and groups in Thiruvananthapuram district were rigorously involved in implementing decisions as compared to others. Each member in the group was given appropriate role in implementation of group decisions. Non-involvement of any member in the implementation would reflect in the final outcome. For this the member is answerable also. This could be the reason for high level of involvement of Quasi-governmental group members in implementation of group decisions.

Table 4.4 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Involvement in implementing decisions

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	4.77	4.07	5.20	4.60
ALPA	4.30	4.93	3.60	4.42
THSR	2.50	4.00	4.20	3.12
KZDE	4.13	4.93	3.00	4.26
WYND	2.33	3.67	3.80	2.88
Group Mean	3.61	4.32	3.96	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	'F' value
	0.51 ^s	0.78	0.83	

4.1.5.3 Involvement in monitoring and evaluation

Quasi-governmental groups scored the highest mean score (2.73) followed by Governmental groups (2.14) and NGO groups (1.48) (Table 4.5). Significant difference was noticed between Governmental and Quasi-governmental groups and between Quasi-governmental and NGO groups. Among the districts Alappuzha scored the highest (3.40) and Wynad (1.46) lowest mean score. It implies that involvement of members in monitoring and evaluation of group activities was more in Quasi-governmental groups and groups in Alappuzha district than others. All the members

in the group would have been given appropriate roles in implementing the group decisions. Effective implementation of group decision alone will yield high return. Faulty/non-implementation of group decisions will reduce the returns and that will reflect in the sharing of benefits among members. Involvement of members in monitoring and evaluation would have helped to locate favourable points and shortcomings in group activities and necessary corrective steps could be taken, if required. This could be the reason for the high level of involvement in monitoring and evaluation in Quasi-governmental groups. Shah and Shah (1995) observed that most of the NGOs are happy to involve community institutions in programme monitoring and evaluation but are less active when it comes to evaluating the performance of NGO itself as a support institution.

Table 4.5 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Involvement in monitoring and evaluation

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	3.37	2.33	1.40	2.86
ALPA	3.27	4.07	2.20	3.40
THSR	1.50	2.60	1.40	1.82
KZDE	1.37	2.73	0.80	1.72
WYND	1.20	1.93	1.60	1.46
Group Mean	2.14	2.73	1.48	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	0.43 ^s	0.66	0.71 ^s	

4.1.5.4 Sharing of responsibility

It could be observed from results in Table 4.6 that Quasi-governmental groups scored the highest mean score and lowest by NGO groups. Significant difference

was noticed between all the three categories of groups viz., Governmental vs Quasi-governmental, Governmental vs NGO and Quasi-governmental vs NGO. Among the districts, Alappuzha scored the highest (13.08) and the lowest (7.04) by Thrissur district. It implies that groups in Quasi-governmental sector and groups in Alappuzha district exhibited more sharing of the group responsibilities among their members than other categories of groups and districts. In Quasi-governmental groups all the members would have involved in implementation of group decisions by assuming appropriate roles. This could have resulted in high level of sharing of responsibility among members. FAO (1999) recommended that members of the farmers' group should share the responsibility to the group decisions, so as to make functioning of group more effective.

Table 4.6 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Sharing of responsibility

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	11.73	11.93	10.60	11.68
ALPA	13.93	13.13	7.80	13.08
THSR	5.23	11.00	6.00	7.04
KZDE	13.00	13.20	8.80	12.64
WYND	5.43	10.93	7.80	7.32
Group Mean	9.87	12.04	8.20	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	<i>F' value</i>
	1.07 ^s	1.64 ^s	1.75 ^s	12.64

4.1.5.5 Communication behaviour

Quasi-governmental groups scored the highest mean score (13.09) followed by Governmental groups (11.71) and NGO groups (5.36) with respect to Communication

behaviour (Table 4.7). Significant differences in communication behaviour of group members were noticed between Governmental vs NGO and between Quasi-governmental vs NGO groups. Among the districts, Kozhikode district scored the highest mean score (15.80) and the lowest by Wynad district (6.98). It indicates that farmers in the Quasi-governmental groups and groups in Kozhikode district have exhibited high level of Communication behaviour among group members as compared to others. High level of involvement in decision making, in implementing decisions and in monitoring and evaluation exhibited by the members in Quasi-governmental groups would have prompted them to interact and exchange ideas and information frequently with one another. This could have reflected in the high level of communication. The observation of de Lasson (1976) in this regard was that one of the key factors in influencing organisational effectiveness was the channels of communication existing in the group.

Table 4.7 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Communication behaviour

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	10.40	7.93	3.80	9.00
ALPA	15.53	18.67	5.00	15.42
THSR	8.63	15.40	4.60	10.26
KZDE	15.73	18.27	8.80	15.80
WYND	8.27	5.20	4.60	6.98
Group Mean	11.71	13.09	5.36	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	1.79	2.73 ^s	2.92 ^s	14.22

4.1.5.6 Promptness and regularity in attending meetings

Results in Table 4.8 indicated that NGO groups scored the highest mean score (5.24) followed by Quasi-governmental groups (4.29) and Governmental groups (3.34).

Significant difference was noticed between Governmental and Quasi-governmental groups and between Governmental and NGO groups. Among the districts, Alappuzha scored the highest mean score (4.90) and Wynad the lowest (2.84). It reveals that members of the NGO groups and groups in Alappuzha district exhibited high level of Promptness and regularity in attending meetings. More flexible nature of membership and informal group gatherings in NGO groups could have motivated the members to promptly and regularly attend the meetings. Clark (1991) and Hunter *et al* (1992) observed that regularity, punctuality and attendance in all group meetings were important indicators of effective group functioning.

Table 4.8 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Promptness and regularity in attending meetings

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	4.27	4.40	7.80	4.66
ALPA	4.40	6.00	4.60	4.90
THSR	2.83	4.20	3.60	3.32
KZDE	2.70	4.13	5.00	3.36
WYND	2.50	2.73	5.20	2.84
Group Mean	3.34	4.29	5.24	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	0.59 ^s	0.89 ^s	0.96	11.88

4.1.5.7 Leadership propensity

It could be observed from the results in Table 4.9 that Quasi-governmental group scored the highest mean score followed by Governmental groups and NGO groups with respect to Leadership propensity. There was significant difference between Governmental and Quasi-governmental and also between Quasi-governmental and

NGO groups. Among the districts, Alappuzha district scored the highest mean score (3.76) followed by Thrissur, Thiruvananthapuram, Kozhikode and Wynad districts. It indicated that high level of leadership propensity was exhibited by respondents of Quasi-governmental groups and the respondents of Alappuzha district. More exposure to trainings, seminars, field visits, discussions and group interaction facilities available in Quasi-governmental groups could have helped the members to acquire leadership qualities. Riddell and Robinson (1995) observed that frequent objective of group approach is to try to develop effective leadership among poor.

Table 4.9 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Leadership propensity

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	1.97	3.40	2.40	2.44
ALPA	4.00	3.80	2.20	3.76
THSR	3.03	4.93	0.40	3.34
KZDE	2.10	3.20	2.00	2.42
WYND	2.23	1.93	2.20	2.14
Group Mean	2.67	3.45	1.84	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F value
	0.59 ^s	0.90	0.96 ^s	6.64

4.1.5.8 Empowerment

NGO groups scored the highest mean score (2.56) followed by Quasi-governmental groups (2.33) and Governmental groups (1.65) with respect to Empowerment (Table 4.10). Significant difference was noticed between Governmental and Quasi-governmental groups and between Governmental and NGO groups. Among the districts, Alappuzha district scored the highest mean score (2.32) and Wynad

the lowest score (1.30). It indicates that respondents of the Quasi-governmental groups and respondents of Alappuzha district exhibited high level of empowerment in group related activities. Less involvement of government officials and political leaders in decision making and flexible rules and regulation in implementation group decision could have helped the members of NGO groups to perceive themselves as highly empowered. The findings are similar to that of Garforth (1993) who reported that empowerment in farmers' organisations rarely occurred particularly when these groups were dependent on government.

Table 4.10 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Empowerment

<i>Districts</i>	<i>Farmers' Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	2.10	2.27	3.40	2.28
ALPA	1.97	3.40	1.20	2.32
THSR	1.50	2.33	3.40	1.94
KZDE	1.30	2.47	3.60	1.88
WYND	1.37	1.20	1.20	1.30
Group Mean	1.65	2.33	2.56	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	0.40 ^s	0.62 ^s	0.66	

4.1.5.9 Conflict resolutions

In the case of component-Conflict resolutions, NGO groups scored the highest mean score (4.48) followed by Quasi-governmental groups (4.28) and Governmental groups (3.83) (Table 4.11). But no significant difference existed among Governmental, Quasi-governmental and NGO groups. Alappuzha district had scored the highest mean score (4.72) followed by Kozhikode (4.62), Thiruvananthapuram

(4.42), Thrissur (3.52) and Wynad (2.88) districts. Majority of the members in NGO groups were drawn from the lowest strata of the society. More informal and less interference of politics in decision making and existence of flexible rules and regulations in implementing group decisions could have created less conflict situations in NGO groups as compared to others. The observations of Gubbels (1993) was that distinct gradation of wealth, power and influence based on age, family origin and occupation generated conflict of interests and Rehman and Rehman (1998) reported that successful participation depends on the extent to which effective and non-frictional participation was secured.

Table 4.11 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Conflict resolution

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	3.93	4.60	6.80	4.42
ALPA	4.87	5.00	3.00	4.72
THSR	3.37	3.73	3.80	3.52
KZDE	4.00	5.47	5.80	4.62
WYND	3.00	2.60	3.00	2.88
Group Mean	3.83	4.28	4.48	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	NS	NS	NS	2.20

NS : No significant difference

4.1.5.10 Competitive spirit

The results in Table 4.12 revealed that the respondents of Quasi-governmental groups exhibited high level of Competitive spirit by scoring a mean score of 12.92 followed by Governmental groups (12.89) and NGO groups (8.16). Significant

difference was noticed between Governmental and NGO groups and between Quasi-governmental and NGO groups with respect to level of competitive spirit exhibited by group members. Among the districts, Kozhikode district scored the highest mean score. It indicates that respondents of Quasi-governmental groups and the respondents of Kozhikode district exhibited high level of competitive spirit in group related activities as compared to other categories of groups and districts. Quasi-governmental groups assign appropriate roles to each member to implement the group decisions. Members could have competed with one another to excel in implementing group decisions. Hence high competitive spirit was noticed in Quasi-governmental groups. Pillai (1983) reported similar finding that two categories of farmers significantly differed with each other on the level of competitive spirit expressed by them.

Table 4.12 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Competitive spirit

<i>Districts</i>	<i>Farmers' Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	12.67	14.00	8.80	12.68
ALPA	13.47	10.80	6.00	11.92
THSR	12.67	14.33	7.40	12.64
KZDE	14.30	13.47	12.00	13.82
WYND	11.37	12.00	6.60	11.08
Group Mean	12.89	12.92	8.16	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	'F' value
	0.96	1.47 ^s	1.57 ^s	21.78

The findings of the comparison of Governmental, Quasi-governmental and NGO groups with respect to components of participation efficiency could be summarised

as follows. Quasi-governmental groups scored highest mean score for the components such as Involvement in decision making, Involvement in implementing decisions, Involvement in monitoring and evaluation, Sharing of responsibility, Communication behaviour, Leadership propensity and Competitive spirit. NGO groups scored highest mean score for other components such as Promptness and regularity in attending meetings, Empowerment and Conflict resolutions. Governmental groups have not scored the highest mean score for any of these ten components. For the components such as Involvement in decision making, Involvement in monitoring and evaluation, Sharing of responsibility, communication behaviour, Leadership propensity and Competitive spirit, NGO groups scored very low scores. For the components such as Involvement in implementing decisions, Promptness and regularity in attending meetings, Empowerment and Conflict resolution, Governmental groups scored very low scores. Quasi-governmental groups have not scored the lowest score for any of the components.

Among the districts, Alappuzha district scored the highest mean score for components such as Involvement in decision making, Involvement in monitoring and evaluation, Sharing of responsibility, Communication behaviour, Promptness and regularity in attending meetings, Leadership propensity, Empowerment and Conflict resolutions. Thiruvananthapuram and Kozhikode districts scored highest mean score for Involvement in implementing decisions and Competitive spirit, respectively. Wynad district scored lowest mean score for all the components except

Sharing of responsibility. Thrissur district scored lowest mean score for Sharing of responsibility. The inference is that respondents of Quasi-governmental groups and respondents in Alappuzha district exhibited high level of participation efficiency in group related activities.

4.1.6 Distribution and classification of respondents based on Participation Efficiency Index Value (PEIV)

The results of the distribution and classification of respondents based on PEIV are presented in Tables 4.13 and 4.14, respectively.

In this study, the respondents are classified into three categories as Low, Medium and High participation efficiency categories based on PEIV. Respondents in the range of 0.1-0.4 PEIV fall in Low, 0.4-0.6 PEIV in Medium and 0.6-0.8 PEIV in High participation efficiency categories.

Distribution of respondents in seven ranges of PEIV (0.1 to 0.8), with its frequency and percentage of respondents are presented in Table 4.13. Classification of respondents as Low, Medium and High based on PEIV with its frequency and percentage are presented in Table 4.14. Results indicated that 26.8 per cent of the respondents fell in low, 56 per cent in Medium and 17.2 per cent in High participation efficiency categories. It implies that majority of the respondents (more than 50 per cent) exhibited medium level of participation and only 17.2 per cent of the respondents exhibited high level of participation in group related activities. The above findings are almost similar to that of the observation of Natarajan (1991) who had found that majority of respondents were seen with medium level of participation followed by 8.33 per cent with high level of participation in

social forestry programme. Velusamy (1999) reported that 34.00 per cent of beneficiaries fell in medium level of participation.

Table 4.13 Distribution of respondents based on Participation Efficiency Index Value (PEIV)

Sl.no.	Range of PEIV	Frequency	Cumulative frequency less than lower class boundary	Cumulative frequency below mid value of each score	$P = \frac{d}{250}$	Percentile
	(a)	(b)	(c)	(d)	(e)	(f)
1.	0.1 - 0.2	2	250	249.00	0.996	100.00
2.	0.2 - 0.3	18	248	239.00	0.956	96.00
3.	0.3 - 0.4	47	230	206.50	0.826	83.00
4.	0.4 - 0.5	62	183	152.00	0.608	61.00
5.	0.5 - 0.6	78	121	82.00	0.328	33.00
6.	0.6 - 0.7	33	43	26.50	0.106	11.00
7.	0.7 - 0.8	10	10	5.00	0.020	1.00

Table 4.14 Classification of respondents based on PEIV

Sl.no.	Description	Class interval	Frequency	Percentage
1.	Low	0.1 - 0.4	67	26.8
2.	Medium	0.4 - 0.6	140	56.0
3.	High	0.6 - 0.8	43	17.2

4.1.7 Comparison of Government, Quasi-government and NGO sponsored farmers' groups and districts with respect to Participation Efficiency Index Value (PEIV)

The Analysis of Variance (ANOVA) was done to compare the PEIV between three categories of groups viz., Governmental vs Quasi-governmental, Governmental vs NGO and Quasi-governmental vs NGO and also to check the significant difference between the above three categories of groups with respect to PEIV. The comparison of districts was done by comparing the districts mean of PEIV.

The results of comparison are presented in Table 4.15. Quasi-governmental groups scored the highest mean score (0.53) followed by Governmental groups (0.47)

Fig.3 DISTRIBUTION OF RESPONDENTS BASED ON PEIV

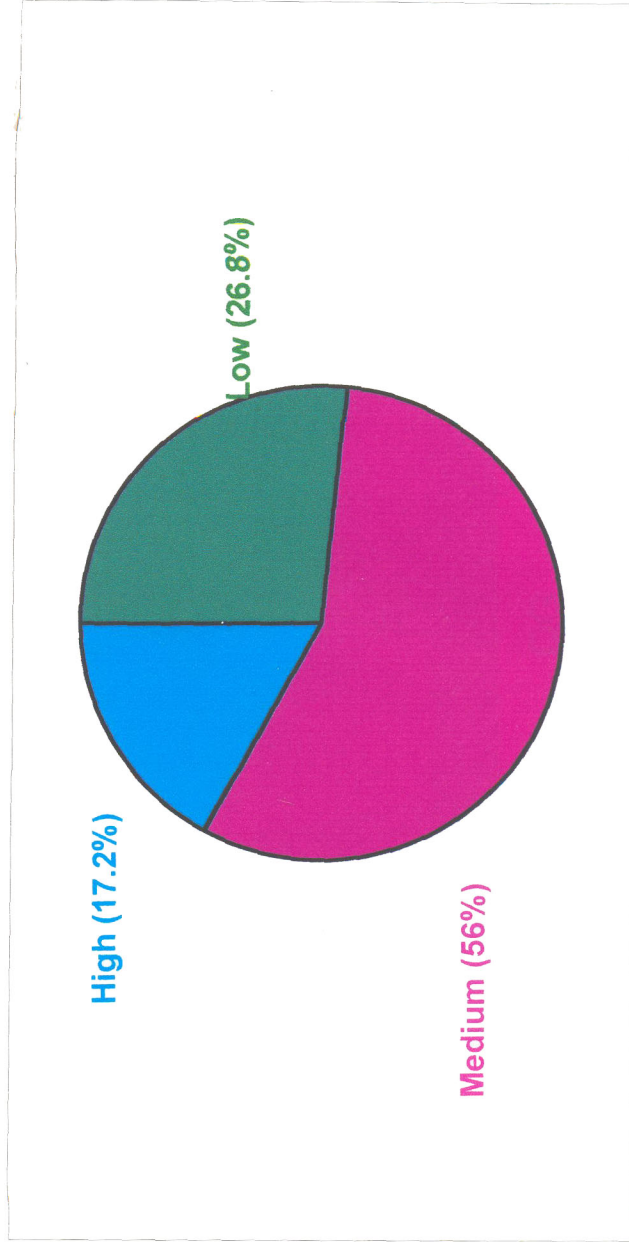


Fig.3 DISTRIBUTION OF RESPONDENTS BASED ON PEIV

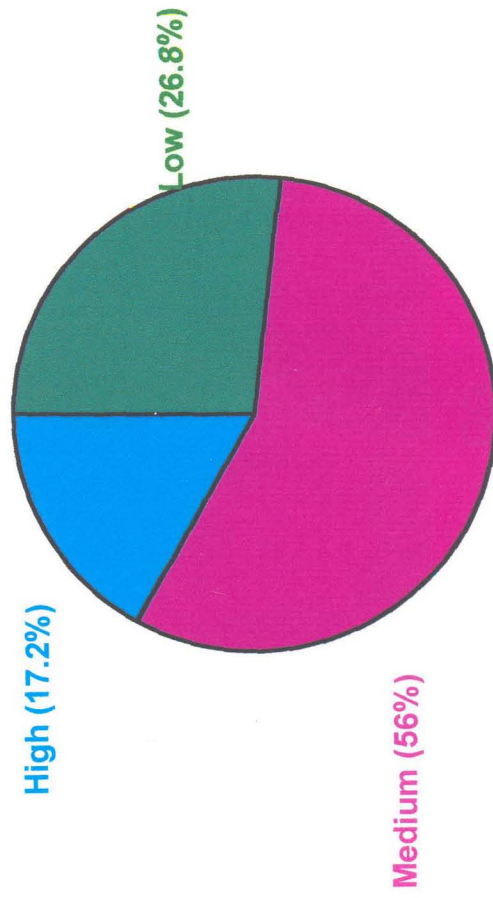
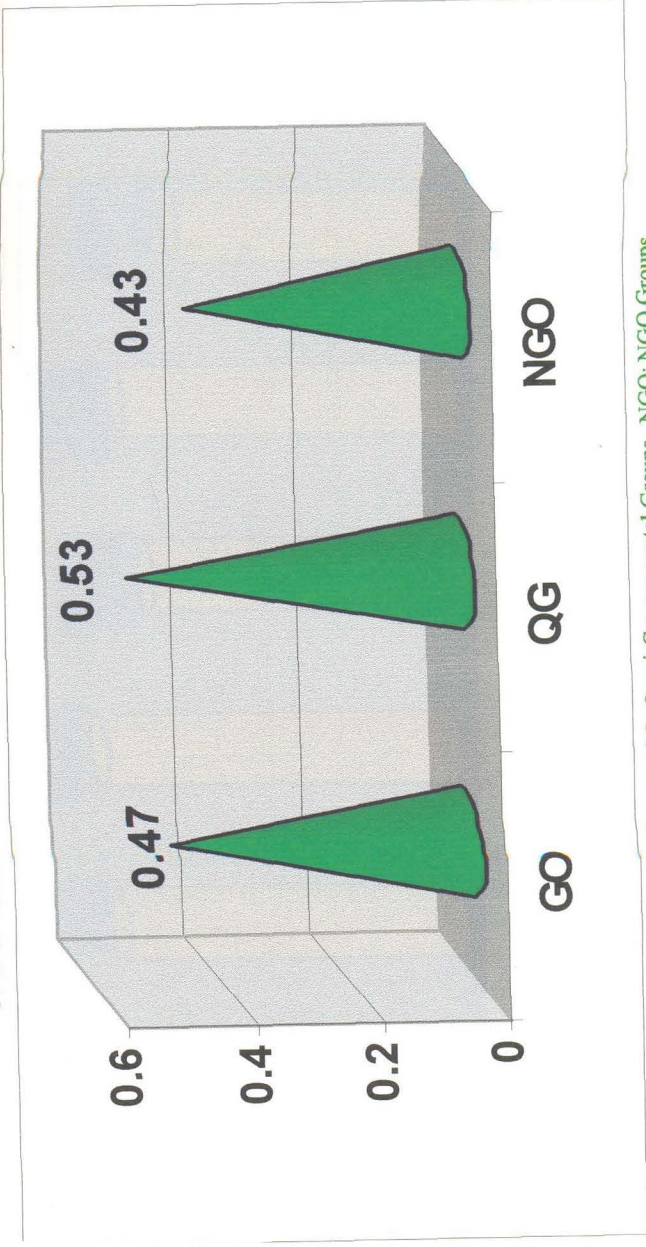
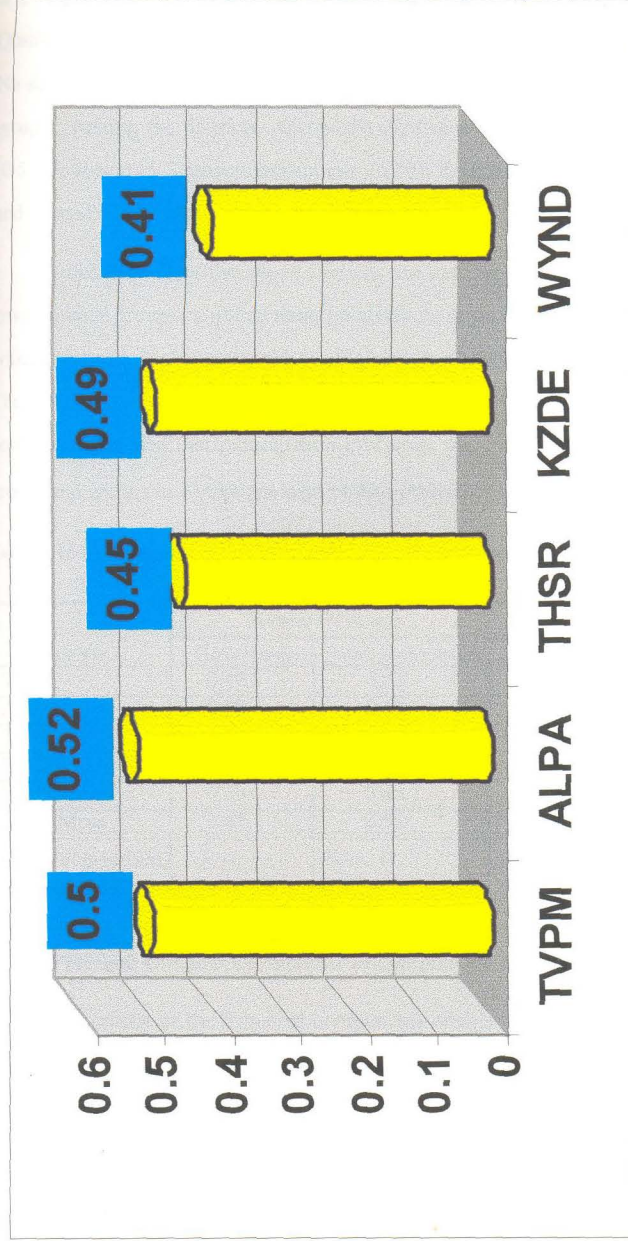


Fig.4 COMPARISON OF GOVERNMENTAL, QUASI-GOVERNMENTAL AND NGO GROUPS WITH RESPECT TO PEIV



GO: Governmental Groups, QG: Quasi-Governmental Groups, NGO: NGO Groups

Fig.5 COMPARISON OF DISTRICTS WITH RESPECT TO PEIV



TVPM:Thiruvananthapuram, ALPA: Alappuzha, THSR: Thrissur, KZDE: Kozhikode, WYND: Wynad

and NGO groups (0.43). Significant difference was noticed between Governmental and Quasi-governmental and between Quasi-governmental and NGO groups with respect to PEIV. No significant difference was noticed between Governmental and Quasi-governmental groups. Among the districts, Alappuzha district scored the highest mean score (0.52) followed by Thiruvananthapuram (0.50), Kozhikode (0.49), Thrissur (0.45) and Wynad (0.41) districts.

Inferences from the above findings are that the respondents of the Quasi-governmental groups exhibited more involvement in various group related activities which resulted in higher participation efficiency than Governmental and NGO groups. The same line of findings was noticed in the groups of Alappuzha district. Hence it could be concluded that participation efficiency was more in Quasi-governmental groups and groups in Alappuzha district than others.

Table 4.15 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to PEIV

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	0.49	0.53	0.47	0.50
ALPA	0.54	0.58	0.42	0.52
THSR	0.42	0.54	0.38	0.45
KZDE	0.48	0.56	0.44	0.49
WYND	0.40	0.42	0.42	0.41
Group Mean	0.47	0.53	0.43	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	0.04 ^s	0.06	0.06 ^s	8.15

4.1.8 Principal components analysis of components of participation efficiency

The results of the Principal components analysis based on ten components (variables) of participation efficiency are presented in Tables 4.16 and 4.17. For

these ten components there will be ten vectors. VAR 1, VAR 2,
VAR 10 denotes the ten components (variables) of participation efficiency. They are : VAR 1 - Involvement in decision making; VAR 2 - Involvement in implementing decisions; VAR 3 - Involvement in monitoring and evaluation; VAR 4 - Sharing of responsibility; VAR 5 - Communication behaviour; VAR 6 - Promptness and regularity in attending meetings, VAR 7 - Leadership propensity; VAR 8 - Empowerment; VAR 9 - Conflict resolutions; and VAR 10 - Competitive spirit. The first linear combination contributed 62 per cent to the total variation; the second linear combination yielded 13 per cent and third linear combination contributed nine per cent variation. Thus the first three linear combinations of components yielded 84 per cent of the total variation. In the first linear combination larger magnitude of variation was contributed by the components such as Communication behaviour (VAR 5), Sharing of responsibility (VAR 4) and Competitive spirit (VAR 10). In the second linear combination the component Promptness and regularity in attending meetings (VAR 6) was also added along with earlier three with larger magnitude of variation. In the third combination VAR 4 and VAR 5 were identified as the components with larger magnitude. The above findings indicate that the components such as Communication behaviour (VAR 5), Sharing of responsibility (VAR 4) and Competitive spirit (VAR 10) can influence participation efficiency through higher magnitude of variation. Results of the correlation of these components with PEIV and intercorrelation of components confirm that the components such as Communication behaviour, Sharing of responsibility and Competitive spirit exert significant influence over participation efficiency of farmers' groups.

Table 4.16 Principal components analysis of the components of Participation Efficiency Index

Sl.no.	Components	PRIN 1	PRIN 2	PRIN 3	PRIN 4	PRIN 5	PRIN 6	PRIN 7	PRIN 8	PRIN 9	PRIN 10
1.	VAR.1	0.170	0.141	0.116	0.282	-0.133	0.688	-0.131	0.217	-0.323	-0.445
2.	VAR.2	0.146	0.169	0.162	0.141	0.195	0.297	0.399	-0.491	0.596	-0.146
3.	VAR.3	0.119	0.151	0.100	0.207	0.038	0.359	-0.051	-0.004	-0.094	0.876
4.	VAR.4	0.376	0.424	0.588	-0.532	-0.143	-0.147	-0.032	0.054	-0.063	-0.008
5.	VAR.5	0.814	-0.565	-0.112	0.014	-0.007	-0.049	-0.035	-0.015	0.031	0.018
6.	VAR.6	0.126	0.234	0.175	0.496	0.299	-0.335	-0.639	-0.037	0.183	-0.088
7.	VAR.7	0.109	0.210	-0.081	0.422	-0.788	-0.287	0.190	-0.140	-0.000	0.021
8.	VAR.8	0.075	0.075	0.092	0.234	0.162	-0.143	0.428	0.790	0.267	0.020
9.	VAR.9	0.149	0.184	-0.022	0.212	0.424	-0.257	0.427	-0.239	-0.640	-0.058
10.	VAR.10	0.274	0.539	-0.739	-0.228	0.079	0.054	-0.091	0.083	0.109	-0.011

VAR 1 : Involvement in decision making
 VAR 2 : Involvement in implementing decisions
 VAR 3 : Involvement in monitoring and evaluation
 VAR 4 : Sharing of responsibility
 VAR 5 : Communication behaviour
 VAR 6 : Promptness and regularity in attending meetings
 VAR 7 : Leadership propensity
 VAR 8 : Empowerment
 VAR 9 : Conflict resolutions
 VAR 10 : Competitive spirit

Table 4.17 Percentage of variation and cumulative variation contributed by the components to participation efficiency

Sl.No.	Principals	Latent Roots	Percentage Variance	Cumulative Variance
1.	PRIN 1	15116.132	61.617	61.617
2.	PRIN 2	3098.840	12.632	74.248
3.	PRIN 3	2280.231	9.295	83.543
4.	PRIN 4	1452.384	5.920	89.463
5.	PRIN 5	751.549	3.063	92.527
6.	PRIN 6	598.067	2.438	94.965
7.	PRIN 7	432.203	1.762	96.727
8.	PRIN 8	328.267	1.338	98.065
9.	PRIN 9	268.494	1.094	99.159
10.	PRIN 10	206.630	0.842	100.000

4.1.9 External factors of participation efficiency

Based on review of literature and judges' rating, 15 external factors of participation efficiency were identified. They were (1) Achievement motivation, (2) Perception about group approach, (3) Innovation proneness, (4) Risk orientation, (5) Education, (6) Entrepreneurial behaviour, (7) Economic motivation, (8) Cosmopolitaness, (9) Knowledge in farming, (10) Scientific orientation, (11) Experience in farming, (12) Annual income, (13) Farm size, (14) Credit orientation and, (15) Age. Based on the conceptual model of the study it was assumed that these external factors would influence the participation efficiency of the farmers in different magnitudes and directions.

4.1.10 Correlation of external factors of participation efficiency with Participation Efficiency Index Value (PEIV)

The degree of linear relationship of 15 external factors of participation efficiency with PEIV was found out by calculating the Pearson's product-moment correlation coefficient.

The results are presented in Table 4.18 and perusal of the data indicates the relationship of external factors of participation efficiency with PEIV. The calculated values of correlation coefficient (r) were tested at 0.05 and 0.01 levels of significance.

Out of the 15 external factors, 13 exhibited significant relationship with PEIV. Among these, Achievement motivation, Perception about group approach, Innovation proneness, Risk orientation, Education, Entrepreneurial behaviour, Economic motivation, Cosmopolitaness, Knowledge in farming, Scientific orientation and Credit orientation exhibited positive and significant relationship at 0.01 level whereas Annual income had positive and significant relationship only at 0.05 level of significance. The factors like Experience in farming and Age had shown negative and significant relationship at 0.05 level. Education and Farm size did not have any significant relationship with PEIV. Significant relationship exhibited by 13 out of 15 external factors with participation efficiency indicated that the level of participation of farmers in farmers' groups is being influenced by external factors. Significant relationship shown by 13 factors also justifies the selection and inclusion of external factors in the study.

Table 4.18 Correlation of external factors of participation efficiency with Participation Efficiency Index Value (PEIV)

Sl.no.	External factors	Correlation coefficient (r)
1.	Achievement motivation	0.6183**
2.	Perception about group approach	0.5099**
3.	Innovation proneness	0.4813**
4.	Risk orientation	0.3891**
5.	Education	0.1812
6.	Entrepreneurial behaviour	0.3641**
7.	Economic motivation	0.4035**
8.	Cosmopolitaness	0.3285**
9.	Knowledge in farming	0.3684**
10.	Scientific orientation	0.5930**
11.	Experience in farming	-0.2205*
12.	Annual income	0.2248*
13.	Farm size	0.0015
14.	Credit orientation	0.6133**
15.	Age	-0.2103*

** Significant at 0.01 level

* Significant at 0.05 level

4.1.11 Intercorrelation among external factors of participation efficiency

The degree of linear relationship among the external factors of participation efficiency was also found out by calculating the Pearson's product-moment correlation coefficients. The results are presented in Table 4.19.

It could be observed from the results that ten external factors such as Achievement motivation, Perception about group approach, Innovation proneness, Risk orientation, Education, Entrepreneurial behaviour, Economic motivation, Scientific orientation, Annual income and Credit orientation exhibited positive and

Table 4.19 Intercorrelation matrix of external factors of participation efficiency

Factors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.	1.0000														
2.	0.3762**	1.000													
3.	0.2626**	0.5077**	1.0000												
4.	0.4119**	0.5788**	0.4875**	1.0000											
5.	0.0959	0.1366	0.2524*	0.1802	1.000										
6.	0.2683**	0.5224**	0.5627**	0.5615**	0.3263**	1.0000									
7.	0.3777**	0.3952**	0.4800**	0.5846**	0.2797**	0.6976**	1.0000								
8.	0.2532*	0.3437**	0.3029**	0.2836**	0.0144	0.1853	0.1138	1.0000							
9.	0.2058*	0.3115**	0.3418**	0.3868**	0.0527	0.3729**	0.3535**	0.3465**	1.0000						
10.	0.4178**	0.4724**	0.5786**	0.4722**	0.2558**	0.4786**	0.4785**	0.2693**	0.5193**	1.0000					
11.	-0.0976	-0.1224	-0.1535	-0.0240	-0.1116	-0.0016	-0.1109	-0.0255	0.0132	-0.2402*	1.0000				
12.	0.2032*	0.3887**	0.3778**	0.3094**	0.0744	0.4018**	0.3139**	0.2201*	0.2173*	0.3774**	0.0127	1.0000			
13.	0.0133	0.0266	0.0795	0.0795	0.1146	0.1555	0.0744	0.1489	0.0538	0.1077	0.1386	0.2899**	1.0000		
14.	0.3934**	0.5081**	0.5033**	0.3766**	0.0180	0.4076**	0.2975**	0.3502**	0.3891**	0.4987**	-0.1419	0.2602**	-0.0955	1.0000	
15.	-0.0599	0.2521*	-0.1250	-0.1449	0.0229	-0.1603	-0.1078	-0.0838	0.0851	-0.1298	0.3037	-0.1143	0.1224	-0.3790**	1.0000

** Significant at 0.01 level

* Significant at 0.05 level

- 1 : Achievement motivation
 2 : Perception about group approach
 3 : Innovation proneness
 4 : Risk orientation
 5 : Education
 6 : Entrepreneurial behaviour
 7 : Economic motivation
 8 : Cosmopolitanness
 9 : Knowledge in farming
 10 : Scientific orientation
 11 : Experience in farming
 12 : Annual income
 13 : Farm size
 14 : Credit orientation
 15 : Age

significant relationship with majority of the external factors. These findings are very similar to that of results obtained in the correlation of external factors of participation efficiency with PEIV, where the above mentioned ten external factors exhibited significant relationship with participation efficiency. It was also observed that the factors like Experience in farming and Age exhibited negative relationship with all other factors with very low correlation coefficient values. Hence these findings confirm that the external factors such as Achievement motivation, Perception about group approach, Risk orientation, Entrepreneurial behaviour, Economic motivation, Scientific orientation, Annual income and Credit orientation have significant association with participation efficiency of the members in the farmers' groups.

4.1.12 Relative importance of external factors in influencing participation efficiency

Through the use of Pearson's product-moment correlation coefficient, the relationship of external factors of participation efficiency and participation efficiency of farmers' groups were identified. However a closer look revealed that participation efficiency is not influenced by any one of these factors in isolation, but rather by all of them as part of an interdependent system, through their reciprocal and interactive relationships. Hence, an attempt was made to know the relative importance of different external factors and also to explain the contribution of these external factors to the variation in participation efficiency.

The technique of step-wise multiple regression analysis was resorted to understand the relative influence of the external factors on participation efficiency of members in farmers' group and in identifying the factors which are having maximum influence on participation efficiency. The analysis also helped in explaining how participation efficiency changed due to addition of external factors. The analysis has brought out the best regression equation by identifying the best sub-groups of external factors out of many, for predicting the variations in participation efficiency. The regression equation consists of the best subset of external factors in the sense it results in the maximum predictability of participation efficiency (dependent) with relatively less number of external factors were taken as the independent variables.

The results of step-wise multiple regression analysis depicting all relevant steps are presented in Tables 4.20 and 4.21. Out of the 15 external factors subjected to regression analysis after the ninth step, eight factors were identified as having more say in explaining the variations in participation efficiency. The identified factors in the order of rank were:

1. Achievement motivation (X_1)
2. Age (X_{15})
3. Cosmopolitaness (X_8)
4. Risk orientation (X_4)
5. Knowledge in farming (X_9)
6. Innovation proneness (X_3)
7. Economic motivation (X_7)
8. Entrepreneurial behavior (X_6)

The resulted prediction equation with eight external factors is given below.

$$Y = -0.2522 + 0.0143X_1 + 0.009 X_3 + 0.009X_4 + 0.00501X_6 + 0.0071X_7 \\ + 0.0149X_8 + 0.0106X_9 + 0.0080X_{15}$$

The inclusion of above mentioned eight external factors (X_1 , X_{15} , X_8 , X_4 , X_9 , X_3 , X_7 , and X_6) yielded 72 per cent variation in participation efficiency.

The 't' values of the identified factors were found out to test their statistical significance. The 't' values indicate that all the factors except Entrepreneurial behaviour found to have significant influence in participation efficiency. Of these, Achievement motivation, Risk orientation, Cosmopolitaness, Knowledge in farming and Age were found to have statistical significance at 0.01 level and these five factors together explained a variation of 71 per cent in participation efficiency.

It would mean that when the eight selected external factors are fitted together in the regression model, these explained 72 per cent of the variation in the participation efficiency of farmers in farmers' groups. The highly significant 't' value of the five factors reiterated the confirmation to the validity of 72 per cent variation explained by the factors identified in the study.

The results of step-wise multiple regression were also similar to that of the results obtained in correlation. All the factors identified through regression analysis except Age exhibited high significant association with participation efficiency. Hence the step-wise regression analysis attempted for explaining the variation due to external factors on participation efficiency of farmers in farmers' groups is justified.

Table 4.20 Results of the step-wise multiple regression analysis, showing all the significant steps of external factors (X) with PEIV (Y)

Sl.no	External factors entered in the regression analysis	'F' value	Percentage of variation	Regression sum of squares
1.	X ₁	194.7081	43.9812	1.5832
2.	X ₁ , X ₁₅	189.6032	60.5561	2.1798
3.	X ₁ , X ₁₅ , X ₈	145.9535	64.0278	2.3048
4.	X ₁ , X ₁₅ , X ₈ , X ₄	127.3538	67.5245	2.4307
5.	X ₁ , X ₁₅ , X ₈ , X ₄ , X ₉	114.7115	70.1550	2.5254
6.	X ₁ , X ₁₅ , X ₈ , X ₄ , X ₉ , X ₃	98.8423	70.9349	2.5535
7.	X ₁ , X ₁₅ , X ₈ , X ₄ , X ₉ , X ₃ , X ₇	86.5789	71.4640	2.5725
8.	X ₁ , X ₁₅ , X ₈ , X ₄ , X ₉ , X ₃ , X ₇ , X ₆	76.6577	71.7885	2.5842

X ₁ = Achievement motivation	X ₉ = Knowledge in farming
X ₂ = Perception about approach	X ₁₀ = Scientific orientation
X ₃ = Innovation proneness	X ₁₁ = Experience in farming
X ₄ = Risk orientation	X ₁₂ = Annual income
X ₅ = Education	X ₁₃ = Farm size
X ₆ = Entrepreneurial behaviour	X ₁₄ = Credit orientation
X ₇ = Economic motivation	X ₁₅ = Age
X ₈ = Cosmopolitaness	

Table 4.21 External factors of participation efficiency identified through step-wise multiple regression analysis.

Factor No.	External factors	Regression coefficient	Standard error of regression coefficient	't' value
X ₁	Achievement motivation	0.0142	0.0042	3.3800**
X ₃	Innovation proneness	0.0093	0.0044	2.1420*
X ₄	Risk orientation	0.0091	0.0016	5.6708**
X ₆	Entrepreneurial behaviour	0.0051	0.0031	1.6601
X ₇	Economic motivation	0.0071	0.0030	2.3609*
X ₈	Cosmopolitaness	0.0149	0.0033	4.5015**
X ₉	Knowledge in farming	0.0106	0.0033	3.1610**
X ₁₅	Age	0.0080	0.0014	5.6640**

**Significant at 0.01 level

*Significant at 0.05 level

4.1.13 Comparison of Government, Quasi-government and NGO sponsored farmers' groups and districts with respect to external factors of participation efficiency

The Analysis of Variance (ANOVA) was resorted to compare the external factors of participation efficiency between three categories of groups viz., Governmental, Quasi-governmental and NGO groups. The district means were also worked out by taking the three categories of groups in the districts for comparison. The results of the 15 external factors are presented in Tables 4.22 to 4.36.

4.1.13.1 Achievement motivation

It could be observed from the results in Table 4.22 that Quasi-governmental groups scored highest mean score (9.93) followed by Governmental groups (9.84) and NGO groups (9.20) though the difference among the group mean were statistically not significant. The districts mean score revealed that Thiruvananthapuram district scored highest mean score (10.24) and lowest score by Wynad district (8.76). It indicated that the respondents of Quasi-governmental groups and the respondents of Thiruvananthapuram district exhibited high level of Achievement motivation. Achievement oriented farmers would display some distinctive behavioural patterns and that definitely would be exhibited in their quest to excel in their field of activity. The inference is that groups with high level of achievers will perform better. Lowell (1952) observed that high level achievers perform better than those with low scores.

Table 4.22 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Achievement motivation

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	10.30	9.93	10.80	10.24
ALPA	10.33	10.53	8.00	10.16
THSR	9.20	10.53	10.40	9.68
KZDE	10.50	9.93	9.00	10.18
WYND	8.87	8.73	8.20	8.76
Group Mean	9.84	9.93	9.20	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	'F' value
	NS	NS	NS	

TVPM : Thiruvananthapuram, ALPA : Alappuzha, THSR : Thrissur, KZDE : Kozhikode, WYND : Wynad. S : Significantly different, NS : No significant difference

4.1.13.2 Perception about group approach

Governmental groups scored highest mean score (29.08) followed by Quasi-governmental groups (27.76) and NGO groups (25.40) with respect to Perception about group approach (Table 4.24). Governmental groups and NGO groups had shown significant difference. Among the districts, Alappuzha district scored highest mean score of 31.92 followed by Kozhikode, Thrissur, Wynad and Thiruvananthapuram districts. It implies that respondents of the Governmental groups and respondents of the Alappuzha district exhibited very favourable perception about group approach as compared to others. The concept of group approach in farming was introduced in the State by the Department of Agriculture through their Group farming programme for rice during 1989-'90. It was launched as people's programme and in the initial years it had created a very good impact among small farmers of the State.

The movement could have created a favourable perception in the minds of the small and marginal farmers. This could be the reason that farmers of the Governmental groups exhibited favourable perception about groups in agriculture. Meera (1995) reported that farmers' groups in two districts differed significantly with respect to mean utility perception scores of agricultural practices.

Table 4.23 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Perception about group approach

<i>Districts</i>	<i>Farmers' Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	25.07	24.33	28.60	25.20
ALPA	30.63	36.40	26.20	31.92
THSR	31.33	24.33	25.20	28.62
KZDE	29.53	33.13	19.60	29.62
WYND	28.87	20.60	27.40	26.24
Group Mean	29.08	27.76	25.40	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	'F' value
	1.97	3.01 ^s	3.22	3.33 ^s

4.1.13.3 Innovation proneness

The results in Table 4.24 indicated that Quasi-governmental groups scored highest mean score of 6.71 followed by Governmental groups (6.39) and NGO groups (6.12). No significant difference was noticed among the three categories of groups. Among the districts, Alappuzha district scored the highest score (6.86) and lowest score by Wynad district (6.16). It could be inferred that the respondents of Quasi-governmental groups and the respondents of Alappuzha district exhibited high level of innovation proneness behaviour as compared to other categories of groups and districts.

The high achievement motivation behaviour exhibited by the Quasi-governmental groups would be a factor which might have prompted the farmers in accepting new ideas and seek changes in farming techniques. This could be the reason for high level of innovation proneness shown by the members of Quasi-governmental groups.

Table 4.24 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Innovation proneness

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	6.23	7.07	6.60	6.52
ALPA	6.93	7.00	6.00	6.86
THSR	6.57	6.20	7.00	6.50
KZDE	6.00	7.20	5.00	6.26
WYND	6.23	6.07	6.00	6.16
Group Mean	6.39	6.71	6.12	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	NS	NS	NS	3.02

4.1.13.4 Risk orientation

The findings in Table 4.25 indicated that Governmental groups scored the highest mean score followed by Quasi-governmental groups and NGO groups. Significant difference was also noticed between Governmental and NGO groups and between Quasi-governmental and NGO groups. Among the districts, Thrissur district scored the highest mean score (21.24) and Thiruvananthapuram district with lowest mean score (18.98). It implies that the respondents of Governmental groups and the respondents of Thrissur district exhibited high level of risk taking ability in farming operations. The Department of Agriculture implements the massive schemes like Group farming

for rice, Group management for coconut and Haritha groups for vegetables by adopting the concept of group approach. These schemes extend attractive subsidies to farmers of the groups (upto Rs. 10000 per ha) for cultivation of these crops. Moreover Department of Agriculture also implements the Comprehensive Crop Insurance which provides compensation to farmers in the event of crop damages. These could be the reasons why the Government groups exhibited high level of risk orientation.

Table 4.25 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Risk orientation

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	18.20	20.33	19.60	18.98
ALPA	21.27	19.33	16.40	20.20
THSR	21.77	19.87	21.20	21.14
KZDE	19.90	21.00	15.20	19.76
WYND	20.87	17.33	16.40	19.36
Group Mean	20.40	19.57	17.76	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	'F' value
	1.97	1.44 ^s	1.53 ^s	7.25

4.1.13.5 Education

Education level of respondents of Governmental groups was observed as high followed by Quasi-governmental and NGO groups (Table 4.26). All the three groups viz., Governmental, Quasi-governmental and NGO groups exhibited significant difference amongs them with respect to Education. Education level was high in Thiruvananthapuram district among the districts. Pillai (1983) reported that educational level of the respondents in the three categories of farmers differ

significantly with one another. Krishnaiah and Maraty (1989), Kareem and Jayaramaiah (1998) and Thomas (1998) reported significant association of education with participation.

Table 4.26 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Education

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	4.47	4.07	3.60	4.26
ALPA	4.60	3.40	2.20	4.00
THSR	4.33	3.93	3.60	4.14
KZDE	3.90	4.33	2.80	3.92
WYND	4.40	4.00	2.20	4.06
Group Mean	4.34	3.95	2.88	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	0.3 ^s	0.46 ^s	0.49 ^s	

4.1.13.6 Entrepreneurial behaviour

It could be observed from the results in table 4.27 that the mean score with respect to Entrepreneurial behaviour was high in Governmental groups (18.44) followed by Quasi-governmental groups (17.89) and NGO groups (15.68). Significant difference was noticed between Governmental and NGO groups and between Quasi-governmental and NGO groups. Thrissur district scored the highest mean score among the districts. It indicates that Entrepreneurial behaviour exhibited by respondents of Governmental groups and respondents in Thrissur district were high when compared to other farmers. Farmers who have exhibited high level of entrepreneurial behaviour would have tried to exploit opportunities and initiated activities to increase more return from farms. In this case, high level of achievement

motivation coupled with high innovation proneness could have resulted in high entrepreneurial behaviour among members of Quasi-governmental groups. Kareem and Jayaramaiah (1998) observed significant association between entrepreneurial ability and participation in development programmes.

Table 4.27 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Entrepreneurial behaviour

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	16.53	18.20	18.00	17.24
ALPA	19.23	18.73	12.20	18.38
THSR	19.37	17.33	19.80	18.80
KZDE	18.63	19.53	16.20	18.66
WYND	18.33	15.67	12.20	16.92
Group Mean	18.94	17.89	15.68	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	'F' value
	0.74	1.13 ^s	1.21 ^s	11.95

4.1.13.7 Economic motivation

Governmental groups scored the highest mean score (20.69) followed by Quasi-governmental groups (20.12) and NGO groups (17.44) with respect to Economic motivation. Significant difference was also noticed between Governmental groups and NGO groups and between Quasi-governmental groups and NGO groups (Table 4.28). Among the districts, highest mean score was scored by Thrissur district (21.04) closely followed Kozhikode, Thiruvananthapuram, Alappuzha and Wynad districts. It indicates that respondents of Governmental groups and respondents in Thrissur district exhibited high level of Economic motivation. Krishnaiah and Maraty (1989) observed significant relationship between economic motivation and participation.

Anantharaman (1991) reported that economic motivation significantly contributed to farming efficiency.

Table 4.28 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Economic motivation

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	19.83	21.20	21.40	20.40
ALPA	21.50	18.53	13.00	19.76
THSR	21.23	20.67	21.00	21.04
KZDE	20.83	21.87	18.20	20.88
WYND	20.07	18.33	13.60	18.90
Group Mean	20.69	20.12	17.44	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	0.87	1.32 ^s	1.41 ^s	

4.1.13.8 Cosmopolitaness

The results in Table 4.29 revealed that the highest mean score with respect to Cosmopolitaness was scored by NGO groups (8.84) followed by Quasi-governmental groups and Governmental groups. But no significant difference was noticed between these three categories of groups. Among the districts, Alappuzha district scored the highest mean score (9.16) closely followed by other districts. The NGOs organise members of group from among poorest section of the society, who live in remote villages. These villages were not self contained enough to meet all their requirements. Farmers have to move to the nearest town for procurement of their inputs and essentials. This could be the reason that the farmers in the NGO groups had shown high level of cosmopolitaness behaviour as compared to others. Thomas (1998) observed significant association of cosmopolitaness with participation in different programmes.

Table 4.29 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Cosmopolitaness

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	8.30	8.60	8.80	8.44
ALPA	9.20	9.13	9.00	9.16
THSR	8.40	8.40	8.80	8.44
KZDE	8.77	9.07	8.40	8.82
WYND	8.40	7.93	9.20	8.34
Group Mean	8.61	8.63	8.84	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	NS	NS	NS	0.64

4.1.13.9 Knowledge in farming

The results in Table 4.30 had shown that Quasi-governmental groups scored the highest mean score (12.16) followed by Governmental groups and NGO groups. Significant difference was also noticed between Governmental groups and NGO groups and between Quasi-governmental groups and NGO groups. Among the districts, Alappuzha district scored the highest mean score (12.48) closely followed by Kozhikode district (12.36). Respondents of Quasi-governmental groups and respondents in Alappuzha and Kozhikode districts possessed high level of knowledge in farming as compared to others. High level of knowledge in farming is an important requirement to undertake profitable farming and also to participate in group activities. Farmers with sufficient knowledge alone can exhibit high level of achievement motivation, innovation proneness and entrepreneurial behaviour. This could be the reason that members of Quasi-governmental groups exhibited high level of knowledge in farming. Pillai (1983) observed significant difference between two categories of respondents with respect to level of knowledge on farming practices.

Table 4.30 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Knowledge in farming

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	10.03	14.67	11.20	11.54
ALPA	13.23	12.40	8.20	12.48
THSR	11.07	10.60	9.00	10.72
KZDE	12.17	12.53	13.00	12.36
WYND	11.17	10.60	8.20	10.70
Group Mean	11.53	12.16	9.92	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	0.80	1.22 ^s	1.31 ^s	5.90

4.1.13.10 Scientific orientation

The level of Scientific orientation was highest in Quasi-governmental groups (20.16) closely followed by Governmental groups (19.95) (Table 4.31). Significant difference was noticed between Governmental and NGO groups and between Quasi-governmental and NGO groups. Alappuzha district scored the highest mean score (21.78) among the districts and low by Wynad district. It implies that respondents in Quasi-governmental groups and respondents of Alappuzha district exhibited high level of scientific orientation, as compared to other categories of groups and districts. Farmers of high scientific orientation use scientific reasoning for decision making in farming. This behavioural pattern is related to achievement motivation, innovation proneness, entrepreneurial ability and knowledge in farming. This could be the reason that members of Quasi-governmental groups had shown high level of scientific orientation.

Table 4.31 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Scientific orientation

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	19.57	21.13	20.40	20.12
ALPA	23.37	21.40	13.00	21.74
THSR	18.07	18.00	20.00	18.64
KZDE	19.70	22.67	16.20	20.24
WYND	18.40	17.60	14.80	17.80
Group Mean	19.95	20.16	16.88	
CD for comparison of group mean	<i>Govt. vs Quasi Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	<i>F` value</i>
	1.06	1.61 ^s	1.73 ^s	8.04

4.1.13.11 Experience in farming

It was observed from the results in Table 4.32 that NGO groups scored the highest mean score (3.33) followed by Governmental and Quasi-governmental groups. No significant difference was noticed among different categories of groups. The district mean was high in Thrissur district (3.30) and low in Thiruvananthapuram district (2.30). It could be inferred from the above that the respondents in NGO groups and respondents in Thrissur district were in the high age group whereas respondents of Quasi-governmental groups and those in Thiruvananthapuram district were in young age group as compared to others.

Table 4.32 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Experience in farming

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	2.03	3.13	2.00	2.36
ALPA	2.97	2.67	3.60	2.94
THSR	3.30	3.27	3.40	3.30
KZDE	2.77	2.40	3.60	2.74
WYND	3.03	2.27	3.60	2.86
Group Mean	2.82	2.75	3.24	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	NS	NS	NS	2.89

4.1.13.12 Annual income

Results in Table 4.33 revealed that respondents of Governmental groups were in high income group as compared to Quasi-governmental groups and NGO groups. Significant difference was noticed between Governmental and NGO groups and between Quasi-governmental and NGO groups. Respondents` income level was high in Alappuzha district followed by Thrissur district. It was indicated elsewhere that there was larger farm size in Governmental groups. Larger farm size naturally resulted in more return. This could be the reason for the high annual income exhibited in Governmental groups. Vehra (1971) found that those who had greater economic resources participated more and higher income was conducive for higher participation.

Table 4.33 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Annual income

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	2.17	2.27	1.60	2.14
ALPA	3.30	3.20	1.20	3.06
THSR	2.83	2.33	2.00	2.60
KZDE	2.00	2.13	1.40	1.98
WYND	2.43	1.87	1.40	2.16
Group Mean	2.55	2.36	1.52	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	<i>F' value</i>
	0.23	0.36 ^s	0.38 ^s	16.59

4.1.13.13 Farm size

The size of the farm of the respondents of Governmental groups was larger as compared to Quasi-governmental and NGO groups (Table 4.34). Significant difference in Farm size was noticed between Governmental and Quasi-governmental groups and between Governmental and NGO groups. Among the districts, larger farm size was noticed in Alappuzha district as compared to other districts. Majority of respondents of Governmental groups were rice farmers where size of holdings was bigger than for other crops. This could be the reason for larger farm size in Governmental groups.

Table 4.34 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Farm size

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	1.83	1.87	1.40	1.80
ALPA	3.00	2.13	1.40	2.58
THSR	2.50	1.67	1.40	2.14
KZDE	1.87	2.07	2.20	1.96
WYND	2.37	1.80	1.40	2.10
Group Mean	2.31	1.91	1.56	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	0.23 ^s	0.35 ^s	0.37	12.78

4.1.13.14 Credit orientation

It could be observed from results in Table 4.35 that the mean score of Credit orientation was highest in Quasi-governmental groups (11.01) followed by Governmental groups (7.96) and NGO groups (7.28). Significant difference was noticed between Governmental and Quasi-governmental groups and between Quasi-governmental and NGO groups. Mean score was highest in Alappuzha district (9.42) followed by Thiruvananthapuram and Kozhikode districts. It indicates that respondents of Quasi-governmental groups and those in Alappuzha, Thiruvananthapuram and Kozhikode districts exhibited high degree of orientation in availing credit for their farming operations. Quasi-governmental agencies (especially KHDP) provide credits to their farmers for vegetables and fruit cultivation on easy terms and conditions through Nationalised Banks. This could be the reason that Quasi-governmental groups exhibited high level of credit orientation.

Table 4.35 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Credit orientation

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	8.30	12.33	7.40	9.42
ALPA	8.77	13.07	6.20	9.80
THSR	7.43	9.47	10.00	8.30
KZDE	8.20	12.80	6.60	9.42
WYND	7.10	7.40	6.20	9.42
Group Mean	7.96	11.01	7.28	
CD for comparison of group mean	<i>Govt. vs Quasi Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	0.68 ^s	1.03	1.10 ^s	46.45

4.1.13.15 Age

Results in Table 4.36 revealed that all the categories of groups viz., Quasi-governmental, Governmental and NGO groups significantly differed between one another with respect to the Age of the respondents. Level of age was high in NGO groups and low in Quasi-governmental groups. It indicates that Quasi-governmental groups attracted more young people to farming.

Table 4.36 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Age

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	2.23	2.00	2.80	2.22
ALPA	2.37	1.93	2.80	2.28
THSR	2.40	2.53	3.00	2.50
KZDE	2.63	1.87	2.80	2.42
WYND	2.23	2.20	2.60	2.26
Group Mean	2.37	2.11	2.80	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	0.19 ^s	0.29 ^s	0.31 ^s	10.30

The findings on the comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to the external factors of participation efficiency could be summarised as follows. The Governmental groups scored the highest mean score for the external factors such as Perception about group approach, Risk orientation, Education, Entrepreneurial behaviour, Economic motivation, Annual income and Farm size. Quasi-governmental groups scored the highest mean score for the external factors like Achievement motivation, Innovation proneness, Knowledge in farming, Scientific orientation, and Credit orientation. With regard to the factors like Cosmopolitaness, Experience in farming and Age, the NGO groups scored the highest mean score. Lowest mean scores for the external factors such as Achievement motivation, Perception about group approach, Innovation proneness, Risk orientation, Education, Entrepreneurial behaviour, Economic motivation, Knowledge in farming, Scientific orientation, Annual income, Farm size and Credit orientation were obtained by the NGO groups. Lowest scores for Experience in farming and Age were obtained by Quasi-governmental groups and the lowest score for Cosmopolitaness by Governmental groups.

Among the districts, Alappuzha district scored the highest mean score for the external factors such as Perception about group approach, Innovation proneness, Cosmopolitaness, Knowledge in farming, Scientific orientation, Annual income, Farm size and Credit orientation. Thrissur district obtained the highest score for external factors like Risk orientation, Economic motivation, Experience in farming

and Age. Thiruvananthapuram district scored highest score for Achievement motivation and Education. Lowest score for the factors like Achievement motivation, Innovation proneness, Entrepreneurial behaviour, Economic motivation, Cosmopolitaness, Knowledge in farming, Scientific orientation and Credit orientation was scored by Wynad district. Thiruvananthapuram district secured the lowest mean score for factors such as Perception about group approach, Risk orientation, Experience in farming and Farm size. The lowest mean score for Education and Annual income was scored by Kozhikode district.

The inference that could be drawn from the above findings is that the performance with respect to of the external factors of participation efficiency was high in Governmental and Quasi-governmental groups. Among districts Alappuzha district stood first in this regard.

The major findings relating to participation efficiency (Section I) could be epitomised as follows :

The components of participation efficiency identified in this study were 1 - Involvement in decision making; 2 - Involvement in implementing decisions; 3 - Involvement in monitoring and evaluation; 4 - Sharing of responsibility; 5 - Communication behaviour; 6 - Promptness and regularity in attending meetings, 7 - Leadership propensity; 8 - Empowerment; 9 - Conflict resolutions; and 10 - Competitive spirit. All these ten components of participation efficiency constituted the Participation Efficiency Index (PEI). Correlation of participation efficiency components with PEIV indicated high correlation with all the components. Intercorrelation of components also exhibited strong positive correlation. Results of the comparison of Governmental, Quasi-governmental and NGO groups and districts with components of participation efficiency indicated that Quasi-governmental groups scored highest mean score for seven out of ten components such as Involvement in decision making, Involvement in implementing decisions, Involvement in monitoring and evaluation, Sharing of responsibility, Communication behaviour, Leadership propensity; and Competitive spirit. NGO groups scored highest mean score with respect of the other three components viz., Promptness and regularity in attending meetings, Empowerment and Conflict resolution. Among the districts, Alappuzha district secured the highest mean score for eight components, the exceptions being Involvement in implementing decisions and Competitive spirit for which Thiruvananthapuram and Kozhikode districts secured the highest scores, respectively.

Classification of respondents based on Participation Efficiency Index Value (PEIV) revealed that more than 50 per cent of respondents were in the Medium level followed by Low level (26.8 per cent) and High level (17.2 per cent) of participation. Comparison of PEIV indicated that Quasi-governmental groups scored highest mean score (0.53) followed by Governmental and NGO groups. Among the districts, Alappuzha district scored highest mean score. Results of the Principal components analysis revealed that the magnitude of contribution by the components such as Communication behaviour, Sharing of responsibility and Competitive spirit to the variations in participation efficiency of farmers' group was very high as compared to other components.

Correlation of external factors of participation efficiency with PEIV indicated that 13 out of 15 external factors exhibited significant association. Factors like Education and Farm size did not evince any significant relationship.

Intercorrelation among external factors of participation efficiency revealed that ten external factors such as Achievement motivation, Perception about group approach, Innovation proneness, Risk orientation, Entrepreneurial behaviour, Economic motivation, Knowledge in farming, Scientific orientation, Annual income and Credit orientation had shown significant association with almost all the external factors, with few exceptions.

The step-wise multiple regression analysis identified eight external factors viz., Achievement motivation, Age, Cosmopolitaness, Risk orientation, Knowledge in farming, Innovation proneness, Economic motivation and Entrepreneurial behaviour which explained 72 per cent variation in participation efficiency.

The findings of the comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to external factors of participation efficiency revealed that Governmental groups secured high scores for factors like Perception about group approach, Risk orientation, Education, Entrepreneurial behaviour, Economic motivation, Annual income and Farm size. Quasi-governmental groups got highest scores for factors such as Achievement motivation, Innovation proneness, Knowledge in farming, Scientific orientation and Credit orientation. With regard to Cosmopolitanism, Experience in farming and Age, the NGO groups scored highest scores. Among the districts, Alappuzha district got highest scores for factors such as Perception about group approach, Innovation proneness, Cosmopolitanism, Knowledge in farming, Scientific orientation, Annual income, Farm size and Credit orientation, the highest score for other factors such as Risk orientation, Economic motivation, Experience in farming and Age by Thrissur district and for Achievement motivation and Education by Thiruvananthapuram district.

4.2 SECTION - II

4.2.1 Components of group efficiency

Ten components of group efficiency of farmers' groups were identified and selected for the purpose of the study based on review of literature, judges rating and Relevancy Index. The procedure adopted in this regard was described in the Methodology Chapter. The components of group efficiency identified were: (1) Group cohesion, (2) Team spirit, (3) Group interaction, (4) Group leadership, (5) Accountability, (6) Transparency, (7) Sustained profit, (8) Productivity, (9) Equity and, (10) Employment generation.

The ten components of group efficiency represented fairly the major functional dimensions of farmers' groups as illustrated in the review of literature. Similar observations were also noted by IFAP (1992) that transparency and strong elected leadership contributed in the efficiency of farmers' organisations. Muller (1997) found that group characteristics conducive for development were group interaction, group leadership, group cohesiveness and interpersonal communication.

4.2.2 Development of Group Efficiency Index (GEI)

Group Efficiency Index (GEI) was used as a tool to assess the group efficiency of farmers' groups. The ten components of group efficiency constituted to form the GEI (Table 3.4). Based on the scores obtained by applying the GEI, the Group Efficiency Index Value of the respondents in the group were calculated to measure and compare the group efficiency of farmers' groups, as described in the Methodology Chapter.

4.2.3 Correlation of components of group efficiency with Group Efficiency Index Value (GEIV)

The degree of linear relationship of the ten components of group efficiency with GEIV was found by calculating the Pearson's product - moment correlation coefficient. The results are presented in Table 4.37. The test of significance of the (r) value was made at 0.05 and 0.01 levels.

All the ten components exhibited positive and significant association with GEIV at 0.01 level of probability. Of these, four components viz., Team spirit, Group interaction, Accountability, and Equity had a high 'r' value of more than 0.70.

The high correlation coefficients obtained in the present study clearly revealed that the components included in the study were not extraneous but form part of GEI. The positive and significant correlation of all the components of group efficiency justified an important assumption that these components have significant association with group efficiency.

Table 4.37 Correlation of components of group efficiency with Group Efficiency Index Value (GEIV)

Sl.no.	Components	Correlation coefficient (r)
1.	Group cohesion	0.6282**
2.	Team spirit	0.7554**
3.	Group interaction	0.7265**
4.	Group leadership	0.6148**
5.	Accountability	0.7319**
6.	Transparency	0.6995**
7.	Sustained profit	0.4682**
8.	Productivity	0.5024**
9.	Equity	0.7164**
10.	Employment generation	0.5985**

**Significant at 0.01 level

4.2.4 Intercorrelation among components of group efficiency

The degree of intercomponent relationship between the components of group efficiency was found out by calculating the Pearson's product - moment correlation coefficient. The results are presented in Table 4.38.

Group cohesion exhibited positive and significant relationship with majority of the components at 0.01 level of probability, except in the case of components Sustained profit and Productivity where the relationship was not significant. Team spirit and Group interaction exhibited positive and significant association with all other components except Sustained profit in which case no significant relationship was noticed. Group leadership, Accountability, Transparency, Equity and Employment generation components exhibited positive and significant relationship with all the ten components. Sustained profit had exhibited positive and significant relationship with Group leadership, Accountability, Transparency, Equity and Employment generation, but its relationship was not significant with components like Group cohesion, Team spirit, Group interaction and Productivity. The component Productivity exhibited positive and significant relationship with all other components except Group Cohesion and Sustained profit. The above findings indicate that majority of the components exhibited strong positive and significant intercorrelation among components of GEI. The inference is that the components are significantly associated with group efficiency.

Table 4.38 Intercorrelation matrix of components of group efficiency

Components	1	2	3	4	5	6	7	8	9	10
1.	1.0000									
2.	0.6431**	1.0000								
3.	0.5150**	0.8179**	1.0000							
4.	0.3108**	0.2572**	0.2957**	1.0000						
5.	0.3634**	0.3929**	0.3517**	0.4484**	1.0000					
6.	0.2591**	0.3754**	0.3728**	0.3999**	0.6287**	1.0000				
7.	0.0404	0.0955	0.1579	0.3973**	0.4322**	0.3146**	1.0000			
8.	0.1684	0.2795**	0.2656**	0.2380**	0.3221**	0.3753**	0.1239	1.0000		
9.	0.3742**	0.5448**	0.5018**	0.3588**	0.3977**	0.3745**	0.3860**	0.2001*	1.0000	
10	0.2822**	0.3202**	0.3218**	0.4407**	0.4019**	0.2763**	0.3477**	0.2877**	0.4087**	1.0000

** Significant at 0.01 level

* Significant at 0.05 level

1 : Group cohesion

2 : Team spirit

3 : Group interaction

4 : Group leadership

5 : Accountability

6 : Transparency

7 : Sustained profit

8 : Productivity

9 : Equity

10 : Employment generation

These results confirm the findings of correlation of components of group efficiency with GEIV, where the components exhibited highly positive relationship with GEIV. It clearly reveals that components included in the GEI were indispensable and integral components. Hence, a high degree of overlap is anticipated in the conceptual frame work of the study. The components included in GEI had been identified from extensive review and rating by judges and since these are precisely delineated they tend to explain group efficiency. The positive and significant association of the components with GEIV and intercorrelation justifies its selection and inclusion in the GEI. This clearly indicates that the relationship between components must also be given prime importance rather than focussing on only one component in isolation. Only then a greater understanding of the complexities of the group efficiency of farmers' groups can be achieved.

4.2.5 Comparison of Government, Quasi-government and NGO sponsored farmers' groups and districts with respect to the components of group efficiency

The Analysis of Variance (ANOVA) was resorted to compare the components of group efficiency between three groups viz., Governmental, Quasi-governmental and NGO groups and also to know whether there existed significant differences between three categories of groups with respect to the components of group efficiency. The district mean were also worked out taking the three categories of groups in districts for comparison.

The results of comparison among different categories of groups and districts with respect to ten components of group efficiency such as Group cohesion, Team

spirit, Group interaction, Group leadership, Accountability, Transparency, Sustained profit, Productivity, Equity and Employment generation are presented in Tables 4.39 to 4.48 respectively.

4.2.5.1 Group cohesion

The results in Table 4.39 revealed that NGO groups scored the highest mean score (4.36) followed by Quasi-governmental groups (4.00) and Governmental groups (3.98). No significant difference was noticed between these three categories of groups. The highest district mean score was scored by Alappuzha and Kozhikode districts (4.48 each) and lowest score by Thiruvananthapuram district (3.52). NGO groups usually teach their members regarding the need for unity among poor people. Only through strong and cohesive groups the poor and powerless could derive their due share of development from Governmental and other agencies. This could be the reason for the relatively high level of group cohesion among members of NGO groups. Schachter *et al* (1951) and Muller (1997) observed that group cohesiveness was an important characteristic which determine the success of groups.

Table 4.39 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Group cohesion

<i>Districts</i>	<i>Farmers' Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	3.27	3.67	4.60	3.52
ALPA	4.63	4.60	3.20	4.48
THSR	3.90	3.87	5.60	4.06
KZDE	4.23	4.87	4.80	4.48
WYND	3.87	3.00	3.60	3.58
Group Mean	3.98	4.00	4.36	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	NS	NS	NS	

TVPM : Thiruvananthapuram, ALPA : Alappuzha, THSR : Thrissur, KZDE : Kozhikode, WYND : Wyanad. S : Significantly different, NS : No significant difference

4.2.5.2 Team spirit

As could be seen from the results in Table 4.40, the NGO groups scored the highest mean score (10.96) followed by Quasi-governmental groups (10.12) and Governmental groups (9.89). No significant difference was noticed between different categories of groups. Kozhikode district scored the highest mean score (11.78) closely followed by other districts. The lowest district mean score was obtained for Thiruvananthapuram district (8.18). NGO groups, usually inculcate the spirit of team work among its members in undertaking the group activities. This could be the reason for high level of team spirit exhibited by the members of NGO groups. This observation draws the support from Mukherjee (1997) who opined that participatory group approach depends largely on collective action, initiative and effort.

Table 4.40 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Team spirit

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	7.73	8.33	10.40	8.18
ALPA	10.53	12.73	9.00	11.04
THSR	10.43	10.60	12.80	10.72
KZDE	11.73	12.60	13.00	11.78
WYND	9.40	6.33	9.60	8.50
Group Mean	9.89	10.12	10.96	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	NS	NS	NS	1.37

4.2.5.3 Group interaction

Results in Table 4.41 reveal that NGO groups scored the highest mean score (10.68) among the different categories of groups closely followed by Quasi-governmental groups (10.59) and Governmental groups (9.85). No significant difference was noticed between above three categories of groups. Kozhikode district scored the highest district mean score and the lowest score was found secured by the Wynad district. These results are very similar to that of the results of other two components viz., Group cohesion and Team spirit. It indicates that level of group interaction was high in NGO groups and groups in Kozhikode district as compared to others. Majority of the members in NGO groups were drawn from poor sections of the society. These people are homogenous with respect to certain vital characteristics like wealth, education, income, social status etc. Little difference exist among them. Hence they could have interacted frequently and freely without any reservation or inhibition. This could be the reason for high level of group

interaction in NGO groups. Mukherjee (1997) observed that effective groups scored high mean score for Group interaction than non-effective groups.

Table 4.41 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Group interaction

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	8.60	8.97	10.20	8.86
ALPA	9.90	12.20	8.40	10.44
THSR	10.63	11.73	13.00	11.20
KZDE	11.17	12.60	13.00	11.78
WYND	8.97	7.47	8.80	8.50
Group Mean	9.85	10.59	10.68	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	NS	NS	NS	1.37

4.2.5.4 Group leadership

Results in Table 4.42 indicated that the highest mean score was obtained by the Quasi-governmental groups (5.28) followed by Governmental and NGO groups. Significant difference was noticed between Governmental and Quasi-governmental groups, between Governmental and NGO groups and between Quasi-governmental and NGO groups. Thiruvananthapuram district had the highest district mean score and Wynad the lowest score. The findings indicate that the Group leadership was efficient in Quasi-governmental groups and groups in Thiruvananthapuram district. Quasi-governmental groups usually identify the group leaders based on certain leadership criteria. They also impart trainings to these identified leaders on leadership qualities and depute them for seminars, discussions, meetings etc. This wide exposure could have helped them to gather more information and skills that were needed to perform

their leadership roles. This could be the reason that high Group leadership quality was exhibited in Quasi-governmental groups as compared to others. Harikumar (1990) reported that success of group farming programmes depends on effective leaders. Muller (1997) observed significant difference between group leaders of effective groups and non-effective groups.

Table 4.42 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Group leadership

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	5.40	5.53	5.00	5.40
ALPA	4.70	5.80	2.20	4.78
THSR	4.40	4.60	4.40	4.46
KZDE	4.30	5.60	5.50	4.76
WYND	4.17	4.87	2.40	4.20
Group Mean	4.59	5.28	3.80	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	'F' value
	0.44 ^s	0.67 ^s	0.72 ^s	9.77 ^s

4.2.5.5 Accountability

Quasi-governmental groups scored the highest mean score (4.48) followed by Governmental and NGO groups (Table 4.43). Significant difference was noticed between Governmental and NGO groups and between Quasi-governmental and NGO groups. Kozhikode district scored the highest mean score (4.62) among the districts and lowest mean score was secured by Wynad district (1.61). It could be inferred that the level of accountability was high in Quasi-governmental groups and groups in Kozhikode district whereas this was low in NGO groups and groups in Wynad district. Results furnished elsewhere indicated that members' involvement in decision

making, in implementing decisions and in monitoring and evaluation was high in Quasi-government groups. It indicates that members of Quasi-governmental groups were more concerned about all the aspects of group activities including investments, return, success, failures etc. This could be the reason for high level of accountability exhibited by Quasi-governmental groups. The observation of Sreen (1995) support this finding. He reported that where the member accountability was high, the benefits accrued by members was also high and direct and positive relationship was noted between member accountability and performance of groups in development front.

Table 4.43 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Accountability

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	4.60	3.87	3.60	4.28
ALPA	4.37	5.53	1.60	4.44
THSR	4.37	3.93	4.00	4.20
KZDE	4.23	5.53	4.20	4.62
WYND	4.00	3.53	1.61	3.62
Group Mean	4.31	4.48	3.00	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F value
	0.51	0.78 ^s	0.84 ^s	6.63

4.2.5.6 Transparency

Quasi-governmental groups and Governmental groups had got the highest mean score (Table 4.44). No significant difference was noticed among three categories of groups. Alappuzha district scored the highest mean score (5.56) and lowest mean score was observed in Wynad (3.88) among the districts. Accountability and transparency are positively related. Higher accountability leads to higher transparency in operations. Results also give the same picture, where transparency is high in

Quasi-governmental groups. This could be due to higher accountability. Results indicated that Governmental groups also exhibited high level of transparency. The State Department of Agriculture stipulated many provisions in the operation of farmers' groups so as to make the functioning of these groups more transparent, more efficient, and to avoid delay and corruption. This could be the reason for high level of transparency in Governmental groups. This finding draws the support of Camdessus (1998), who observed that increasing transparency of government operations decreases the chances of corruption and enhances public accountability.

Table 4.44 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Transparency

<i>Districts</i>	<i>Farmers' Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	4.50	4.07	5.00	4.42
ALPA	5.60	6.20	3.40	5.56
THSR	4.70	5.00	4.20	4.74
KZDE	4.03	4.40	5.60	4.30
WYND	4.17	3.33	3.80	3.88
Group Mean	4.60	4.60	4.40	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	NS	NS	NS	0.12

4.2.5.7 Sustained profit

It could be observed from the results presented in Table 4.45 that the mean group score was high in Quasi-governmental groups (2.60) followed by Governmental (1.93) and NGO groups (1.20). Significant difference was also observed between the three categories of groups with respect to Sustained profit. Among the districts, Thiruvananthapuram district scored the highest district mean score and the lowest by Alappuzha district. It indicates that Quasi-governmental groups and groups in

Thiruvananthapuram district provide higher sustained profit. But NGO groups and groups in Alappuzha district yielded only lesser sustained profit from farming. The present trend could be explained in the light of the results relating to the level of knowledge of the members of the Quasi-governmental groups furnished elsewhere. To recapitulate, the level of knowledge of the members of the Quasi-governmental groups was found to be higher. It is only natural that these members translated their knowledge into action and as a result they secured sustained profit from their farming. The information threshold theory holds good in explaining the pattern of relationship observed in the present case.

Table 4.45 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Sustained profit

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	2.63	3.00	1.60	2.64
ALPA	1.30	2.20	0.80	1.52
THSR	1.80	2.27	1.20	1.88
KZDE	2.10	2.67	1.60	2.22
WYND	1.80	2.77	0.82	2.02
Group Mean	1.93	2.60	1.20	
CD for comparison of group mean	<i>Govt. vs Quasi Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	0.29 ^s	0.45 ^s	0.48 ^s	

4.2.5.8 Productivity

Results in Table 4.46 revealed that group mean scores among three categories of groups were very close to one another. No significant difference was noticed between these three groups. Among the districts, Alappuzha district obtained the highest district mean score (1.24). It implies that the level of productivity in farms did not make much variation among different categories of groups and

among the groups in different districts. The observations noted with respect to Sustained profit are applicable to Productivity also. Kerala State Planning Board (1977) reported that the *Yela* programme has not resulted in a large break through in rice production or any significant reduction in cost.

Table 4.46 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Productivity

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	0.70	0.80	1.00	0.76
ALPA	0.90	2.00	1.00	1.24
THSR	0.97	0.53	0.40	0.78
KZDE	0.83	0.93	0.60	0.84
WYND	1.00	0.53	1.00	0.86
Group Mean	0.88	0.96	0.80	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F value
	NS	NS	NS	0.47

4.2.5.9 Equity

It could be observed from results in table 4.47 that the group mean score was high in the case of Quasi-governmental groups (11.84) closely followed by NGO groups (11.36) and Governmental groups (9.17) with respect to Equity. Significant differences were also observed between Governmental and Quasi-governmental groups and between Governmental and NGO groups. Among the districts, Kozhikode district obtained highest mean score (13.30) and lowest mean score by Wynad district (7.80). The above findings indicate that the level of equity was high in Quasi- governmental groups and groups in Kozhikode district. The level of equity was low in Governmental groups and the groups is Wynad district. Level of involvement of members of

Quasi-governmental groups was more in various activities of groups including investment, procurement of inputs, sharing of benefits etc. They were also well aware of the various privileges being a member in the group and they also demand their due share. This could be the reason for high level of equity in Quasi-governmental groups. Fernandez (1998) observed that for sustainability of self-help groups, the equity should be ensured. Higher the equity more will be the sustainability of groups.

Table 4.47 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Equity

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	7.53	13.93	16.40	10.34
ALPA	9.20	12.20	8.40	10.02
THSR	8.87	10.60	10.00	9.50
KZDE	13.33	13.20	13.40	13.30
WYND	6.93	9.27	8.60	7.80
Group Mean	9.17	11.84	11.36	
CD for comparison of group mean	<i>Govt. vs Quasi Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	1.25 ^s	1.91 ^s	2.05	10.02

4.2.5.10 Employment generation

Results in Table 4.48 revealed that the mean group score was high in Quasi-governmental groups (16.49) followed by Governmental groups (14.72) and NGO groups (11.52). Significant differences were noticed between all three categories of groups with respect to Employment generation. Among the districts, Thrissur district scored the highest mean score and Kozhikode district the lowest mean score. It implies that Quasi-governmental groups and groups in the Thrissur district generated more employment opportunities to its members as compared to other

categories of groups and districts. The crops grown by the members of Quasi-governmental groups were mainly vegetables and fruits like banana and plantations. These crops could provide regular employment opportunities through out the year. This could be the reason for high employment generation observed in Quasi-governmental groups.

Table 4.48 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Employment generation

<i>Districts</i>	<i>Farmers' Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	13.73	17.33	17.60	15.20
ALPA	13.77	21.47	3.60	15.06
THSR	17.00	12.13	14.60	15.30
KZDE	13.33	15.60	13.40	14.52
WYND	15.80	15.93	3.40	14.60
Group Mean	14.72	16.49	11.52	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	'F' value
	1.25 ^s	1.91 ^s	2.04 ^s	12.26

The findings on the comparison of Governmental, Quasi-governmental and NGO groups with respect to the components of group efficiency could be summarised as follows. Quasi-governmental groups scored highest mean score for the components such as Group leadership, Accountability, Transparency, Sustained profit, Productivity, Equity and Employment generation. NGO groups scored highest score for other components such as Group cohesion, Team spirit and Group interaction. Governmental groups scored highest score for the only component - Transparency. Lowest scores for the components such as Group cohesion, Team spirit, Group interaction and Equity were scored by the Governmental groups. In the case of Group leadership, Accountability,

Transparency, Sustained profit, Productivity and Employment generation lowest scores were scored by NGO groups.

Among the districts, Kozhikode district scored the highest scores for the components like Group cohesion, Team spirit, Group interaction, Accountability and Equity. Alappuzha district secured the highest score for components such as Group cohesion, Transparency and Productivity. Thiruvananthapuram district had the highest score for the components such as Group leadership and Sustained profit. Thrissur district obtained the highest score for the component Employment generation. Lowest scores for the components such as Group interaction, Group leadership, Accountability, Transparency, and Equity were observed in the case of the Wynad district. Thiruvananthapuram district got the lowest score for Group cohesion, Team spirit and Productivity. Alappuzha and Kozhikode districts scored the lowest scores in the case of Sustained profit and Employment generation respectively. The inference that could be drawn from the above is that the farmers' groups functioning under the sponsorship of Quasi-governmental agencies exhibited a high level of group efficiency than NGO sponsored groups and Governmental sponsored groups. Similarly the level of group efficiency was high in the groups of Kozhikode district.

4.2.6 Distribution and classification of respondents based on Group Efficiency Index Value (GEIV)

The results on the distribution and classification of respondents based on GEIV are presented in Tables 4.49 and 4.50 respectively. The respondents are classified into three categories as Low, Medium and High group efficiency categories based

on GEIV. The respondents in the range of 0.1-0.4 GEIV fell in Low, 0.4-0.6 GEIV in Medium and 0.06-0.8 in High group efficiency categories.

Distribution of respondents in seven ranges of GEIV (0.1 to 0.08), with its frequency and percentage are presented in Table 4.30. Classification of respondents as Low, Medium and High based on GEIV, with its frequency and percentage are presented in Table 4.31. Results indicated that 30.8 per cent of respondents fell in Low, 56.8 per cent in Medium and 12.4 per cent in High group efficiency categories. It implies that the majority of the respondents exhibited medium level of group efficiency and only 12.4 per cent exhibited high group efficiency in group related activities. This observation is very similar to that of the participation efficiency, where majority of the respondents (56 per cent) came under medium level of participation efficiency. In other words the participation efficiency is a predisposing factor for group efficiency in farmers' groups.

Table 4.49 Distribution of respondents based on Group Efficiency Index Value (GEIV)

Sl. no.	Range of PEIV (a)	Frequency (b)	Cumulative frequency less than lower class boundary (c)	Cumulative frequency below mid value of each score (d)	$P = \frac{d}{250}$ (e)	Percentile (f)
1.	0.1 - 0.2	2	250	249.00	0.996	100.00
2.	0.2 - 0.3	20	248	238.00	0.952	95.00
3.	0.3 - 0.4	55	228	200.50	0.802	80.00
4.	0.4 - 0.5	57	173	144.50	0.578	58.00
5.	0.5 - 0.6	85	116	73.50	0.294	29.00
6.	0.6 - 0.7	27	31	14.50	0.058	6.00
7.	0.7 - 0.8	4	4	2.00	0.008	1.00

Fig.6 DISTRIBUTION OF RESPONDENTS BASED ON THEIR LEVEL OF GROUP EFFICIENCY

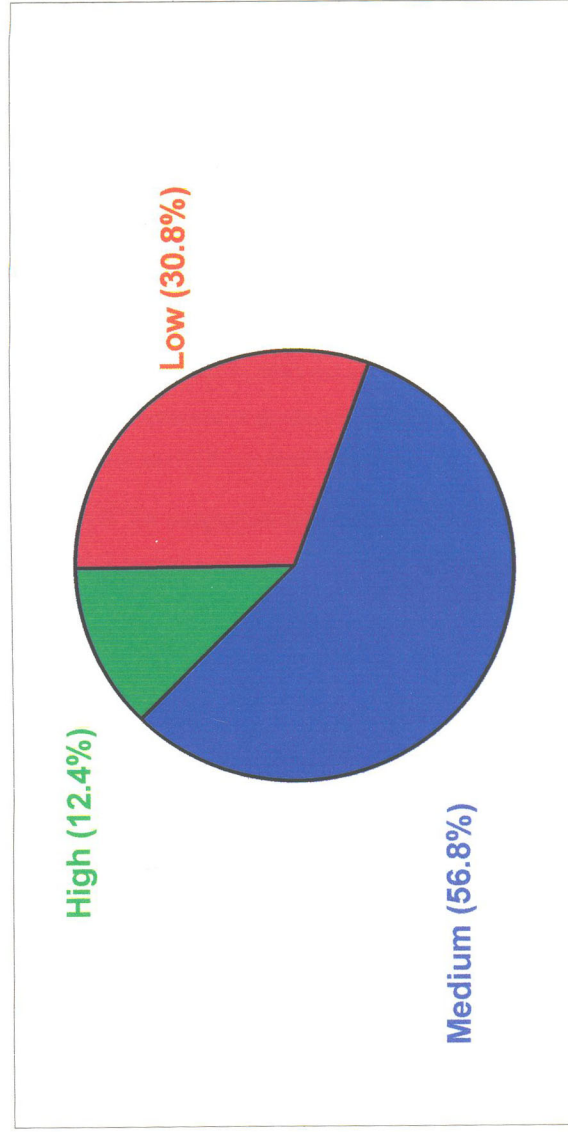


Table 4.50 Classification of respondents based on GEIV

Sl.no.	Description	Class interval	Frequency	Percentage
1.	Low	0.1 - 0.4	77	30.8
2.	Medium	0.4 - 0.6	142	56.8
3.	High	0.6 - 0.8	31	12.4

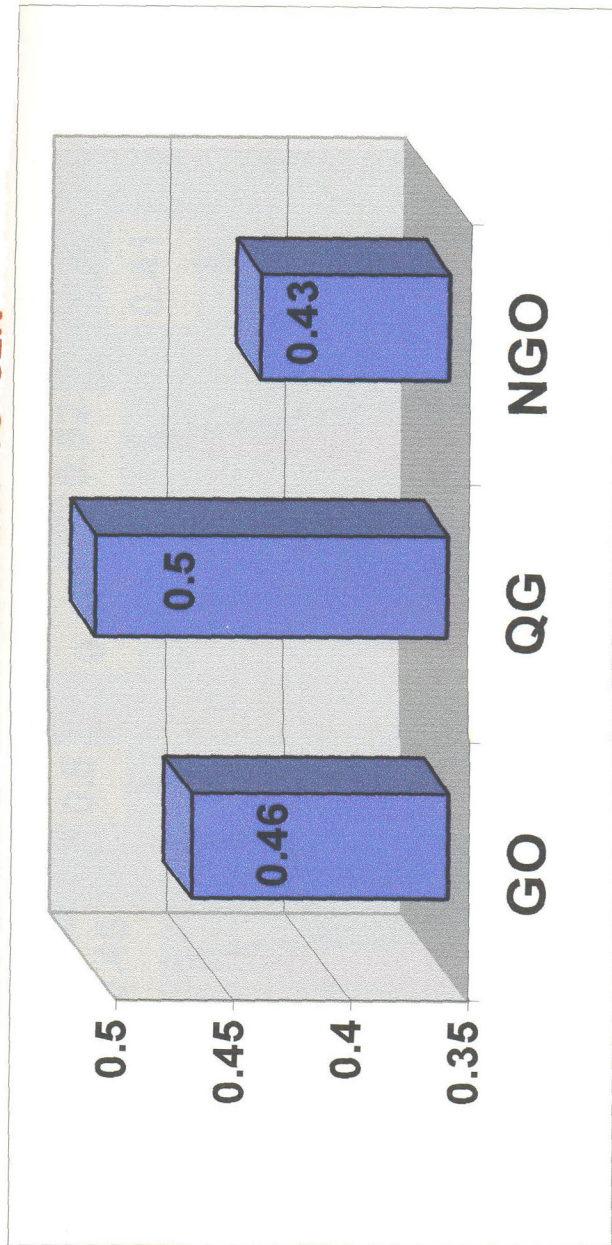
4.2.7 Comparison of Government, Quasi-government and NGO sponsored farmers' groups and districts with respect to GEIV

The Analysis of Variance (ANOVA) was done to compare the GEIV between three categories of groups viz., Governmental vs Quasi-governmental, Governmental vs NGO and Quasi-governmental vs NGO and also to check the significant difference between the above three categories of groups with respect to GEIV. The comparison of the districts with respect to GEIV was made by comparing the district mean of GEIV.

The results of the comparison among Governmental, Quasi-governmental and NGO sponsored groups and districts with respect to GEIV are presented in Table 4.51. Results revealed that the Quasi-governmental groups scored the highest (0.50) followed by Governmental groups (0.46) and NGO groups (0.43) with respect to GEIV. Significant difference was observed between Governmental and Quasi-governmental groups but no significant difference was noticed between Governmental and NGO groups and between Quasi-governmental and NGO groups. Among the districts, Kozhikode district secured the highest mean score (0.52) closely followed by Alappuzha (0.50), Thrissur (0.48), Thiruvananthapuram (0.45) and Wynad (0.41) districts.

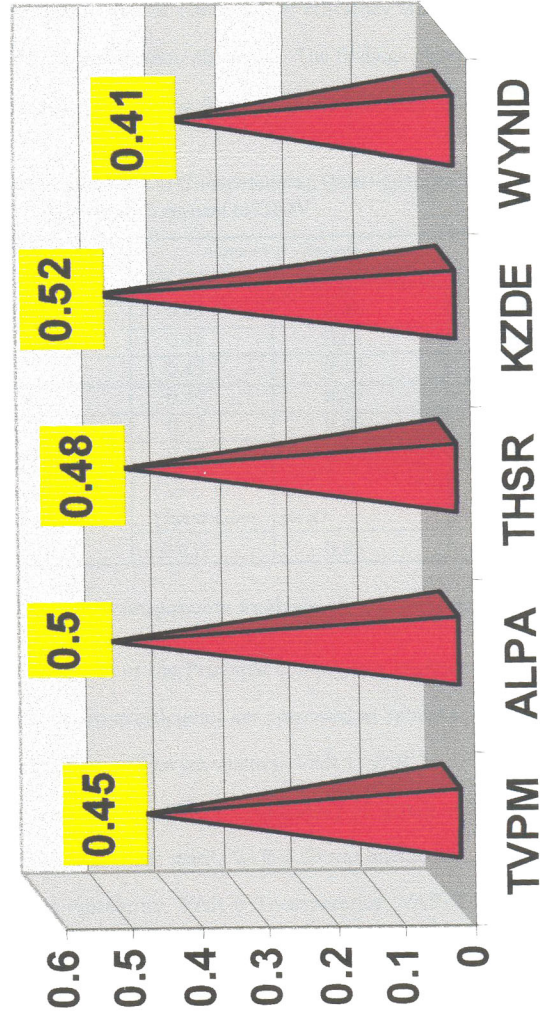
Hence it could be inferred from the above findings that Quasi-governmental groups exhibited high level of group efficiency in their group related activities than others. This finding is similar to that of the observation with respect to participation

Fig.7 COMPARISON OF GOVERNMENTAL, QUASI-GOVERNMENTAL AND NGO GROUPS WITH RESPECT TO GEIV



GO: Governmental Groups, QG: Quasi-Governmental Groups, NGO: NGO Groups

Fig.8 COMPARISON OF DISTRICTS WITH RESPECT TO GEIV



TVPM: Thiruvananthapuram, ALPA: Alappuzha, THSR: Thrissur, KZDE: Kozhikode, WYND: Wynad

efficiency, where respondents in Quasi-governmental groups exhibited high participation efficiency. In the case of the districts, groups in Kozhikode and Alappuzha exhibited high level of group efficiency than other districts. This finding is also similar to that of participation efficiency where respondents in Alappuzha exhibited high participation efficiency. The findings clearly confirm that participation efficiency is a pre-disposing factor of group efficiency of farmers' group.

Table 4.51 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to GEIV

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	0.43	0.48	0.52	0.45
ALPA	0.48	0.61	0.32	0.50
THSR	0.47	0.47	0.50	0.48
KZDE	0.49	0.56	0.55	0.52
WYND	0.43	0.40	0.34	0.41
Group Mean	0.46	0.50	0.43	
CD for comparison of group mean	<i>Govt. vs Quasi Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	'F' value
	0.03 ^s	0.05	0.05	4.08

4.2.8. Principal components analysis of components of group efficiency

The results of the Principal components analysis based on ten components (variables) of group efficiency are presented in Tables 4.52 and 4.53. For these ten components there will be ten vectors. VAR 1, VAR 2 VAR 10 denotes the ten components (variables) of group efficiency. (VAR-1 Group cohesion, VAR-2 Team spirit, VAR-3 Group interaction, VAR-4 Group leadership, VAR-5 Accountability, VAR-6 Transparency, VAR-7 Sustained profit, VAR-8 Productivity, VAR-9 Equity and VAR-10 Employment generation). Results indicated

Table 4.52 Principal components analysis of the components of Group Efficiency Index

Sl.no.	Components	PRIN 1	PRIN 2	PRIN 3	PRIN 4	PRIN 5	PRIN 6	PRIN 7	PRIN 8	PRIN 9	PRIN 10
1.	VAR 1	-0.260	0.350	0.010	0.099	0.334	-0.672	0.253	-0.380	0.168	-0.001
2.	VAR 2	0.192	0.426	-0.033	-0.153	0.549	-0.073	-0.373	0.505	-0.178	0.154
3.	VAR 3	0.234	0.066	0.390	-0.079	0.414	0.393	-0.161	-0.559	-0.023	-0.343
4.	VAR 4	0.043	0.118	0.209	0.001	0.050	0.173	0.553	-0.082	-0.617	0.463
5.	VAR 5	0.082	0.193	0.047	-0.080	0.059	0.114	0.609	0.417	0.129	-0.608
6.	VAR 6	0.165	0.042	0.165	-0.057	0.126	0.250	0.216	0.053	0.734	0.523
7.	VAR 7	-0.311	-0.092	0.701	0.541	0.011	-0.049	-0.134	0.298	0.009	-0.024
8.	VAR 8	-0.591	0.422	0.208	-0.534	-0.291	0.201	-0.132	-0.022	0.035	0.011
9.	VAR 9	0.152	0.655	-0.221	0.559	-0.318	0.248	-0.088	-0.123	0.035	-0.012
10.	VAR 10	0.579	0.151	0.435	-0.246	-0.455	-0.423	-0.069	-0.011	-0.006	-0.009

VAR 1 : Group cohesion
 VAR 2 : Team spirit
 VAR 3 : Group interaction
 VAR 4 : Group leadership
 VAR 5 : Accountability

VAR 6 : Transparency
 VAR 7 : Sustained profit
 VAR 8 : Productivity
 VAR 9 : Equity
 VAR 10 : Employment generation

that the first linear combination of principal components contributed to 60 per cent to the total variation, the second linear combination yielded 16 per cent and third linear combination contributed nine per cent variation. Thus the first three linear combinations of components yielded 86 per cent of the total variation. In the linear combination, larger magnitude of variation was contributed by the components such as Productivity (VAR 8), Employment generation (VAR 10), Sustained profit (VAR 7) and Group interaction (VAR 3). In the second linear combination larger magnitude of variations was due to components such as Equity (VAR 9), Productivity (VAR 8), Team spirit (VAR 2) and Group cohesion (VAR 1). In the third linear combination, components such VAR 7, VAR 10, VAR 3 and VAR 9 contributed larger magnitude of variation. The above findings indicate that the components such as Productivity (VAR 8), Equity (VAR 9), Employment generation (VAR 10), Group cohesion (VAR 1) and Sustained profit (VAR 7) contributed higher magnitude of variation in group efficiency. Results of correlation of components with GEIV and intercorrelation of components confirm the above findings.

Table 4.53 Percentage of variation and cumulative variation contributed by the components of group efficiency

Sl. No.	Principals	Latent Roots	Percentage Variance	Cumulative Variance
1.	PRIN 1	29683.329	60.132	60.132
2.	PRIN 2	8044.609	16.297	76.428
3.	PRIN 3	4865.232	9.856	86.284
4.	PRIN 4	2098.250	4.251	90.535
5.	PRIN 5	1645.777	3.334	93.869
6.	PRIN 6	1123.838	2.277	96.145
7.	PRIN 7	770.323	1.561	97.706
8.	PRIN 8	515.781	1.045	98.751
9.	PRIN 9	325.418	0.659	99.410
10.	PRIN 10	291.630	0.591	100.001

4.2.9 External factors of group efficiency

Fifteen external factors affecting the group efficiency of farmers' group were identified and selected for the purpose of study based on review of literature, judges rating and the Relevancy Index. The factors are (1) Group action plan, (2) Group size, (3) Clear cut procedures, (4) Effective supply of inputs, (5) Diversification of activities, (6) Information backstop, (7) Co-operation from other departments, (8) Risk compensation, (9) Lobbying power, (10) Incentives, (11) Political determinism, (12) Guidance and supervision, (13) Client driven agenda, (14) Non-antagonistic goals and, (15) Satisfaction. Procedures adopted in this regard are described in the Methodology Chapter.

4.2.10 Correlation of external factors of group efficiency with Group Efficiency Index Value (GEIV)

The degree of linear relationship of 15 external factors of group efficiency with GEIV was found out by calculating the Pearson's product-moment correlation coefficient (r).

The results are presented in Table 4.54. It indicated that all the 15 external factors except Non-antagonistic goals exhibited significant relationship with GEIV at 0.01 level of probability, except Non-antagonistic goals showed significant relationship only at 0.05 level of probability. External factors such as Group action plan, Clear cut procedures, Effective supply of inputs, Diversification of activities, Information backstop, Co-operation from other departments, Risk compensation, Lobbying power, Incentives, Guidance and supervision, Client driven agenda, Non-

antagonistic goals and Satisfaction exhibited positive and significant relationship with GEIV but the factors viz. Group size and Political determinism exhibited negative relationship.

Expression of significant relationship by all the external factors justifies the selection and inclusion of these factors in the study.

Table 4.54 Correlation of external factors of group efficiency with Group Efficiency Index Value (GEIV)

Sl.no.	External factors	Correlation coefficient (r)
1.	Group action plan	0.6632**
2.	Group size	-0.3846**
3.	Clear cut procedures	0.5150**
4.	Effective supply of inputs	0.5734**
5.	Diversification of activities	0.3597**
6.	Information backstop	0.5739**
7.	Co-operation from other departments	0.4277**
8.	Risk compensation	0.5311**
9.	Lobbying power	0.2803**
10.	Incentives	0.3943**
11.	Political determinism	-0.3788**
12.	Guidance and supervision	0.3497**
13.	Client driven agenda	0.5110**
14.	Non antagonistic goals	0.2325*
15.	Satisfaction	0.6569**

** Significant at 0.01 level

* Significant at 0.05 level

4.2.11 Intercorrelation among external factors of group efficiency

The degree of linear relationship among the external factors of group efficiency was found out by calculating the Pearson's product-moment correlation coefficient. The results are presented in Table 4.55.

Table 4.55 Intercorrelation matrix of external factors of group efficiency

Factors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.	1.0000														
2.	-0.2596**	1.0000													
3.	0.5138**	-0.3934**	1.0000												
4.	0.4644**	-0.3976**	0.4195**	1.0000											
5.	0.2167*	-0.3642**	0.1433	0.1602	1.0000										
6.	0.5189**	-0.3850**	0.4225**	0.3381**	0.5668**	1.0000									
7.	0.3982**	-0.2216*	0.2468*	0.1772	0.0457	0.1200	1.0000								
8.	0.3376**	-0.3404**	0.2822**	0.2068*	0.3322**	0.4411**	0.2524*	1.0000							
9.	0.3934**	0.1205	0.1148	-0.0669	-0.1154	0.0663	0.5395**	0.1300	1.0000						
10.	0.3954**	-0.2868**	0.3988**	0.3589**	-0.1055	0.1993	0.2890**	0.1238	0.1506	1.0000					
11.	-0.2996**	0.3810**	-0.3949**	-0.3091**	0.4351**	-0.5349**	-0.0135	-0.2279*	0.1070	-0.2278*	1.0000				
12.	0.4078**	-0.3304**	0.3284**	0.1798	0.3273**	0.4576**	0.1657	0.3302**	0.2214*	0.0481	-0.3822**	1.0000			
13.	0.4552**	-0.3789**	0.2553**	0.2419*	0.4879**	0.5733**	0.1415	0.1461**	0.1712	0.1186	-0.4234**	0.5118**	1.0000		
14.	0.1480	-0.1700	0.1363	0.2507*	0.4142**	0.4266**	-0.2191*	0.1092	-0.2587**	-0.0009	-0.5146**	0.2624	0.4154**	1.0000	
15.	0.4390**	-0.4390**	0.3643**	0.4737**	0.5307**	0.6302**	0.1919	0.4679**	-0.0465	0.3166**	-0.5171**	0.3294**	0.6213**	0.3979**	1.0000

** Significant at 0.01 level

* Significant at 0.05 level

- 1 : Group action plan
- 2 : Group size
- 3 : Clear cut procedures
- 4 : Effective supply of inputs
- 5 : Diversification of activities

- 6 : Information backstop
- 7 : Co-operation from other departments
- 8 : Risk compensation
- 9 : Lobbying power
- 10 : Incentives

- 11 : Political determinism
- 12 : Guidance and supervision
- 13 : Client driven agenda
- 14 : Non-antagonistic goals
- 15 : Satisfaction

The results indicate that the external factors such as Group action plan, Clear cut procedures, Effective supply of inputs, Group size, Risk compensation, Political determinism, Guidance and Supervision, Client driven agenda, Satisfaction, Diversification of activities and Information backstop exhibited significant relationship among most of the external factors. These findings are very similar to that of the results obtained with respect to correlation of external factors of group efficiency with GEIV, where the factors like Co-operation from other departments and Incentives were also exhibited significant relationship. It implies that the external factors such as Group action plan, Clear cut procedures, Effective supply of inputs, Group size, Risk compensation, Political determinism, Guidance and supervision, Client driven agenda, Satisfaction, Diversification of activities, Information backstop and Co-operation from other departments and Incentives have significant association with group efficiency of farmers' groups.

4.2.12 Relative importance of external factors in influencing group efficiency

The technique of step-wise multiple regression analysis was resorted to understand the relative effects of external factors in group efficiency of farmers' groups and in identifying the important ones and eliminating the unimportant items in each step. The regression analysis also helped to explain how group efficiency behave due to addition of external factors and selected the best regression equation by identifying the best sub-groups of external factors out of many, for predicting the variation in group efficiency. The regression equation consists of the best subset of external factors in the sense it results in the maximum predictability of group efficiency (dependent variable) with relatively less number of external factors were

taken as independent variables. The results of the step-wise multiple regression analysis are furnished in Tables 4.56 and 4.57. Out of the 15 external factors of group efficiency which were subjected to regression analysis, after the seventh step, six factors were identified as important external factors having more relative contribution in explaining group efficiency of farmers' groups. The identified factors in the order of ranks were:

1. Group action plan (X_1)
2. Non-antagonistic goals (X_{14})
3. Incentives (X_{10})
4. Group size (X_2)
5. Diversification of activities (X_5)
6. Effective supply of inputs (X_4)

The resulted prediction equation with six external factors is given below

$$Y = 0.2622 + 0.0300 x_1 + 0.0029x_2 - 0.0038x_4 + 0.0101x_5 + 0.0085x_{10} + 0.0149 x_{14}$$

The 't' value found out to test the statistical significance revealed that all factors except Effective supply of inputs exert positive and significant influence on group efficiency where as Effective supply of inputs had a nonsignificant negative influence. Group action plan, Non-antagonistic goals, Incentives and Group size were found to have statistical significance at 0.01 level of probability and these four factors together explained a variation of 61 per cent in group efficiency. It could be deduced that when these six selected external factors were fitted together in the regression model they explained 62 per cent variation in the group efficiency of farmers' groups. The highly significant 'f' value of the four

factors viz., Group action plan, **Non-antagonistic** goals, Incentives and Group size reiterated the confirmation of the validity of 62 per cent variation worked out with the factors identified in the study. Hence the step-wise multiple regression analysis attempted for explaining the variation of external factors of group efficiency of farmers' groups is justified.

Table 4.56 Results of the step-wise multiple regression analysis, showing all the significant steps of external factors (X) with GEIV (Y).

Sl.no.	External factors entered in the regression analysis	F' value	Percentage of variation	Regression sum of squares
1.	X_1	153.4716	38.2273	1.7248
2.	X_1, X_{14}	147.5191	54.4313	2.4603
3.	X_1, X_{14}, X_{10}	120.7038	59.5469	2.6915
4.	X_1, X_{14}, X_{10}, X_2	93.8707	60.5146	2.7352
5.	$X_1, X_{14}, X_{10}, X_2, X_5$	76.6624	61.1039	2.7618
6.	$X_1, X_{14}, X_{10}, X_2, X_5, X_4$	65.1025	61.6486	2.7865

X_1 = Group action plan

X_9 = Lobbying power

X_2 = Group size

X_{10} = Incentives

X_3 = Clear cut procedures

X_{11} = Political determinism

X_4 = Effective supply of inputs

X_{12} = Guidance and supervision

X_5 = Diversification of activities

X_{13} = Client driven agenda

X_6 = Information backstop

X_{14} = Non-antagonistic goals

X_7 = Co-operation from other departments

X_{15} = Satisfaction

X_8 = Risk compensation

Table 4.57 External factors of group efficiency identified through step-wise multiple regression analysis.

Sl.no.	External factors	Regression coefficient	Standard error of regression coefficient	't' value
X ₁	Group action plan	0.0299	0.0038	7.9630**
X ₂	Group size	0.0029	0.0010	2.8350**
X ₄	Effective supply of inputs	-0.0038	0.0021	-1.8481
X ₅	Diversification of activities	0.0101	0.0050	2.0444*
X ₁₀	Incentives	0.0085	0.0018	4.6414**
X ₁₄	Non-antagonistic goals	0.0149	0.0025	6.0178**

** Significant at 0.01 level

* Significant at 0.05 level

4.2.14 Comparison of Government, Quasi-government and NGO sponsored farmers' groups and districts with respect to external factors of group efficiency.

The Analysis of Variance (ANOVA) was done to compare the external factors of group efficiency with three categories of groups viz., Government, Quasi-government and NGO sponsored groups. The district mean were also worked out for comparing the three categories of groups in the five districts. The results of comparison among different categories of groups and districts with respect to the fifteen external factors of group efficiency are given in Tables 4.58 to 4.72.

4.2.14.1 Group action plan

Among three categories of groups , Quasi-governmental groups got the highest mean score (6.92) followed by Governmental (6.60) and NGO groups (5.48) with respect to Group action plan (Table 4.58). Significant difference were also noticed between Governmental and NGO groups and between Quasi-governmental and NGO groups. Among the districts, Alappuzha district scored the highest mean

score (7.36) and Thrissur district with lowest mean score (6.06). It indicates that Quasi-governmental groups and the groups in Alappuzha district gave more importance in the formulation of group action plan for group activities as compared to other categories of groups and districts. Quasi-governmental agencies would have insisted in the formulation of group action plan for every crop season. This could be the reason that the Quasi-governmental groups scored highest.

Table 4.58 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Group action plan.

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	6.53	6.60	5.60	6.46
ALPA	7.47	7.87	5.20	7.36
THSR	6.17	5.67	6.60	6.06
KZDE	6.80	8.00	4.80	6.96
WYND	6.03	6.47	5.20	6.08
Group Mean	6.60	6.92	5.48	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	<i>F' value</i>
	0.41	0.62 ^s	0.67 ^s	9.37

TVPM : Thiruvananthapuram, ALPA : Alappuzha, THSR : Thrissur, KZDE : Kozhikode, WYND : WYNAD. S : Significantly different.

4.2.14.2 Group size

Results in the Table 4.59 revealed that the Group size was larger in Governmental groups as compared to NGO groups and Quasi-governmental groups. Significant difference was observed only between Governmental and Quasi-governmental groups. Among the districts, groups in Thiruvananthapuram were larger sized than in the other districts. The group farming samithies constituted for rice development formed the majority of the groups under Government sector. The Group

farming samithies were organised on *padasekharam* basis (area upto 200 ha). All the farmers in the *padasekharam* without discrimination are eligible to become members in the Samithy. Usually they are more in number. This could be the reason for larger group size in Governmental groups.

Table 4.59 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Group Size.

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	1.83	1.67	2.00	1.80
ALPA	2.00	1.00	1.00	1.60
THSR	1.50	1.00	1.80	1.38
KZDE	1.50	1.33	2.00	1.50
WYND	1.50	1.67	1.00	1.50
Group Mean	1.67	1.33	1.56	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	'F' value
	0.16 ^s	0.24	0.26	9.01

4.2.14.3 Clear cut procedures

It could be observed from the results in Table 4.60 that the Quasi-governmental groups scored the highest mean score (6.29) followed by Governmental and NGO groups with respect to Clearcut procedures. Significant differences were also noticed between Governmental and NGO groups and between Quasi-governmental and NGO groups. Thiruvananthapuram district scored the highest mean score among the districts (6.26) and lowest by Thrissur district (5.90). It is possible that the Quasi-governmental groups and groups in Thiruvananthapuram district would have stipulated more clear cut procedures in the functioning of groups as compared to others. Clear cut guidelines and procedures provided by Quasi-governmental groups for the formation,

implementation and maintenance of groups could be reason for the above observation. FAO (1999) recommended that necessary rules and procedures should be formulated so as to make groups accountable to its members and ensure necessary transparency in group transactions.

Table 4.60 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Clear cut procedures.

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	6.43	6.33	5.00	6.26
ALPA	5.97	6.73	5.60	6.16
THSR	6.03	5.73	5.60	5.90
KZDE	6.17	6.80	4.60	6.20
WYND	6.03	5.87	5.80	5.96
Group Mean	6.13	6.29	5.32	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	'F' value
	0.32	0.49 ^s	0.53 ^s	7.00

4.2.14.4 Effective supply of inputs

Results in Table 4.61 indicated that Quasi-Governmental groups obtained the highest mean score (24.42) followed by Governmental groups (22.72) and NGO groups (22.00) among the three categories of groups with respect to Effective supply of inputs. Significant difference was noticed between Governmental and Quasi-governmental groups and between Quasi-governmental and NGO groups. Among the districts, Thiruvananthapuram district got the highest mean score (24.04) and lowest by Alappuzha district (22.10). It indicates that the availability of inputs for farming was more in Quasi-governmental groups than other groups. In Quasi-governmental groups, the group activities were planned and implemented in a

systematic manner. They have also undertaken procurement of inputs and marketing of their produces. This could be the reason that Quasi-governmental groups were more efficient in arranging and supply of inputs. Peterson (1997) opined that farmers need inputs to increase production but timely access to these is the major problem to the majority of the farming community.

Table 4.61 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Effective supply of inputs.

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	24.43	23.80	22.40	24.04
ALPA	20.83	25.47	19.60	22.10
THSR	22.43	24.13	24.00	23.10
KZDE	23.37	24.20	24.00	23.68
WYND	22.53	24.53	20.00	22.88
Group Mean	22.72	24.42	22.00	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	<i>F' value</i>
	0.89 ^s	1.36	1.45 ^s	9.25

4.2.14.5 Diversification of activities

NGO groups scored the highest mean score (9.44) followed by Quasi-governmental groups (8.19) and Governmental groups (7.13) with respect to Diversification of activities (Table 4.62). Significant differences were also noticed between all the three categories of groups. Among the districts, Alappuzha district scored highest mean score (8.24) and the lowest mean score was secured by Thrissur district (7.66). It implies that diversification of farm activities could be more in NGO groups and groups in Alappuzha district as compared to others. The NGO groups generally would not concentrate their activities on crop husbandry alone.

They would have motivated the members to diversify their activities in agriculture and allied aspects. This could be the reason that diversification of activities was more in NGO groups. Ammour (1994) observed that members of community organisations were particularly interested in diversifying local production systems.

Table 4.62 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Diversification of activities.

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	6.93	8.67	10.00	7.76
ALPA	6.97	10.33	9.60	8.24
THSR	7.23	7.07	8.60	7.32
KZDE	7.23	7.93	9.40	7.66
WYND	7.27	6.93	9.60	7.40
Group Mean	7.13	8.19	9.44	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	'F' value
	0.39 ^s	0.59 ^s	0.63 ^s	

4.2.14.6 Information backstop

NGO groups scored the highest mean score (9.40) followed by Quasi-governmental groups (9.00) and Governmental groups (7.70) with respect to the factor Information backstop (Table 4.63). Significant differences were also noticed between Governmental and Quasi-governmental groups and between Governmental and NGO groups. Kozhikode district scored the highest mean score (9.10) among the districts and Wynad district had the lowest mean score (7.50). It indicates that members of NGO groups effectively utilized the opportunities to gather information through trainings, seminars, discussion etc. Since most of the members of NGO groups

were drawn from the poorest sections of the society they would be very eager to know about new things and get exposed to new surroundings. This could be reason that NGO groups exhibited high level of information backstop behaviour. FAO (1999) recommended that trainings should be a part of small farmers' group activities to provide them with necessary information backstop.

Table 4.63 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Information backstop.

<i>Districts</i>	<i>Farmers' Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	7.80	8.87	9.20	8.26
ALPA	8.00	10.47	9.20	8.86
THSR	7.37	7.40	9.40	7.58
KZDE	8.17	10.67	10.00	9.10
WYND	7.17	7.60	9.20	7.50
Group Mean	7.70	9.00	9.40	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	0.51 ^s	0.78 ^s	0.84	18.39

4.2.14.7 Co-operation from other departments

It could be observed from the results in Table 4.64 that Governmental groups scored the highest mean score (8.69) followed by Quasi-governmental groups (7.96) and NGO groups (6.96). All the three categories of groups exhibited significant difference between one another. Among the districts, Alappuzha district obtained the highest mean score (9.52) and lowest mean score was secured by Kozhikode district. It indicates that groups under Governmental and groups in Alappuzha district received high level of co-operation from other development departments in group

related activities. Department of Agriculture nominates officials of the line departments as ex-officio members of the farmers' groups. This could be the reason for that Governmental groups having received better co-operation from other departments. Turton *et al* (1998) observed that better the link between groups and line department or agencies, greater was the prospect for sustainability.

Table 4.64 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Co-operation from other departments.

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	7.57	7.80	7.40	7.62
ALPA	10.17	9.07	7.00	9.52
THSR	9.37	7.33	6.20	8.44
KZDE	7.43	7.80	6.20	7.42
WYND	8.90	7.80	8.00	8.48
Group Mean	8.69	7.96	6.96	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	'F' value
	0.47 ^s	0.72 ^s	0.77 ^s	

4.2.14.8 Risk compensation

Quasi-governmental groups scored the highest mean score followed by Governmental and NGO groups with respect to Risk compensation (Table 4.65). Significant differences were noticed between Governmental and Quasi-governmental groups and between NGO and Quasi-governmental groups. Among the districts, Kozhikode district scored the highest mean score (6.86) and lowest mean score was obtained by Thiruvananthapuram district (5.96). It implies that the respondents of Quasi-governmental groups and respondents of the Kozhikode district perceived

high level of risk compensation for the risks involved in farm activities. Quasi-governmental groups covered all their group members under Crop Insurance Scheme. Crop Insurance Scheme provide compensation for crop loss. This could be reason that the Quasi-governmental groups members perceived high level of risk compensation. Ashby *et al* (1995) reported that compensation to absorb the losses of experimentation of proven technology acted as a *safety net* to farmers.

Table 4.65 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Risk compensation.

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	5.70	6.33	6.40	5.96
ALPA	5.80	9.13	4.40	6.66
THSR	6.73	6.20	6.00	6.50
KZDE	6.37	7.60	7.60	6.86
WYND	6.70	5.40	4.60	6.10
Group Mean	6.26	6.93	5.80	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	<i>F' value</i>
	0.41 ^s	0.62	0.66 ^s	8.01

4.2.14.9 Lobbying power

Governmental groups scored the highest mean score (6.71) followed by Quasi-governmental (5.91) and NGO groups (5.04) with respect to Lobbying power (Table 4.66). Significant difference was noticed between all the categories of groups. Among the districts, Alappuzha district scored the highest mean score (7.96) and lowest score by Thriuvananthapuram district. It implies that groups under Governmental sector and groups in Alappuzha district exerted much influence on Government or on sponsoring agency for special assistance, provisions for group related activities

as compared to other groups and districts. In Governmental groups, the President and members of the village pachayat and representatives of political parties are included as ex-officio members. Their influence with higher ups could have reflected in higher lobbying power in Governmental groups. The findings of Desai (1995), Korten (1995) and Riddell and Robinson (1995) revealed that group membership make individual more active and try to shift political patronage in order to use the governmental leverage to improve its economic position. The inference here is that higher the level of lobbying power, more will be the sustainability of the groups.

Table 4.66 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Lobbying power.

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	5.27	5.80	5.20	5.42
ALPA	9.40	6.07	5.00	7.96
THSR	6.70	5.33	5.00	6.12
KZDE	5.73	6.67	5.00	5.94
WYND	6.43	5.67	5.00	6.06
Group Mean	6.71	5.91	5.04	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	'F' value
	0.44 ^s	0.67 ^s	0.72 ^s	

4.2.14.10 Incentives

Governmental groups scored highest mean score (11.48) followed by Quasi-governmental groups (9.09) and NGO groups (8.56) with respect to the factor Incentives (Table 4.67). Significant differences were noticed between Governmental and Quasi-governmental groups and between Governmental and NGO groups.

No significant difference was noticed between Quasi-governmental groups and NGO groups. Among the districts, Kozhikode district scored the highest mean score (12.52) and the lowest mean score was secured by Alappuzha district (8.76). It indicates that respondents of Governmental groups and the respondents in the Kozhikode district perceived that incentives extended for group activities were adequate. Department of Agriculture, which sponsored the Governmental groups included in the study extended attractive subsidy (up to Rs 10000 per ha) for cultivation of crops like rice, coconut, vegetables etc. through group approach. This could be the reason that members of Governmental groups perceived that subsidies given were adequate. Aumann (1976) observed that pre-requisite of a high level of participating institution is incentive structures.

Table 4.67 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Incentives.

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	11.47	7.20	8.60	9.90
ALPA	10.43	6.20	6.40	8.76
THSR	12.70	8.73	11.00	11.34
KZDE	12.20	10.87	10.40	12.52
WYND	10.60	9.47	6.40	9.84
Group Mean	11.48	9.09	8.56	
CD for comparison of group mean	<i>Govt. vs Quasi Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	'F' value
	0.86 ^s	1.31 ^s	1.40	20.02

4.2.14.11 Political determinism

The highest mean score for Political determinism was obtained by the Governmental groups (6.56) followed by Quasi-governmental groups (6.25) and NGO groups

(5.16) (Table 4.68). Significant difference were also noticed between Governmental and NGO groups and between Quasi-governmental and NGO groups. No significant differences were noticed between Governmental and Quasi-governmental groups. Among the districts, the highest mean score (6.62) was found in Wynad district and lowest mean score in Kozhikode district (6.04). The interference of political leadership in groups sponsored by Government is not beyond any comprehension, since the constitution of these groups itself is determined by the political leadership using Government authority. Moreover with high proportion of politically conscious people in Kerala, this is only a natural concomitant. These could be the reasons for the above observations. Neubert and Haggmann (1998) reported that successful participation demands an open political climate. Turton *et al* (1998) observed that farmers' new bodies must need the support of local political institutions if they are to be successful.

Table 4.68 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Political determinism.

Districts	Farmers' Groups			District Mean
	Government	Quasi-government	NGO	
TVPM	6.17	6.20	5.00	6.06
ALPA	7.10	5.73	5.00	6.48
THSR	6.17	7.20	5.80	6.44
KZDE	6.30	6.82	5.00	6.04
WYND	7.07	6.27	5.00	6.62
Group Mean	6.56	6.25	5.16	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	0.33	0.51 ^s	0.54 ^s	15.44

4.2.14.12 Guidance and supervision

Results in Table 4.69 indicated that Quasi-governmental groups scored the highest mean score (6.57) followed by NGO groups (6.12) and Governmental groups (6.03). Significant differences were noticed between Governmental and Quasi-governmental groups. Among the districts, Alappuzha district recorded the highest mean score (6.96) and lowest mean score was seen in Thrissur district (5.46). It implies that guidance and supervision provided by extension staff in group activities were more in Quasi-governmental groups and groups in Alappuzha district. Quasi-governmental agencies generally provided extension staff or project staff exclusively for implementation of group approach. These extensionists make scheduled visits to these groups and extend necessary helps to group members. This could be the reason that high level of guidance and supervision was observed in Quasi- governmental groups. The accountability of performance of the extension staff attendant to credit-linked development as in the groups sponsored by Quasi-governmental agencies too could result in the better guidance and supervision enjoyed by these groups. Riddell and Robinson (1995) observed that the quality and effectiveness of project staff is one of the key factors of the effectiveness of the project.

Table 4.69 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Guidance and supervision.

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	6.63	6.07	3.60	6.16
ALPA	6.40	7.87	7.60	6.96
THSR	5.53	5.60	4.60	5.46
KZDE	5.50	7.07	7.20	6.14
WYND	6.10	6.27	7.60	6.30
Group Mean	6.03	6.57	6.12	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	0.40 ^s	0.61	0.65	3.69

4.2.14.13 Client driven agenda

It could be observed from results in Table 4.70 that NGO groups obtained highest mean score (9.40) followed by Quasi-governmental groups (8.00) and Governmental groups (7.04) with respect to the factor Client driven agenda. Significant differences were noticed between all the three categories of groups. Among the districts, Alappuzha district scored the highest mean score (8.86) and lowest mean score was secured by Thiruvananthapuram district. Less involvement of officials, who were more concerned about schematic contents of programme rather than its practicability, in the group related activities could have helped the NGO groups to formulate activities based on the needs and aspirations of their members. The hallmark of NGO work is their primacy of concern for the felt and unfelt needs and aspirations of their clientele. Impracticable proclamations, pompous declarations and ostentatious assurances fortunately are not the favourites in NGOs. Rather, down to earth solutions to burning problems of clientele are the

thrust of NGO activities. This could be the reason for the above finding. FAO (1999) reported that farmers' groups were successful only when they satisfied base farmer's felt needs first not the needs of outsiders.

Table 4.70 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Client driven agenda.

<i>Districts</i>	<i>Farmers' Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	6.47	6.47	7.40	6.56
ALPA	7.57	10.33	10.40	8.68
THSR	6.83	7.67	9.20	7.32
KZDE	8.10	9.33	9.40	8.60
WYND	6.23	6.20	10.60	6.66
Group Mean	7.04	8.00	9.40	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	0.53 ^s	0.81 ^s	0.86 ^s	

4.2.14.14 Non-antagonistic goals

NGO groups secured the highest mean score (17.72) followed by Quasi-governmental groups (15.61) and Governmental groups (14.33) on Non-antagonistic goals (Table 4.71). Significant difference was noticed between all the three categories of groups viz. Governmental vs Quasi-governmental, Governmental vs NGO and Quasi-governmental vs NGO. Among the districts, Thiruvananthapuram district scored the highest mean score (16.20) and lowest mean score (14.06) was observed by Thrissur district. It indicates that antagonistic goals were less in NGO groups. High level of client driven agenda in NGO groups could be the reason for less occurrence of antagonistic goals in NGO groups.

Table 4.71 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Non-antagonistic goals.

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	16.10	15.53	18.80	16.20
ALPA	13.40	16.27	17.60	14.68
THSR	13.40	14.33	17.20	14.06
KZDE	15.50	16.27	17.60	15.94
WYND	13.27	15.67	17.40	14.40
Group Mean	14.33	15.61	17.72	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	F' value
	0.55 ^s	0.85 ^s	0.90 ^s	36.42

4.2.14.15 Satisfaction

The mean score with respect to level of Satisfaction was highest in NGO groups (16.84) followed by Quasi-governmental groups (12.72) and Governmental groups (11.46) (Table 4.72). Significant differences were noticed between all the three categories of groups viz. Governmental vs Quasi-governmental, Governmental vs NGO and Quasi-governmental vs NGO. Among the districts, Kozhikode district scored the highest mean and lowest score by Thiruvananthapuram district. It implies that level of satisfaction achieved by the respondents in the NGO groups and respondents in Kozhikode district were high as compared to other categories of groups and groups in other districts. Members of NGO groups generally were drawn from the poor sections of the society. Their aspirations and needs were very less when compared to general categories. A partial fulfilment of their basic needs would have resulted in better satisfaction among members of NGO groups. This could be the reason that members of NGO groups exhibited high level of satisfaction

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

Table 4.72 Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to Satisfaction.

<i>Districts</i>	<i>Farmers` Groups</i>			<i>District Mean</i>
	<i>Government</i>	<i>Quasi-government</i>	<i>NGO</i>	
TVPM	10.43	9.27	15.20	10.56
ALPA	9.83	18.00	16.80	12.98
THSR	12.30	10.40	17.40	12.24
KZDE	13.27	16.20	20.20	14.84
WYND	11.47	9.73	14.60	11.26
Group Mean	11.46	12.72	16.84	
CD for comparison of group mean	<i>Govt. vs Quasi-Govt.</i>	<i>Govt. vs NGO</i>	<i>Quasi-Govt. vs NGO</i>	'F' value
	0.10 ^s	1.69 ^s	1.81 ^s	20.65

The findings on the comparison of Governmental, Quasi-governmental and NGO groups based on mean score with respect to the external factors of group efficiency could be summarised as follows. The Governmental groups scored the highest mean score for external factors such as Group size, Co-operation from other departments, Lobbying power, Incentives and political determinism. Quasi-governmental groups scored the highest score for Group action plan, Clear cut procedures, Effective supply of inputs, Risk compensation and Guidance and supervision. In the case of NGO groups the highest mean score were for Diversification of activities, Information backstop, Client driven agenda, Non-antagonistic goals and Satisfaction. Lowest scores for factors like Group action plan, Clear cut procedures, Effective supply of inputs, Co-operation from other departments, Lobbying power and Incentives were obtained by NGO groups. For factors like Diversification of activities, Information

backstop, Guidance and supervision, Client driven agenda, Non antagonistic goals and Satisfaction the lowest scores were obtained by Governmental groups. The lowest score for Group size was seen in the Quasi-governmental groups.

Among the districts, Alappuzha district scored the highest mean score for factors like Group action plan, Diversification of activities, Co-operation from other departments, Lobbying power, Guidance and supervision and Client driven agenda. Kozhikode district scored the highest mean score for factors such as Information backstop, Risk compensation, Incentives and Satisfaction. Thiruvananthapuram district scored the highest mean score for Group size, Clear cut procedures, Effective supply of inputs and Non-antagonistic goals. Wynad district scored the highest mean score for the factor Political determinism. Thrissur district scored the lowest mean score for factors such as Group size, Clear cut procedures, Diversification of activities, Guidance and supervision and Non antagonistic goals. The lowest mean scores for factors such as Risk compensation, Lobbying power, Client driven agenda and Satisfaction were obtained by Thiruvananthapuram district. Lowest mean score for factors like Co-operation from other departments and Political determinism were obtained by Kozhikode district. Lowest mean score for Effective supply of inputs and Incentives were found in Alappuzha district. Wynad district got the lowest score for factors such as Group action plan and Information backstop. The inference from the above findings is that the influence of external factors of group efficiency varies with different categories of groups and with districts.

The major findings relating group efficiency (Section II) could be summarised as follows:-

The components of group efficiency identified were (1) Group cohesion (2) Team spirit, (3) Group interaction, (4) Group leadership, (5) Accountability (6) Transparency, (7) Sustained profit, (8) Productivity, (9) Equity and (10) Employment generation. All these ten components of group efficiency constitute to form the Group Efficiency Index (GEI). Correlation of group efficiency components with GEIV indicated high correlation with all the components. Intercorrelation of components also exhibited positive correlation among components except Sustained profit and Productivity. Comparison of Governmental, Quasi-governmental and NGO groups and districts with components of group efficiency indicated that Quasi-governmental groups scored highest mean score for seven out of ten components. They were : Group leadership, Accountability, Transparency, Sustained profit, Productivity, Equity and Employment generation. NGO groups scored highest mean score for the rest of three components viz., Group cohesion, Team spirit and Group interaction. Among the districts, Kozhikode district scored highest score for five components viz., Group cohesion, Team spirit, Group interaction, Accountability and Equity. Alappuzha district scored highest score for the components such as Transparency and Productivity. Thiruvananthapuram district scored highest score for Group leadership and Sustained profit. Thrissur district scored highest score for Employment generation. Classification of respondents based on Group Efficiency Index Value (GEIV) revealed that more than 50 per cent of respondents were in the medium level followed by Low level (30.8 per cent) and High level (12.4 per cent) of group efficiency. Comparison of GEIV indicated that

Quasi-governmental groups scored the highest mean score (0.50) followed by Governmental and NGO groups. Among districts Kozhikode district scored the highest mean score. Results of the Principal components analysis revealed that the magnitude of variation contributed by the components such as Productivity, Equity, Employment generation, Group cohesion and Sustained profit to group efficiency of farmers' group were very high as compared to the other components to group efficiency.

Fifteen factors were identified as external factors which affect the group efficiency of farmers' groups. The correlation of these external factors with GEIV exhibited positive and significant relationship. Intercorrelation among external factors indicated that the factors like Group action plan, Clear cut procedures, Effective supply of inputs, Group size, Risk compensation, Political determinism, Guidance and supervision, Client driven agenda, Satisfaction, Diversification of activities, Information backstop, Co-operation from other departments and Incentives exhibited significant association with group efficiency. Step wise-multiple regression analysis resorted to analyse the relative importance of external factors identified six factors such as (1) Group action plan, (2) Non-antagonistic goals, (3) Incentives, (4) Group size, (5) Diversification of activities and, (6) Effective supply of inputs. They together explained 62 per cent variation in the group efficiency.

Comparison of the three categories of groups revealed that Governmental groups secured highest score for factors such as Group size, Co-operation from other

departments, Lobbying power, Incentives and Political determinism. Quasi-governmental groups scored the highest score for Group action plan, Clear cut procedures, Effective supply of inputs, Risk compensation and Guidance and supervision. In the case of NGO groups the highest mean scores were for Diversification of activities, Information backstop, Client driven agenda, Non-antagonistic goals and Satisfaction. Among the districts, Alappuzha district scored the highest mean score for factors like Group action plan, Diversification of activities, Co-operation from other departments, Lobbying power, Guidance and supervision and Client driven agenda. Kozhikode district secured the highest mean score for factors such as Information backstop, Risk compensation, Incentives and Satisfaction. Thiruvananthapuram district scored the highest mean score for Group size, Clear cut procedures, Effective supply of inputs and Non-antagonistic goals. Wynad district recorded the highest score for the factor Political determinism.

SECTION - III

4.5 Constraints in the implementation of group approach in agriculture

The major constraints in the implementation of group approach were identified in two stages : by farmers in the first stage and extension personnel in the second stage.

4.5.1 Constraints experienced by farmers in following group approach in agriculture

The major constraints which were experienced by the farmers in the groups with respect to Organisational, Socio-political, Infrastructural, Economic, Technological and Leadership and supervision constraints were identified in the first stage and the results are presented in Table 4.73.

A perusal of the results revealed that Lack of coordination of different agencies, Predominance of part-time farmers, Non-availability of suitable agricultural implements, Low price for produces, Absence of effective machinery for technology transfer and Interference of local leaders were the most important constraints with respect to Organisational, Socio-political, Infrastructural, Economic, Technological and Leadership and supervision aspects of farmers' groups respectively.

4.5.1 Constraints identified by extension personnel in implementing group approach in agriculture

The major constraints which were identified by the extension personnel involved in the implementing group approach in agriculture in the second stage are presented in Table 4.74.

Results revealed that Inefficient monitoring mechanisms, High influence of vested interests, Non-availability of suitable agricultural implements and machinery, Low price for produces, Absence of effective machinery for technology transfer and Lack of dedicated and efficient groups leaders were the most important constraints with regard to Organisational, Socio-political, Infrastructural, Economic, Technological and Leadership and supervision aspects respectively.

Table 4.73 Constraints experienced by farmers in following of group approach in agriculture

Sl.No.	Rank No.	Constraints	Mean score
	(a)	Organisational constraints	
1.	1.	Lack of coordination of different activities	0.26
2.	2.	Ineffective linkage with Panhchayati Raj Institutions	0.24
3.	3.	Inefficient monitoring mechanisms	0.20
4.	4.	Lack of clear cut procedures for group formation	0.19
5.	5.	Non-availability of literature on group activities	0.17
	(b)	Socio-political constraints	
6.	1.	Predominance of part-time farmers	0.24
7.	2.	Political affiliation of members	0.23
8.	3.	High influence of vested interests	0.20
9.	4.	Small farm holdings	0.18
10.	5.	Limited active members	0.18
	(c)	Infrastructural constraints	
11.	1.	Non-availability of suitable agricultural implements and machinery	0.25
12.	2.	Lack of irrigation facilities	0.23
13.	3.	Inadequate extension staff	0.20
14.	4.	Lack of marketing institutions	0.20
15.	5.	Non-availability of processing centres	0.17
	(d)	Economic constraints	
16.	1.	Low price for produces	0.21
17.	2.	Lack of sufficient funds	0.20
	(e)	Technological constraints	
18.	1.	Absence of effective machinery for technology transfer	0.22
19.	2.	Lack of viable and appropriate technology	0.18
	(f)	Leadership and supervision constraints	
20.	1.	Interference of local leaders	0.22
21.	2.	Want of dedicated and efficient group leaders	0.22
22.	3.	Autocratic leadership	0.17

Table 4.74 Constraints identified by extension personnel in implementing group approach in agriculture

Sl.No.	Rank No.	Constraints	Mean score
	(a)	Organisational constraints	
1.	1.	Inefficient monitoring mechanisms	0.34
2.	2.	Lack of clear cut procedures for group formation	0.31
3.	4.	Ineffective linkage with Panhcyati Raj Institutions	0.28
	(b)	Socio-political constraints	
4.	1.	High influence of vested interests	0.28
5.	2.	Non-representation of all sections in the area	0.29
6.	3.	Small farm holdings	0.26
7.	4.	Village factions/sub groups	0.26
8.	5.	Political affiliation of members	0.25
	(c)	Infrastructural constraints	
9.	1.	Non-availability of suitable agricultural implements and machinery	0.31
10.	2.	Want of office buildings for group meetings	0.23
	(d)	Economic constraints	
11.	1.	Low price for produces	0.22
12.	2.	Lack of sufficient funds	0.21
	(e)	Technological constraints	
13.	1.	Absence of effective machinery for technology transfer	0.30
14.	2.	Complexity of technology	0.23
	(f)	Leadership and supervision constraints	
15.	1.	Want of dedicated and efficient group leaders	0.30
16.	2.	Interference of local leaders	0.29

SECTION - IV

4.6 Perception of extension personnel on group approach and suggestions to improve group approach in agriculture

4.6.1 Perception of extension personnel on group approach in agriculture

The mean scores for the perception statements were calculated separately. Respondents having less than mean perception score were grouped under low perception category and those having equal to or more than mean perception score were grouped under high perception category.

Results with respect to Perception of extension personnel on group approach in farming are presented in Table 4.75. Perusal of the results revealed that majority of the respondents reacted very favourably to the statements on group approach in farming. Cost of cultivation can be significantly reduced by following group approach in farming. Group approach in farming is one of the best strategies adopted for agriculture development in the State, Group approach in farming helps to increase crop production substantively, Maximum utilization of available resources of small and marginal farmers is possible through group approach and Activities which require collective action like plant protection could be more efficiently taken up through group approach were the statements which received very high favourable perception from the extension personnel. It indicates that the extension personnel who were involved in the implementation of group approach in agriculture exhibited a very favourable perception about group approach in agriculture.

4.6.2 Suggestions to improve the implementation of group approach in farming

Suggestions made by the extension personnel to improve the implementation of group approach in agriculture are presented in Table 4.76. The perusal of data in the table revealed that 'Group leaders are to be given regular training on group management and leadership' was the most important suggestion made, followed by suggestions such as 'Very old people should not be made office bearers of groups', 'Groups are to be involved in participatory technology development', 'Sufficient training opportunities are to be provided for group members to upgrade their knowledge and skills in farming', 'Groups are to be empowered to mobilise resources like deposit collection, borrowing, cess collection to undertake development activities' etc.

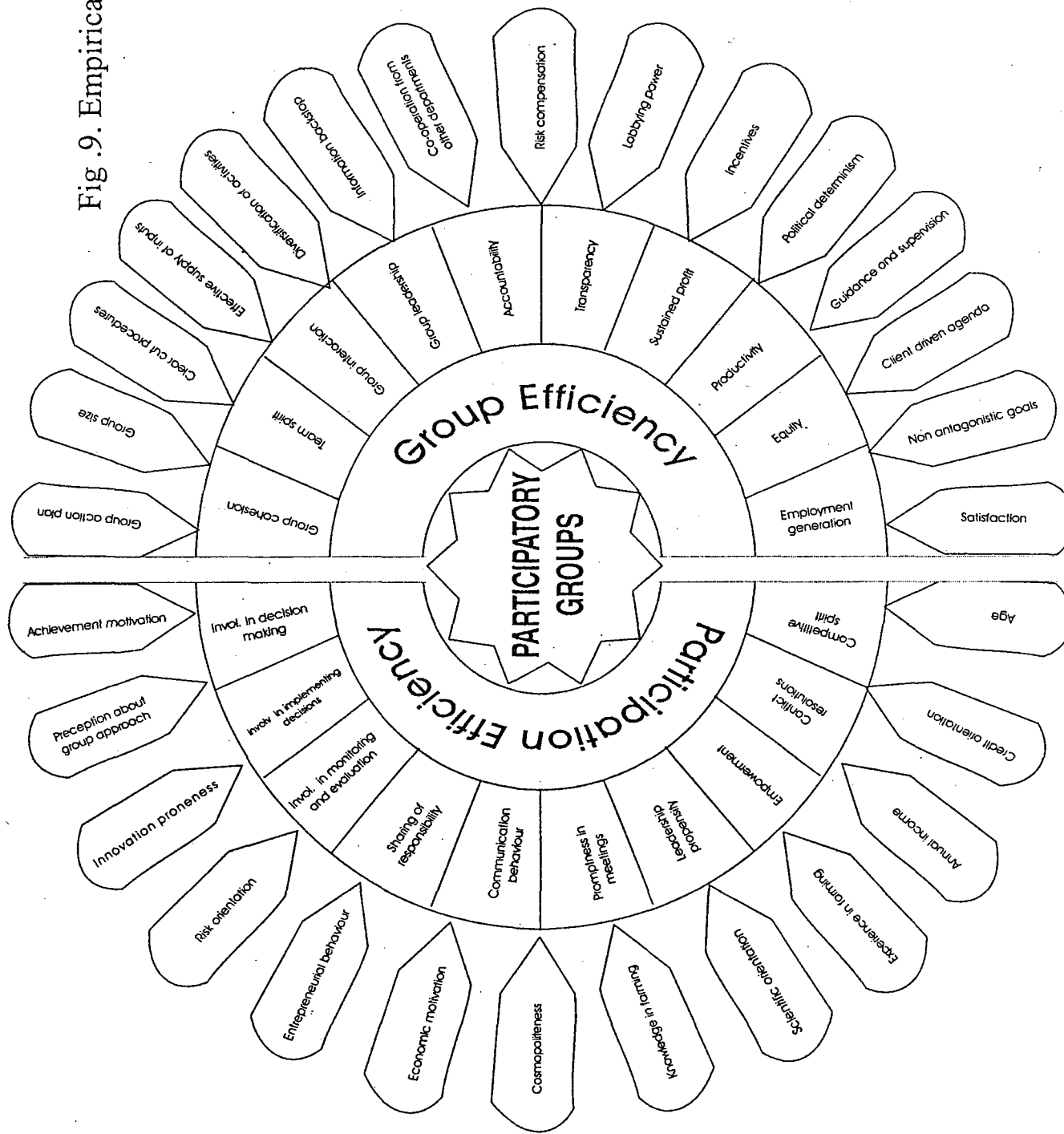
**Table 4.75 Results of perception of extension personnel
on group approach in farming**

Sl.no.	Statements	Perception category (percentage)		Mean Score
		High	Low	
1.	Group approach in farming helps to increase crop production substantivally	88	12	3.95
2.	Maximum utilization of available resources of small and marginal farmers is possible through group approach	83	17	3.95
3.	Implementation of group approach encourages corruption	76	24	3.70
4.	Group approach in farming is one of the best strategies adopted for agriculture development in the State	89	11	3.98
5.	Group approach in farming does not generate additional farm income	80	20	3.75
6.	Group approach does not have the potential to generate employment opportunities	74	26	3.60
7.	Cost of cultivation can be significantly reduced by following group approach in farming	89	11	4.00
8.	Activities which require collective action like plant protection could be more efficiently taken up through group approach	85	15	3.95
9.	Resource poor farmers cannot adopt group approach	69	31	3.10
10.	There is little work and more propanganda on group approach in farming	62	38	2.90
11.	Suitable and sound technolgies are not available for following group approach in farming	71	29	3.56
12.	Group approach in farming benefits only big and elite farmers	81	19	3.80
13.	Effective utilization of family labour is not possible through group approach	70	30	3.00
14.	Group farming is more economical than individual farming	81	19	3.90
15.	Group approach creates lot of difficulties in extension work	78	22	3.86

Table 4.76 Suggestions to improve the implementation of group approach in farming

Sl.No.	Suggestions	Mean score	Rank No.
1.	Group leaders are to be given regular training on group management and leadership	0.35	1
2.	Very old people should not be made office bearers of groups	0.34	2
3.	Groups are to be involved in participatory technology development	0.33	3
4.	Sufficient training opportunities are to be provided for group members to upgrade their knowledge and skill in farming	0.33	4
5.	Groups are to be empowered to mobilise resources like deposit collection, borrowing and cess collection to undertake development activities	0.32	5
6.	Political interference should be avoided in the functioning of the groups	0.31	6
7.	Sub-groups are to be formed from among the group members to maintain liason with Extension Agency	0.31	7
8.	There should be clear group norms to enforce discipline in group activities	0.30	8
9.	Rewards and recognition are to be given to extension staff who have commitment in group approach	0.29	9
10.	Sufficient publicity for group approach in farming has to be given through mass media	0.29	10
11.	Active political leaders may be discouraged from becoming office bearers of the group	0.29	11
12.	Groups should be given full authority and powers to plan and implement programmes of their area	0.28	12
13.	Groups should be considered as the stakeholders in the process of transfer of technology	0.27	13
14.	Group members are to be brought under special insurance scheme	0.26	14
15.	Rules are to be enacted to bring farmers under group approach	0.26	15
16.	All members of the group should have access to the plans and programmes of group activities	0.25	16
17.	Implementation of all the agricultural development programmes should be made through groups	0.24	17
18.	Only one registered group is to be formed in one Krishi Bhavan area, with sub-groups for each crop	0.23	18
19.	Groups should claim assistance for undertaking marketing of their agricultural produces	0.22	19

Fig. 9. Empirical model of the study



4.7 Strategy for participatory group approach for sustainable development of agriculture in Kerala

The agricultural development planned and implemented during the past decades in the State based on top-down approach was heavily dependent on technology and focussed on potential areas and large elite farmers. By and large, big and influential farmers reaped the major portion of the benefits of top-down approach. The resource-poor small, marginal and landless farmers who constitute majority of the farming population were practically left unattended. To overcome the mismatch of conventional top-down approach in agricultural development, the best alternative is to reverse the approach to bottom-up process through promoting participatory process by putting farmer first in the continuum.

A group is a pre-requisite for following effective participatory approach, especially among resource-poor small, marginal and landless farmers who have not been empowered to the desirable extent. Formation of the group is the first activity to be undertaken in the direction of participatory group approach.

The analysis of the farmers' groups operating in the State under Governmental, Quasi-governmental and Non-governmental sector following the participatory process revealed that many of these groups are not functioning efficiently due to various issues related to participation of members in group activities, operational procedures of the groups and policy interventions. The issues related to participatory group approach develop right from group formation to monitoring and evaluation of group activities, at various levels and dimensions.

Once these issues are left unattended, they may cause further serious implications and will result in decline of the groups. Hence to promote participatory groups for sustainable development of agriculture, there is a need of clear-cut strategy. A strategy in this context means a planned design aimed to tackle problems concerning formation, operation, maintenance and monitoring and evaluation of participatory groups in achieving sustainable development of agriculture in the State.

Participatory groups mean *farmers` groups, farmers` organisations, self-help groups, farmers` interest groups, beneficiary associations, farmers` samithies* etc., formed by the farmers of a locality to foster agricultural development by following participatory approach. All the members of the group are to be fully involved in formation of the group, deciding, implementing and monitoring and evaluation of group activities. In participatory group approach, extension personnel are to play the role of facilitators by extending necessary technical guidance, assistance and support in undertaking group activities and maintenance of groups.

Based on the study, the following general guidelines are suggested for efficient functioning of groups for sustainable development of agriculture in Kerala.

1. The groups should promote participatory approach.
2. The groups should be of manageable size, preferably not exceeding 25. Sub groups may be constituted in the case of larger groups for effective functioning.
3. Democratic procedure should be followed in the formation of groups, planning, implementation and monitoring of the group activities.

4. Persons with acceptance and leadership qualities are to be elected as leaders of the groups.
5. Performance based leadership should be promoted to enhance participation of members in groups.
6. More younger people and women with common interests may be encouraged to involve in participatory group process.
7. There should be regular activities for the groups fixed on priority basis by consensus building.
8. Specific responsibilities are to be assigned to members to take up various activities of the group.
9. Transparency and accountability in the group processes are to be ensured.
10. Group members are to be empowered through various methods of training and delegation of authority.
11. Communication breakdowns among the members of the groups are to be reduced by promoting interpersonal trust, honesty, acceptance and informal relations.
12. Conflicts in the groups are to be solved by the leadership then and there.
13. Changes in the pattern of functioning of the groups are to be brought about based on review of progress, monitoring and suggestions from the facilitators and experts.

14. Economically viable and socially acceptable programmes are to be taken up by the groups on a priority basis.
15. Equity is to be promoted among members of the group by rational sharing of benefits and opportunities.
16. A group action plan with clear cut procedures is to be developed by the group with consensus and adopted.
17. The bye-laws of the group should promote democratic functioning, accountability and transparency.
18. Evaluation of the group functioning should be conducted using the Participation Efficiency Index and the Group Efficiency Index.
19. Team spirit is to be maintained in the groups and fissiparous tendencies are to be curtailed.
20. Incentives are to be provided to the members, groups and facilitators for promoting participatory group approach.
21. Co-ordination with line departments and agencies for promoting effective functioning of groups is to be ensured.
22. A marketing network for the disposal of produces of groups is to be promoted.
23. Credit facilities on easy terms and conditions are to be extended to the group members. The concept of micro-credit is to be promoted among group members.

24. Co-operation of Panchayati Raj Institutions is to be sought for effective functioning of participatory group approach.
25. Apex bodies of participatory groups are to be organised at panchayat, block, district and state level.

There are certain key areas which require careful consideration in promoting participatory group approach. The key areas are :

1. Formation of the group
2. Development of group leadership
3. Framing rules and regulations
4. Convening group meetings
5. Deciding group activities
6. Implementation of group decisions
7. Participatory monitoring and evaluation

The strategy suggested in the study is only of general nature and the inherent feature of any strategy is that it can slightly vary from region to region or even group to group during implementation. In such cases, flexibility in the strategy is required based on the context, reality of circumstances and resources. However, dedicated persons or leaders in the group can tremendously improve the work culture in the groups.

The specific aspects of the strategy encompassing the major areas of the participatory group approach are outlined in the following pages.

Strategy on participatory group approach for sustainable development of agriculture

Sl.no.	Areas	Issues	Activities	Rationale
I	Formation of group	<p>(a) Lack of awareness about benefits of participatory groups.</p> <p>(b) Lack of relevant information on members, groups and other resources.</p> <p>(c) Locality groups vis-a vis special interest groups.</p>	<p>(a) Organise awareness development campaigns on benefits of participatory group approach in farming.</p> <p>(b) Develop data base comprising of relevant information on bio-physical, human resources and constraints.</p> <p>(c) Promote enterprise - specific groups.</p>	<p>(a) <i>Transparency and conscientisation enhances sustainability of groups.</i></p> <p>(b) <i>Information is a basic resource for group organisation.</i></p> <p>(c) <i>Given the peculiar agro-ecosystems in Kerala, enterprise specific interest groups have to be organised for agricultural development.</i></p>
		<p>(d) Lack of co-ordination with rural institutions</p> <p>(e) Non-representation of all sections of farmers</p>	<p>(d) Establish structural and functional linkages with local institutions like panchayats, co-operatives and potential local leaders right from the initiation of groups.</p> <p>(e) Give wide publicity on the formation of the groups through information boards in the villages, grama sabhas and by using local media.</p>	<p>(d) <i>Established local institutions can make or break emerging nascent farmers' groups.</i></p> <p>(e) <i>Secular interests have to be nipped in the bud and cross-sectional participatory membership ensured.</i></p>

Sl.no.	Areas	Issues	Activities	Rationale
		<p>(f) Large group size</p> <p>(g) No advance information about group meetings</p> <p>(h) Lack of detailed information regarding objectives, purpose and programmes of participatory groups</p>	<p>(f) Size of the group may not exceed 25 members. Sub groups can be formed in the case of large groups.</p> <p>(g) Develop a system to provide advance information regarding group meeting, agenda, date, time and venue of the meeting to all group members and other stakeholders utilising local media and leadership.</p> <p>(h) Organise the group formation meeting by explaining in detail the purpose of convening the group meeting and highlight the problems faced by the farmers of the area. Appraise how participatory groups help to solve the problems and the benefits in associating with groups. Clarify the doubts of the members clearly. The explanations may be provided by a key-person who is perceived as competent and credible. Pre-meeting planning sessions may be organised.</p>	<p>(f) <i>Small groups facilitate manageable span of control, primacy of contact, interpersonal intimacy and reduce conflicts.</i></p> <p>(g) <i>Advance information facilitates more members to attend the meetings, well prepared.</i></p> <p>(h) <i>Transparency and openness are virtues in effective group organisation.</i></p>
II	Development of group leadership	(a) Nomination of leaders mostly from among elites and non-representation of all categories	(a) Development of group leadership should be through democratic means. Ensure due representation of all categories in group management committee. Leadership should be based on activity and not mere potential alone.	(a) <i>Activity based leadership choice is a precondition for equitable representation of all sections and democracy in leadership selection ensures its authority.</i>

Sl.no.	Areas	Issues	Activities	Rationale
		(b) Very old people become group leaders (c) Political lobbying (d) Part-time farmers become leaders	(b) Encourage young farmers to take up leadership roles and aged people could be accommodated in advisory capacities. (c) Fix performance indicators as criteria for leadership selection. (d) Regularity of attendance in group meetings and activities should be insisted as a pre-condition for leadership nomination.	(b) <i>Wisdom of old people and dynamism of young people in a good blend is must for balanced group growth.</i> (c) <i>Political lobbying for leadership need not always be a disqualification but poor performance is.</i> (d) <i>Since some part-time farmers could be resourceful leaders, they could not be sidelined only due to this. Stipulating minimum performance criteria could be a better alternative to foster functional leadership.</i>
III	Framing rules and regulations	(a) No clear and self contained bye-law.	(a) Promote registering of groups and adopt a clear and detailed bye-law for group operation. Bye-law should cover following aspects.	(a) <i>Registering groups formally with approved bye-law is a fail-safe method for group organisation.</i>

Sl.no. Areas	Issues	Activities	Rationale
		(1) Jurisdiction and objectives. (2) Area of activities and procedures. (3) Membership criteria (4) Election of group leaders, conditions, terms of office, their roles, powers, and functions. (5) Quorum of meeting. (6) Periodicity of convening meetings (minimum one per month), annual general body, presentation of reports on group activities, accounts etc. (7) Procedure regarding operation of accounts and financial management. (8) Ex-officio membership. (9) Conflict resolution mechanisms. (b) Develop clear-cut and detailed accounting procedures and procedures for undertaking group activities using common funds.	
IV	(a) Lack of advance information on group meetings and agenda. (b) Clear detailed accounting and operation procedures lacking.	(a) Develop a system of group meeting with stipulated periodicity and on specific dates and venues with provision for emergency meetings also. (b) Financial credibility of the group is essential for continued participation of all members in group activities.	(a) The procedures in exclusive clubs like Lion's, Rotary etc help preclude this casualty.

Sl.no. Areas	Issues	Activities	Rationale
	(b) Lack of focus on real issues in the deliberations.	(b) Formulate and follow a written agenda for every meeting of the group and a time schedule for discussion of each item.	(b) <i>Early systematisation of group functioning help focussed discussions and avoid frivolous debates.</i>
	(c) Non representation of officials of line departments.	(c) Develop a system to ensure the participation of officials of line departments in the group meetings as special invitees.	(c) <i>Experts in advisory capacity could augment the professional content of agricultural projects.</i>
	(d) Meetings in inconvenient place, date and time.	(d) Arrange the meeting on a suitable date, time and venue like panchayat hall, community hall so as to make it convenient to majority of members to attend.	(d) <i>Business meetings as far as possible should be conducted in public places such as panchayat hall, community hall etc.</i>
	(e) No minutes recorded.	(e) Ensure that the minutes of the meetings are recorded in Registers by entrusting the same to any one of the group leaders. Ensure the approval of minutes in the next meeting.	(e) <i>Decisions recorded in 'black and white' lend credibility and provide valuable documentary evidences.</i>

Sl.no.	Areas	Issues	Activities	Rationale
		(f) Non-adherence of accepted procedures in conducting group meetings.	<p>(f) Develop and establish a procedure in the conduct of group meetings by formulating an agenda mutually agreed upon earlier. Consider the following points :</p> <p>(1) Commence the meeting in the pre-fixed time as far as possible.</p> <p>(2) Recording the attendance of members in the meeting.</p> <p>(3) Discussion of action taken based on minutes.</p> <p>(4) Ensuring quorum of the meeting.</p> <p>(5) Allowing all members to raise points on group activities one by one.</p> <p>(6) Disputes settling through consensus building without hurting the feelings of members.</p>	(f) <i>Orderly meetings prompt regular and timely participation by the members.</i>
V	Deciding group activities	<p>(a) No plan of action</p> <p>(b) Lack of involvement of all members in group decisions.</p>	<p>(a) Develop a plan of action for group activities (plan of action needs to be prepared for every crop season, before its commencement).</p> <p>(b) Facilitate the involvement of all members in finalising the group activities. Allow free and fair discussion on group activities. Use the normal group techniques appropriately.</p>	<p>(a) <i>Conscientisation of the group decisions among the members facilitates voluntary participation in implementation of group activities.</i></p> <p>(b) <i>Normal group techniques help in ice-breaking as well as ideation for consensus building.</i></p>

Sl.no. Areas	Issues	Activities	Rationale
	<p>(c) Lack of consensus in group decisions</p> <p>(d) Lack of prioritization of group activities.</p> <p>(e) Non use of appropriate technology and local resources.</p>	<p>(c) Promote the use of consensus building techniques to arrive on group decisions. Conflicts may be resolved by involving outside mediator, sponsoring agency etc. if necessary.</p> <p>(d) Decide the priority of group activities based on urgency, needs and interests through consensus building. Select activities which ensure maximum benefits to maximum members and minimum risks to minimum members.</p> <p>(e) Promote the adoption of low cost technology and local available resources for implementing group activities. Involve the experts as special invitees to facilitate appropriate technical interventions.</p>	<p>(c) <i>Help in surfacing differences and resolving them in a constructive manner.</i></p> <p>(d) <i>The theory of 'mini-maxe-maximin, could be practised with advantage in small participatory groups.</i></p> <p>(e) <i>Focus on low external input enterprise is a pre-requisite for sustainable group activity.</i></p>
VI	<p>(a) Non-involvement of all members in implementation.</p> <p>(b) Non-assignment of responsibilities to members.</p>	<p>(a) Develop a system to facilitate the involvement of all members in the implementation of group activities like assigning specific roles in the activity taking into consideration the individual expertise, aptitude and flair.</p> <p>(b) Share the responsibilities in implementing group activities to members by forming sub groups with matching authority delegation.</p>	<p>(a) <i>Helps in avoiding 'square pegs in round holes'.</i></p> <p>(b) <i>Matching delegation of functions with authority is a must for decentralised decision-making and implementation.</i></p>

Sl.no. Areas	Issues	Activities	Rationale
	(c) Lack of team work	(c) Promote team work by introducing the 'Quality Control Circle' (QCC) concept involving formation of subgroups, providing incentives and promoting informal interpersonal relationships.	(c) <i>Team work in small groups has been found to be enhanced by the QCC concept of group productivity management.</i>
	(d) Lack of healthy competition and sufficient risk compensation	(d) Foster healthy competition among members in implementing group activities by extending awards, cash prizes, positions etc and ensure compensation for the risks involved in implementation of group activities through covering the group members under crop insurance scheme, supply of seeds and planting material to resow damaged crops, giving life saving irrigation, plant protection operations and cash compensation.	(d) <i>The philosophy of 'holarchy' which eulogises collective responsibility and risk sharing has worked well in small participatory groups.</i>
	(e) Non availability of inputs	(e) Develop and establish a mechanism to ensure timely availability of adequate production inputs like seeds, manures and fertilizers, irrigation water, plant protection chemicals, agricultural machinery, credits etc.	(e) <i>Advance planning and linkages with input institutions is a must for production enterprises.</i>
	(f) Technical guidance and support	(f) Organise the functioning of extension system in such a way that group members receive timely technical guidance and support to undertake group activities. Seminars, diagnostic visits, agro-clinics etc. can be arranged to the convenience of group members.	(f) <i>Expert members' involvement in advisory capacity results in the 'enabler' role performance.</i>

Sl.no. Areas	Issues	Activities	Rationale
	(g) In-appropriate technology impedes group performance.	(g) Enable farmers' participatory groups to evolve themselves as Participatory Technology Development (PTD) groups for specific enterprises.	(g) PTD helps in the development of relevant technology, its assessment and refinement. Besides fine tuning the research system, this also helps in the empowerment of practising farmers.
VI	<p>(a) Inadequate involvement of members.</p> <p>(b) Lack of proper reporting</p> <p>(c) Lack of tools to measure the participation efficiency and group efficiency</p>	<p>(a) Develop a system to facilitate the involvement of all members in monitoring and evaluation of group activities. Monitoring and evaluation must be linked to preset objectives.</p> <p>(b) Reports on various activities undertaken by the group, details of expenditure, receipts etc. are to be presented in the group meeting. Motivate all members to express their opinions about the performance of group and to make a self-appraisal of his involvement in group activities.</p> <p>(c) Use the standardised procedure developed in the study to measure the participation efficiency and group efficiency.</p>	<p>(a) Monitoring and evaluation must be institutionalised so as to sustain group activity.</p> <p>(b) Documentation of group activity is a sine-quo-non for enhanced accountability, transparency and recognition.</p> <p>(c) Use of scientific tools will ensure accuracy of results.</p>



SUMMARY AND
CONCLUSION

CHAPTER - V

SUMMARY AND CONCLUSION

The agricultural scenario of Kerala is unique characterised by predominance of cash crops, wide variety of seasonal, annual and perennial crops, prevalence of mixed farming and intercropping, existence of high value spice crops, dispersed settlement pattern with homestead cultivation, high pressure of population on land resulting in microscopic holdings, co-existence of well organised plantation sector, unorganised small farming sector and subsistence of food crop sector, emergence of large number of part-time farmers and increasing number of absentee farmers.

The agricultural development efforts in the State in the past have provided mixed responses. In the conventional top-down approach, there was complete mismatch between what extension delivered and what the resource poor small and marginal farmers needed.

To overcome inadequacies of the conventional approach, the State Department of Agriculture during 1989-90 introduced the group farming programme for rice to revitalise the farming sector through mass mobilization and participation of small and marginal farmers in the farming sector. The important characteristics of group farming programme are : forming of groups of farmers in each *padasekharam* and involving the group members in implementing, monitoring and evaluation of group activities and sharing of benefits among group members. Group formation is a pre-requisite to ensure participation of small and marginal farmers in development

activities. Farmers' groups enable the extension workers to undertake more efficient extension work with large number of farmers with lesser effort.

Based on the past experiences with group farming programme, it was conceived that participatory group approach is the best extension strategy now available to increase the efficiency of extension work to improve the conditions of small and marginal farmers who constitute majority of farming population of the State. Participatory group approach can be promoted through formation of *Farmers' Groups*, *Farmers' Interest Groups*, *Farmers' Organisations*, *Self -Help Groups*, *User/ Beneficiary Associations*, *Farmers' Samithies* etc.

Realising the rich potential of participatory groups in sustaining agricultural development, a number of participatory groups have been organised in Governmental, Quasi-governmental and Non- governmental sector in recent times. Reports in the functioning of those groups bring to focus a number of factors which influence the participation efficiency and group efficiency of those groups. It is in this context, a systematic investigation was carried out in the State, facilitating multi-dimensional exploration into the issues involved and on the basis to suggest a strategy for effective participatory group approach for sustainable development of agriculture in Kerala. The research study entitled *Participatory group approach for sustainable development of agriculture in Kerala* was formulated with the following specific objectives.

1. To identify components of participation efficiency and to develop a Participation Efficiency Index.
2. To identify the components of group efficiency and to develop a Group Efficiency Index.
3. To study the external factors affecting participatory efficiency
4. To study the external factors affecting group efficiency
5. To identify the constraints in implementing group approach in agriculture.
6. To study the perception of extension personnel on group approach in agriculture.
7. To suggest a strategy for effective participatory group approach for sustainable development of agriculture in Kerala.

The study was conducted in all the five agro-climatic zones of the State. One district each was selected from the different agro-climatic zones. The districts selected for the study were Thiruvananthapuram, Thrissur, Kozhikode, Wynad and Alappuzha representing Southern, Central, Northern, Hill range and Special problem zones respectively. The farmers' groups operating in these districts were classified into three categories, such as Governmental groups, Quasi-governmental groups and NGO groups representing State Department of Agriculture, Quasi-governmental agencies, and Non-Governmental Organisation sponsored groups respectively. Ten groups were selected from each district, of which six groups were from Governmental sector, three groups were from Quasi-governmental sector and one group from NGO sector. Thus 50 farmers' groups were selected from all the five districts. Total respondents selected for the study were 250 constituting five respondents each from every group.

The very objective of the study was identification of the components and external factors of participation efficiency and group efficiency and also to develop the Participation Efficiency Index and Group Efficiency Index.

To identify and to select the components of participation efficiency and group efficiency, a list of items seemingly related to participation efficiency and group efficiency of farmers' groups were prepared based on review of literature. These items were rated by judges. Finally ten items each were selected as components of participation efficiency and group efficiency. The components of participation efficiency include: Involvement in decision making, Involvement in implementing decisions, Involvement in monitoring and evaluation, Sharing of responsibility, Communication behaviour, Promptness and regularity in attending meetings, Leadership propensity, Empowerment, Conflict resolution and Competitive spirit. The above ten components constitute to form the Participation Efficiency Index (PEI). The components of group efficiency include Group cohesion, Team spirit, Group interaction, Group leadership, Accountability, Transparency, Sustained profit, Productivity, Equity and Employment generation. These ten group efficiency components constitute to form Group Efficiency Index (GEI). The external factors of participation efficiency and group efficiency were also selected based on review of literature and judges' rating. The external factors of participation efficiency include : Achievement motivation, Perception about group approach, Innovation proneness, Risk orientation, Education, Entrepreneurial behaviour, Economic motivation, Cosmopolitaness, Knowledge in farming, Scientific orientation, Experience in Farming, Annual income, Farm size, Credit Orientation and Age.

The external factors of group efficiency were : Group action plan, Group size, Clear cut procedures, Effective supply of inputs, Diversification of activities, Information backstop, Co-operation from other departments, Risk compensation, Lobbying power, Incentives, Political determinism, Guidance and supervision, Client driven agenda, Non- antagonistic goals and Satisfaction.

The components and external factors of participation efficiency and group efficiency were quantified by using the schedules developed for the purpose and also by adopting scales and procedures developed by other scientists, based on the need of the study.

A pre-tested interview schedule was used to collect data from farmers and pre-tested mailed questionnaire was used to gather information from extension personnel. Analysis of the data were carried out by using the statistical procedures such as Pearson correlation, ANOVA, Step-wise multiple regression and Principal components analysis.

The salient findings of the study are summarised below:

1. All the ten components of participation efficiency had exhibited significant association with Participation Efficiency Index Value.
2. Intercorrelation between components of participation efficiency revealed positive and significant association except between Competitive spirit and Empowerment.

3. Comparison of Governmental, Quasi-governmental and NGO groups with respect to components of participation efficiency revealed that Quasi-governmental groups obtained highest mean score for the components such as Involvement in decision making, Involvement in implementing decisions, Involvement in monitoring and evaluation, Sharing of responsibility, Communication behaviour, Leadership propensity and Competitive spirit. NGO groups secured highest mean score of other components such as Promptness and regularity in attending meetings, Empowerment and Conflict resolutions. Among the districts, Alappuzha district secured the highest mean score for components such as Involvement in decision making, Involvement in monitoring and evaluation, Sharing of responsibility, Communication behaviour, Promptness and regularity in attending meetings, Leadership propensity, Empowerment and Conflict resolution. Thiruvananthapuram and Kozhikode districts scored highest mean score for Involvement in implementing decisions and Competitive spirit, respectively.
4. Fifty six per cent of the respondents congregated in medium level of participation efficiency followed by 26.8 per cent in low and 17.2 per cent in high level of participation efficiency based on PEIV.
5. Comparison of Governmental, Quasi-governmental and NGO groups with respect to PEIV revealed that the level of participation was high in Quasi-governmental groups followed by Governmental groups and NGO groups. Among the districts, groups in Alappuzha exhibited high level of participation efficiency and lowest in groups of Wynad.

6. Principal components analysis revealed that the first three linear combinations of components of participation efficiency yielded 84 per cent of the variation. The components such as Communication behaviour, Sharing of responsibility and Competitive spirit influenced participation efficiency of farmers in higher magnitude of variation.
7. Out of the 15 external factors of participation efficiency, 11 exhibited positive and significant relationship with PEIV. Factors such as Education and Farm size did not show any relationship. Experience in farming and Age exhibited negative relationships.
8. Intercorrelation among external factors of participation efficiency indicated that ten external factors such as Achievement motivation, Perception about group approach, Innovation proneness, Risk orientation, Education, Entrepreneurial behaviour, Economic motivation, Scientific orientation, Annual income and Credit orientation exhibited positive and significant relationship with majority of the external factors. Experience in farming and Age exhibited negative relationship with other factors.
9. Step-wise multiple regression analysis identified eight factors such as Achievement motivation, Age, Cosmopolitaness, Risk orientation, Knowledge in farming, Innovation proneness, Economic motivation and Entrepreneurial behaviour which explained 72 per cent variation in participation efficiency.
10. Comparison of Governmental, Quasi-governmental and NGO groups and districts with respect to the external factors of participation efficiency indicated that Governmental groups scored the highest mean score for the external factors

such as Perception about group approach, Risk orientation, Education, Entrepreneurial behaviour, Economic motivation, Annual income and Farm size. Quasi-governmental groups obtained the highest mean score for the external factors such as Achievement motivation, Innovation proneness, Knowledge of farming, Scientific orientation, and Credit orientation. With regard to Cosmopolitanism, Experience in farming and Age, the NGO groups got the highest mean score. Among the districts, Alappuzha district scored the highest mean score for the external factors such as Perception about group approach, Innovation proneness, Cosmopolitanism, Knowledge in farming, Scientific orientation, Annual income, Farm size and Credit orientation. Thrissur district obtained the highest score for external factors like Risk orientation, Economic motivation, Experience in farming and Age. Thiruvananthapuram district secured highest score for Achievement motivation and Education.

11. All the ten components of group efficiency had exhibited significant association with Group Efficiency Index Value.
12. The majority of the components of group efficiency exhibited strong positive and significant intercorrelations.
13. Comparison of Governmental, Quasi Governmental and NGO groups with respect to the components of group efficiency revealed that Quasi-governmental groups secured highest mean score for the components such as Group leadership, Accountability, Transparency, Sustained profit, Productivity, Equity and Employment generation. NGO groups got highest score for other components such as Group cohesion, Team spirit and Group interaction. Governmental groups

got highest score for Transparency. Among the districts, Kozhikode district scored the highest scores for the components such as Group cohesion, Team spirit, Group interaction, Accountability, and Equity. Alappuzha district secured the highest score for components such as Group cohesion, Transparency and Productivity. Thiruvananthapuram district had the highest scores for the components such as Group leadership and Sustained profit. Thrissur district obtained the highest score for the component, Employment generation.

14. Majority of the respondents (56.8 per cent) were found to belong to the medium level of group efficiency followed by 30.8 per cent in the low and 12.4 per cent in the high level of group efficiency based on Group Efficiency Index Value (GEIV).
15. Comparison of Governmental, Quasi-governmental and NGO groups revealed that the group efficiency was high in Quasi -governmental groups followed by governmental groups and NGO groups. Among the districts, Kozhikode district secured highest group efficiency score and lowest by Wynad.
16. Principal components analysis revealed that the first three linear combinations of components of group efficiency yielded 86 per cent of the total variation. The components such as Productivity, Equity, Employment generation, Group cohesion and Sustained profit influenced group efficiency of farmer's groups with higher magnitude of variation.
17. All the 15 external factors exhibited significant relationship with GEIV. The relationship was negative with respect to Group size and Political determinism.

18. Intercorrelation of external factors of group efficiency indicated that the factors such as Group action plan, Clear cut procedures, Effective supply of inputs, Group size, Risk compensation, Political determinism, Guidance and supervision, Client driven agenda, Satisfaction, Diversification of activities and Information backstop exhibited significant relationship among most of the external factors.
19. Stepwise-multiple regression analysis identified six factors such as Group action plan, Non-antagonistic goals, Incentives, Group size, Diversification of activities and Effective supply of inputs which explained 62 per cent variation in group efficiency.
20. Comparison of Governmental, Quasi-governmental and NGO groups based on the mean score with respect to the external factors of group efficiency indicated that with respect to external factors such as Group size, Co-operation from other departments, Lobbying power, Incentives and Political determinism, Governmental groups secured highest scores. Quasi-governmental groups scored the highest score for Group action plan, Clear-cut procedures, Effective supply of inputs, Risk compensation and Guidance and supervision. In the case of NGO groups, the highest mean scores were for Diversification of activities, Information backstop, Client driven agenda, Non-antagonistic goals and Satisfaction. Among the districts, Alappuzha district secured the highest mean score for factors such as Group action plan, Diversification of activities, Co-operation from other departments, Lobbying power, Guidance and supervision and Client driven agenda. Kozhikode district got the highest mean

score for factors such as Information backstop, Risk compensation, Incentives and Satisfaction. Thiruvananthapuram district scored the highest mean score for Group size, Clear cut procedures, Effective supply of inputs and Non-antagonistic goals. Wynad district secured the highest mean score for the factor Political determinism.

21. Lack of co-ordination of different agencies, Predominance of part-time farmers, Non- availability of suitable agricultural implements and machinery, Low price for produces, Absence of effective machinery for technology transfer and Interference of local leaders were the most important constraints perceived by farmers with respect to Organisational, Socio-political, Infrastructural, Economic, Technological and Leadership and supervision aspects respectively in following group approach in agriculture.
22. Constraints perceived as important by extension personnel were: Inefficient monitoring mechanisms, High influence of vested interests, Non-availability of suitable agricultural implements and machinery, Low price for produces, Absence of effective machinery for technology transfer and Lack of dedicated and efficient group leaders. This is with regard to Organisational, Socio-political, Infrastructural, Economic, Technological and Leadership and supervision aspects respectively.
23. The extension personnel strongly perceived that : Cost of cultivation can be significantly reduced by following group approach in farming, Group approach in farming is one of the best strategies adopted for agriculture development in the State, Group approach in farming helped to increase crop production

substantively, Maximum utilization of available resources of small and marginal farmers is possible through group approach and, Activities which require collective action like plant protection could be more efficiently taken up through group approach.

24. Suggestions to improve group approach in the order of importance were: Group leaders are to be given regular training on group management and leadership; Very old people should not be made office bearers of groups; Groups are to be involved in participatory technology development, Sufficient training opportunities are to be provided for group members to upgrade their knowledge and skills in farming; Groups are to be empowered to mobilise resources and take up activities such as deposit collection, borrowing and cess collection.

Implications of the study

Participatory group approach occupies a key position among various developmental approaches which are being implemented in the State in aiming at sustainable agricultural development through the active participation of all the stakeholders associated with this sector. The contribution as well as scope of participatory groups in agricultural development is tremendous. Governmental, Quasi-governmental and NGO agencies are very active in this field. Results indicate that Quasi-governmental agencies are emerging as the champions in promoting farmers' participatory groups.

The Participation Efficiency Index (PEI) and Group Efficiency Index (GEI) developed in the study can be used to assess the level of participation efficiency and group efficiency of participatory groups. The indices have been deliberately made simple so that persons or agencies interested in using them could do so with ease in recording the responses of group members as well as in computing Participation Efficiency Index Value and Group Efficiency Index Value.

The study of PEI and GEI brings out the major components of participation efficiency and group efficiency of participatory groups.

The strategy developed for the sustainable development of agriculture through participatory group approach may be taken as guidelines in the formation of specific programmes to promote participatory group approach in agriculture.

The participation efficiency and group efficiency of Government and NGO sponsored farmers' groups lag behind the Quasi-government sponsored groups. Hence to promote effective participatory group approach in Governmental and NGO sector, they have to take up intensive participatory activities in a more systematic and organised manner by following the strategy suggested in the study. Participation efficiency and group efficiency of the groups in Wynad district were low when compared to the other four districts studied. Wynad is an agriculturally potential district. Hence concentrated efforts from all the quarters viz. Governmental, Quasi-governmental and NGO agencies are required to promote effective participatory group approach in Wynad district.

Among the ten components of participation efficiency, three components such as Communication behaviour, Sharing of responsibility and Competitive spirit had emerged as important in determining the participation efficiency of farmers in group related activities. Group efficiency components viz. Productivity, Equity, Employment generation, Group cohesion and Sustained profit were found as important components in determining group efficiency of participatory groups. Hence the above components are to be given maximum importance while implementing participatory group approach in agriculture.

The external factors of participation efficiency such as Achievement motivation, Age, Cosmopolitaness, Risk orientation, Knowledge in farming, Innovation proneness, Economic motivation and Entrepreneurial behaviour, and in the case of group efficiency the factors such as Group action plan, Non-antagonistic

goals, Incentives, Group size, Diversification of activities and Effective supply of inputs were found to influence significantly the functioning of participatory groups in agriculture. Hence it is suggested that these factors may be given special consideration while formulating programmes for sustainable development of agriculture.

Suggested areas of future research :

1. A few case studies of Government and NGO sponsored participatory groups are to be conducted as a research programme.
2. Studies to revalidate the PEI and GEI are to be conducted for its application in other areas of agriculture and allied sectors.
3. Transparency, accountability and equity are the three major emerging dimensions in participatory group approach. Research studies to suggest clear cut procedures to ensure transparency, accountability and equity in participatory groups are to be undertaken.
4. A study is to be conducted to develop an attitude scale to measure the attitude of policy makers and administrators towards participatory group approach.
5. Action research studies may be conducted to investigate the performance of farmers' participatory groups in different enterprises with the introduction of group interventions suggested in the present study.
6. Indepth studies into the dynamics of participation efficiency and group efficiency may be undertaken.

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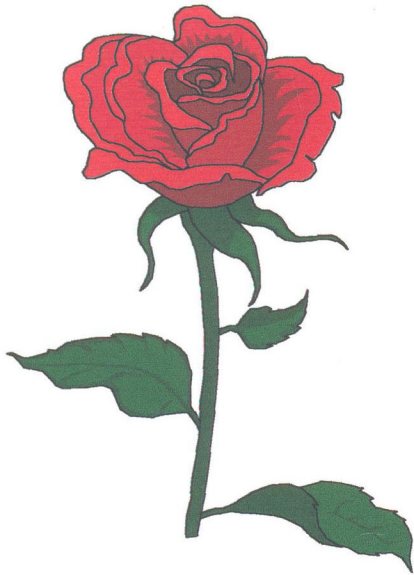
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*Original not seen



ANNEXURES

ANNEXURE - I

Area, Production and Productivity of major crops grown in Kerala

Sl.no.	Crops	1996-97		
		Area ('000ha)	Production ('000 tons)	Productivity (Kg/ha)
1.	Rice	430.83	871.36	2023
2.	Coconut (Production in Million Nuts, Productivity Nuts/ha)	1005.46	5759.00	5728
3.	Pepper	172.60	53.77	312
4.	Cashewnut	100.50	78.44	781
5.	Arecanut (Production in Million Nuts, Productivity Nuts/ha)	72.80	15464.00	212420
6.	Ginger	13.93	52.61	3778
7.	Turmeric	3.76	8.41	2239
8.	Banana and plantains	72.11	610.64	8468
9.	Pulses	20.21	14.36	710
10.	Sesamum	5.26	1.44	274
11.	Groundnut	14.31	9.88	690
12.	Tapioca	142.03	2588.31	18223
13.	Rubber	449.95	514.50	1143
14.	Coffee	82.35	43.89	661
15.	Tea	36.87	62.59	1698
16.	Cardamom	43.04	4.74	110
17.	Chillies	0.634	0.649	1020

Source : Department of Agriculture Kerala. 1998. *Action Plan 1998-99*. Government of Kerala, Thiruvananthapuram.

ANNEXURE - II

KERALA AGRICULTURAL UNIVERSITY

Dr. G. Balakrishna Pillai
Professor

Department of Agricultural Extension
College of Agriculture
Vellayani P.O.
Thiruvananthapuram
Pin - 695 522

18 August 98

Dear Sir/Madam,

Mr. G. Surendran, Ph.D Scholar of this department has taken up a research study on "Participatory Group Approach for Sustainable Development of Agriculture in Kerala" under my guidance. One of the objectives of the study is to develop Participation Efficiency Index and Group Efficiency Index.

The components of and independent variables related to Participation Efficiency and Group Efficiency have been identified based on review of literature and discussion with experts. These are listed in the Appendix along with their operational definitions.

Considering your vast experience, I request you to offer your valuable rating of the relevancy of the components and variables in the five point continuum ranging from 'most relevant to 'least relevant'. Please put a tick mark (✓) against each of the items to indicate your judgement on the degree of relevancy of the items.

Since it is conceptualised that the components of 'Participation Efficiency' and 'Group Efficiency' have differential significance, you are also requested to assign weightages to these items ranging from 1 to 10 in the columns provided for the purpose.

Further, you are welcome to add additional variables, if any, relevant to the study. Kindly rate all the variables and return the proforma in the stamped envelop to the researcher at the earliest.

Thanking you.

Yours sincerely

G. Balakrishna Pillai

APPENDIX

PARTICIPATION EFFICIENCY

Participation Efficiency - refers to the propensity of the members to actively associate in planning execution and monitoring and evaluation of activities related to farmers' groups.

A. COMPONENTS

Sl. no.	COMPONENTS	most relevant	more relevant	relevant	less relevant	least relevant	weightage
1.	<i>Involvement in decision making</i> - refers to the involvement of the members in generation of ideas, evaluation of options and making choice from among options.						
2.	<i>Involvement in implementation of decision</i> - refers to the extent of physical and moral presence, involvement in physical work and sharing of responsibility by the member in group activities.						
3.	<i>Involvement in monitoring and evaluation</i> - refers the involvement by the member in reviewing progress of implementing the programmes, suggesting modifications and evaluating the achievements with respect to group goals.						
4.	<i>Promptness and regularity in attending meetings</i> - refers to the frequency, punctuality and readiness of the member in attending the group meetings.						
5.	<i>Communication behaviour</i> - refers to information listening, seeking, processing and sharing behaviour by the member in the group.						
6.	<i>Consensus</i> - refers to the general agreement on opinions by all or most members in the group.						
7.	<i>Sharing of responsibility</i> - refers to the processes involved such as voluntarism and capability - potentiality considerations in sharing of responsibilities by the member in the group.						

<p>8. <i>Conflict resolution</i> - refers to the availability of techniques/methods to overcome disagreement, disputes, clashes, quarrel or difference of opinion in group activities.</p>						
<p>9. <i>Self-reliance</i> - refers to the extent to which a person relies oneself for his future.</p>						
<p>10. <i>Competitive spirit</i> - refers to the competitive nature of members in achieving the objective of each task in a better way.</p>						
<p>11. <i>Empowerment</i> - refers to the extent to which the group members have the authority to get involved in decision making and in implementing the programmes.</p>						
<p>12. <i>Intimacy</i> - refers to the mutual acquaintance and familiarity of the members among one another.</p>						
<p>13. <i>Role perception</i> - refers to the member's view of how he is supposed to function with respect to different group activities.</p>						
<p>14. <i>Leadership propensity</i> - refers to the degree of ability of the member to influence others in the group in deciding and implementing group activities.</p>						
<p>15. <i>Role perception</i> - refers to the unselfish devotion for the welfare of the other members in the group activities.</p>						
<p>16. <i>Altruism</i> - refers to the unselfish devotion for the welfare of the other members in the group.</p>						

B. INDEPENDENT VARIABLES

Sl. no.	External factors	most relevant	more relevant	relevant	less relevant	least relevant
1.	<i>Age</i>					
2.	<i>Education</i>					
3.	<i>Sex</i>					
4.	<i>Marital Status - Married or not</i>					
5.	<i>Caste</i>					
6.	<i>Annual income</i> - refers to the total earnings of all members of the family of the respondent for one year.					
7.	<i>Economic motivation</i> - refers to the extent to which a farmer is oriented towards profit maximisation and relative value he places on monetary gains.					
8.	<i>Credit orientation</i> - refers to the orientation to avail credit by the respondent.					
9.	<i>Self-reliance</i> - refers to the extent to which a person relies on self for his future.					
10.	<i>Innovation proneness</i> - refers to the keenness of the respondent in accepting new ideas and seeking changes in farming techniques and to introduce such changes into their farming operations when practical and feasible.					
11.	<i>Risk orientation</i> - refers to the degree to which the farmer is oriented towards encountering risk and uncertainty in adopting new ideas in farming.					
12.	<i>Achievement motivation</i> - refers to the striving of farmers to do good work and attain a sense of accomplishment.					
13.	<i>Farm size</i> - refers to the extent of area possessed by the respondent.					
14.	<i>Perception about group approach</i> - refers the recognition of the stimuli and interpretation about group approach in farming.					

<p>15. <i>Cosmopolitaness</i> - refers to the tendency of the farmers to be in contact with outside village on the belief that all the needs of an individual cannot be satisfied within his own village.</p>					
<p>16. <i>Scientific orientation</i> - refers to the degree to which the farmer is oriented to the use of scientific methods in decision making in farming.</p>					
<p>17. <i>Knowledge in farming</i> - refers to the quantum of scientific information possessed by the farmer on crop production.</p>					
<p>18. <i>Experience in farming</i> - refers to the total number of years the respondent has been engaged in farming.</p>					
<p>19. <i>Entrepreneurial behaviour</i> - refers to the ability of the farmer to exploit opportunities and initiate activities to increase income from farming</p>					
<p>20. <i>Discipline</i> - refers to the degree to which members of the group confirm to self discipline in group activities.</p>					

GROUP EFFICIENCY

Group Efficiency refers to the extent to which the group fulfills its objectives through the increased involvement of members in group related activities.

A. COMPONENTS

Sl. no.	External factors	most relevant	more relevant	relevant	less relevant	least relevant
1.	<i>Productivity</i> - refers to the output from the unit area cultivated.					
2.	<i>Employment generation</i> - refers to the extent to which the activities of the group can generate more employment oppurtunities.					
3.	<i>Equity</i> - refers as to how far the group approach minimises/ eliminates inequalities in the distribution of production inputs and output among its members.					
4.	<i>Group cohesion</i> - refers to that degree to which group members are affiliated to one another and are motivated to remain in the group.					
5.	<i>Group homogeneity</i> - refers to the similarity of the members of the group with respect to needs, motives and socio-economic status					
6.	<i>Clear group goals</i> - refers to the well defined and specific objectives for group action					
7.	<i>Proportion of active members</i> - refers to the percentage of members actively involved in the group.					
8.	<i>Group leadership</i> - is defined as the effectiveness of the leaders in promoting the stability and success of the group.					
9.	<i>Group interaction</i> - refers to the tendency of members to get in touch with other members of the group and freely mix with them without any formality or inhibition.					
10.	<i>Accountability</i> - refers to the extent to which members are answerable for performance of responsibilities or achievement of objectives as agreed upon.					
11.	<i>Transparency</i> - refers to the extent to which the activities of the group are open and clear to the members of the group.					
12.	<i>Sustained profit</i> - refers to the extent to which activities of the group provide continued profits and monetary benefits to the members.					
13.	<i>Team spirit</i> - refers to the extent to which joint action behaviour is exhibited by group members through coordinated efforts to achieve common goals.					
14.	<i>Promptness and regularity in conducting group meetings</i> - refers to the frequency and punctuality in conducting group meetings.					
15.	<i>Market orientation</i> - refers to the availability of marketing facilities to dispose the produce of group members					

B. INDEPENDENT VARIABLES

Sl. no.	External factors	most relevant	more relevant	relevant	less relevant	least relevant
1.	<i>Group size</i> - refers to the specific number of members in the group.					
2.	<i>Clear cut procedures</i> - refers to the stipulation of rules and regulations for the operation of the group fixed by sponsoring agency.					
3.	<i>Group action plan</i> - refers to the availability of specific plan of action for group for each crop season.					
4.	<i>Lobbying power</i> - refers to the degree to which the group can exert pressure and influence in promoting policies to their advantage					
5.	<i>Incentives</i> - refers the subsidies and assistance provided by Govt. and sponsoring agency to motivate farmers to follow group approach in farming.					
6.	<i>Risk compensation</i> - refers to the assistance which group members are likely to receive for crop failure due to natural calamities, pests and disease attack and failure of new technology.					
7.	<i>Diversification of activities</i> - refers to the extent to which crop production activities are diversified to generate additional income.					
8.	<i>External intervention</i> - refers to the the extent to which Govt., Agrl. Dept. local bodies and sponsoring agencies interfere in the functioning of the group.					
9.	<i>Political determinism</i> - refers to the degree to which over emphasis is given to political consideration in the functioning of the group.					
10.	<i>Infrastructure facilities</i> - refers to the availability and adequacy of infrastructural facilities which support crop production through group approach.					
11.	<i>Information back stop</i> - refers to the availability of facilities and opportunities to the members for updating of information regarding formation, functioning and evaluation of groups.					

<p>12. <i>Co-operation from other departments</i> - refers to the timely assistance rendered by other development departments for effective group functioning.</p>					
<p>13. <i>Effective supply of inputs</i> - refers to the availability of the critical production inputs like seeds, fertilizer, pesticides, irrigation water etc., in correct time, and sufficient quantity.</p>					
<p>14. <i>Autonomy</i> - refers to the degree to which the group has freedom, independence and direction in scheduling work and determining how the work has to be carried out.</p>					
<p>15. <i>Community support</i> - refers to the extent of support and co-operation received from local community in the functioning of group activities.</p>					
<p>16. <i>Inter group linkage</i> - refers to the extent to which the groups have interaction and co-operation with other groups available in the area.</p>					
<p>17. <i>Non-antagonistic goals</i> - refers to the existence of goals which are consistent as viewed by members in the group.</p>					
<p>18. <i>Satisfaction</i> - refers to the degree to which the members of the group achieve happiness with respect to group operations.</p>					
<p>19. <i>Involvement in meetings</i> - refers to the nature and extent to which members attend and participate in group meetings.</p>					
<p>20. <i>Client driven agenda</i> - refers to the extent to which group members are involved in deciding the programmes and activities of the group based on their perceived needs.</p>					
<p>21. <i>Guidance and supervision</i> - refers to the regular guidance and supervision on group activities and technical aspects provided by the extension staff.</p>					

ANNEXURE - III
KERALA AGRICULTURAL UNIVERSITY
 Department of Agricultural Extension, College of Agriculture, Vellayani
 "Participatory Group Approach for Sustainable Development of Agriculture"

Serial No.

INTERVIEW SCHEDULE

Date:

PART I

District
 Block
 Village Panchayat
 Sponsoring Agency

1. Name of the respondent :
2. Age : years
3. Annual Income : Rs
4. Farm Size
- Wet land
- (a) Rice
- (b) Others ()
- Garden land
- (a) Coconut
- (b) Vegetables
- (c) Others ()
5. Experience in farming : years
6. Educational status

Owned	Leased in	Leased out

- Sl.No. Level of Education
- 1) Illiterate
 - 2) Can read and write
 - 3) Primary school level
 - 4) Middle school
 - 5) High school
 - 6) College
 - 7) Professional Degree

PART II

I. Involvement in decision making

Please indicate your involvement in the following areas (A=Always, ST=Sometimes, N=Never)

Sl.No.	Areas	A	ST	N
1)	Setting the objectives of the group			
2)	Deciding the cropping pattern, variety and calendar of activities			
3)	Estimating the operation-wise expenditure and labour requirement for cultivation.			
4)	Deciding the use of fertilizers, p.p. chemicals and agricultural implements			
5)	Planning alternate means for storage and marketing.			

2. Involvement in implementing decisions

Please indicate your involvement in the implementation of the following group activities.

Sl.No.	Activities	A	ST	N
1)	Are you actively involved in achieving the objectives of the group?			
2)	Are you involved in implementing the cropping patterns, choice of variety and calendar of operations as per group decision?			
3)	Do you implement the decisions of the group with respect to fertilizer application, plant protection and use of agricultural implements?			
4)	Do you share your responsibility with respect to arrangements for storage and marketing?			
5)	Do you personally involve in group action by sharing money and labour?			

3. Involvement in monitoring and evaluation

Please indicate your degree of involvement in the following areas.

Sl.No.	Areas	A	ST	N
1)	Watching the progress of implementation of group activities in relation to the objectives /goals			
2)	Assessing the suitability of technology/skills and demand for new technology.			
3)	Helping in developing operational mechanisms for implementation of the programmes.			
4)	Analysis of feedback and review			
5)	Appraisal of results			

4. Sharing of responsibility

Please indicate the extent of your agreement or disagreement 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)	A member should be ready to accept any responsibility entrusted to him by the group.					
2)	A member should voluntarily come forward to accept the responsibility in implementing group decisions.					
3)	Sub groups are to be formed for execution of decisions in the group.					
4)	A member should try to keep away from taking any responsibility in implementing group decisions by persuading others to do it.					
5)	Members of the group should be willing to accept joint liability by sharing risk, cost and benefits of the group activities.					

5. Communication behaviour

a. Information-input

Please indicate the sources from where you have received information regarding technical aspects of crop production. (MO=Most Often, O=Often, ST=Sometimes, R=Rarely, N=Never)

Sl.No.	Sources	MO	O	ST	R	N
1)	Group leaders/Group members					
2)	Neighbours/Non-group members					
3)	Agricultural officers/ Agricultural Assistants/Other Extension Agents					
4)	Newspapers/Agricultural periodicals/Leaflets/bulletins					
5)	TV/Radio					
6)	Campaigns, demonstrations, seminars and exhibitions					

b. Information processing

Have you felt difficulty at anytime in understanding the technical aspects of crop production in the following aspects? Please indicate your response by marking (✓) in the appropriate column.

Sl.No.	Items	MO	O	ST	R	N
1)	Information about the characteristics of HYVs of rice/ vegetables/coconut					
2)	Information about recommended dose of manures and fertilizers of rice/ vegetables/coconut					
3)	Information about the plant protection measures of rice/vegetables/coconut					
4)	Information about agronomic practices of rice/ vegetables/coconut					
5)	Information pertaining to the irrigation practices of rice/ vegetables/coconut					

c. Information-output

How often did you communicate the technical information pertaining to the improved agricultural practices of rice/vegetable/coconut to the following personnel.

Sl.No.	Personnel	MO	O	ST	R	N
1)	Friends/Neighbours					
2)	Group members/Group leaders					
3)	Non-group members					

d. Information feedback

How often did you receive the response, opinions, feelings, doubts, ideas, thoughts and comments about improved agril practices of rice/vegetable/coconut from others. Please put a mark (✓) in the appropriate column

Sl.No.	Methods of information feedback	MO	O	ST	R	N
1)	Through informal discussion					
2)	Through discussion during home visits/farm visits					
3)	During group meetings/trainings					

6. Promptness and regularity in attending meetings

Sl.No.	Statements	A	ST	N
1)	Do you attend the group meetings?			
2)	Do you come to attend the meetings in the fixed scheduled time and leave the meeting only after the meeting is over?			
3)	Do you keep attending the meetings if deliberations of the meetings are not much relevant to you?			
4)	Do you try to attend the meetings even if you have some personal inconvenience.			
5)	Do you attend the meetings even if the meetings are convened in a distant place or a place which is not of your choice?			

7. Leadership propensity

Sl.No.	Statements	A	ST	N
1)	Do you lead group meetings and discussions?			
2)	Are you available to group members at anytime to extend necessary help to them?			
3)	Do you guide and influence the group members in taking decisions?			
4)	Do you feel that other members in the group are convinced by you?			
5)	Do you think that you can change the attitude of others in the group?			

8. Empowerment

- 1) Do you have sufficient chances for trainings to upgrade skills of activities.

(a) Crop production

Yes/No

(b) Marketing

Yes/No

(c) Processing

Yes/No

(d) Managerial aspects of group

Yes/No

- 2) Do you have access to information on group related office procedure, maintenance of accounts and conduct of meetings?

Yes/No

- 3) Do you have the right to involve in policy decisions of group?

Yes/No

- 4) Are you aware of the bye-laws, rules and regulations of the group?

Yes/No

9. Conflict resolutions

Sl.No.	Statements	A	ST	N
1)	Important group decisions are taken by arriving at a consensus among members			
2)	Personal issues are separated from group issues for discussion in group meetings			
3)	Members will follow the group norms to enforce discipline while conducting meetings			
4)	Members are free to express their opinions during group meetings			
5)	There will be no coercion or compulsion to accept opinions.			

10. **Competitive spirit**

Sl.No.	Statement	SA	A	UD	DA	SDA
1)	The key points of success in farming should not be divulged to other farmers					
2)	A better yield in comparison to the neighbours brings more prestige.					
3)	It is of no use to keep information on what others are doing					
4)	Crop competition should be organised for all important crops.					
5)	Better farming provides opportunity for recognition by the extension officers					
6)	It is not good for a farmer to become too ambitious in life					

PART III

1. **Achievement motivation**

Please respond to the following sentences by choosing the appropriate answers

- a) In whatever work I undertake on my farm
1. I like to make advance plan
 2. I like to do my best
 3. I do not assume full responsibility for it.
- b) I am always keen
1. to maintain the social status
 2. to remove social evils
 3. to develop my qualifications
- c) I feel happy when
1. I tell others of my personal experience
 2. I am assigned a difficult job
 3. I am required to advice others
- d) My secret ambition in life is
1. to deal a happy married life
 2. to establish a glorious record of achievement
 3. to own a large farm unit
- e) I like to venture something which
1. others can hardly do
 2. will make one wealthy
 3. others regard as a quality of leadership

2. **Perception about group approach**

Sl.No.	Statements	SA	A	UD	DA	SDA
1)	Group approach in farming helps to achieve sustained livelihood to farmers					
2)	Maximum utilization of available resource of farmer is possible through group approach					
3)	Group approach in farming helps to reduce heavy crop loss in farming					
4)	Implementation of group approach encourage corruption					
5)	Group approach in farming is a blessing to small and marginal farmers					
6)	Group approach in farming is one of the best programmes implemented for the development of agriculture in the state.					
7)	Group approach in farming does not promote opportunities for income and employment generation to farm families.					
8)	Cost of cultivation can be reduced by following group approach in farming					
9)	Plant protection operations could be more efficiently followed through group approach					

3. Innovation proneness

Indicate one statement out of the three that is most liked by you and another statement of the same that is least liked by you.

Sl.No.	Statements	High	Medium	Low
a.1)	I try to keep myself upto date with information on new farm practices, but does not mean that I try all new methods in my farm.			
2)	I feel restless till I try at a new farm practice, I have heard about			
3)	They talk of many new farm practices these days but who knows whether new ones are better than old ones.			
b.1)	From time to time I heard of several new farm practices and I have tried out most of them in the last year.			
2)	I usually wait to see what result my neighbours obtain before I try out the new practices			
3)	Somehow I believe that the traditional ways of farming are the best.			
c.1)	I am cautious about trying a new practice			
2)	After all, our fore fathers were wise in their farming practices and I do not see any reason for changing those old methods			
3)	Often new practices are not successful, however, if they are promising, I would surely like to adopt them			

4. Risk orientation

Please give your degree or disagreement about the each of the following statements

Sl.No.	Statements	SA	A	UD	DA	SDA
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 smaller but less risky profit.					
3)	A farmer who is willing to take greater risk than the average farmer usually does better financially					
4)	It is good for a farmer to take risk when he knows his chance of success is fairly high.					
5)	It is better for a farmer not to try a new farming method unless most others in the locality have used it with success.					
6)	Trying entirely a new method in farming by a farmer involves risk, but it is worth.					

5. Entrepreneurial behaviour

Please indicate your extent of agreement or disagreement to the following statements by marking (✓) in the appropriate column

Sl.No.	Statements	SA	A	UD	DA	SDA
1)	I am hesistant about starting/running an enterprise					
2)	I will start an enterprise only if somebody prompts me					
3)	I will be willing to join a training course which would help me to start an enterprise					
4)	I am eager to exploit any opportunity to start a new enterprise					
5)	I am willing to try activity which is income generating					

6. Economic motivation

Please indicate your agreement or disagreement to the following statements

Sl.No	Statements	SA	A	UD	DA	SDA
1)	A farmer should work towards larger yield and economic returns					
2)	The most successful farmer is one who makes the most profit					
3)	A farmer should try any new farming idea which may give more money					
4)	A farmer should grow each crops to increase monetary profits in comparison to growing of food crops for home consumption					
5)	It is difficult for farmers' children to make good start unless he provides them with economic assistance					
6)	A farmer must earn his living, but the most important thing in life cannot be defined in economic terms					

7. Cosmopolitaness

a. Frequency of visit to nearest town			
1)	Twice or more in a week		
2)	Once in a week		
3)	Once in a month		
4)	Seldom		
5)	Never		
b. Purpose of visit			
1)	All visits related to his farming		
2)	Some visits related to his farming		
3)	Other purposes		
4)	No purposes		
c. Membership in organization outside the village			
1)	Office bearer		
2)	Member		
3)	No membership		

8. Knowledge in farming

Sl.No	Statements	Full	Partial	No
1)	Name one HYV of rice/vegetable/coconut			
2)	Seed rate of rice/vegetable/spacing of coconut			
3)	Recommended NPK dose for rice/vegetable/coconut			
4)	When the NPK fertilizer is to be used for rice/vegetable/coconut			
5)	Name one pest /disease of rice/vegetable/coconut			
6)	Name the chemical/method used for its control			

9. Scientific orientation

Please indicate your agreement or disagreement with the statements

Sl.No.	Statements	SA	A	UD	DA	SDA
1)	New methods of farming give better results to farmers than old methods					
2)	The way of farming by our fore fathers is the best way to farm today					
3)	Even a farmer with lot of experience should use new methods of farming					
4)	A good farmer experiments with new ideas in farming					
5)	Though it takes time for a farmer to learn new methods in farming, it is worth while the efforts					
6)	Traditional methods of farming have to be changed in order to raise the level of living of a farmer.					

10. Credit orientation

Sl.No.	Items		
1)	Do you think a farmer like you should borrow from banks for agricultural purposes?	Yes	No
2)	In your opinion how difficult it is to secure credit for agricultural purpose?	VD	D E VE
3)	How a farmer is treated when he goes to secure credit from banks/co-op 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

PART IV

1. Group Cohesion

Sl.No.	Statements	A	ST	N
1)	Members of our group exhibit high 'we-feeling' in group activities			
2)	Members of our group have informal and friendly relationship among themselves			
3)	Members are ready to forgo personal differences to arrive at common consensus in group programmes			
4)	In spite of differences in opinion, members would like to remain together in the group			

2. Team spirit

Please indicate your extent of agreement or disagreement to the following statements

Sl.No.	Statements	SA	A	UD	DA	SDA
1)	More progress can be achieved by working as a team.					
2)	Activity entrusted to a single member will be carried out well than entrusting same to a sub-group					
3)	Activities with due co-ordination and support of different members are usually executed very successfully					
4)	Members are ready to forgo their personal interests/inconveniences while working in the group					

3. Group interaction

Please indicate your extent of agreement or disagreement to the following statements

Sl.No.	Statements	SA	A	UD	DA	SDA
1)	The members of our group are friendly and informal towards each other					
2)	The members of our group exchange ideas freely					
3)	The members of our group give information to other members without any formality					
4)	The members mix with other members of the group freely.					

4. Group leadership

Sl.No.	Statements	A	ST	N
1)	Does your leader motivate the members to implement the decisions which the group has taken?			
2)	Does your leader try to get more and more information for effective group action?			
3)	Does your leader create interest in members in various group activities?			
4)	Do the members of the group accept leaders' opinion?			
5)	Does the leader take active part in solving the problems of your group?			

5. **Accountability**

Sl.No.	Statements	A	ST	N
1)	Are the members bound to implement the group activities?			
2)	Whether any action can be taken against the members who not implement group decision?			
3)	Whether detailed report on subcommittees achievements will be presented in the group for discussion?			
4)	Do you have any procedure/system to monitor the group and sub group activities?			
5)	Do you have a system to audit the accounts by an external agency?			

6. **Transparency**

Sl.No.	Statements	A	ST	N
1)	Whether the members have a clear idea about the activities of the group?			
2)	Whether the group members have the full access over the records, reports and accounts of the group?			
3)	Whether the group publishes the itemwise details of receipts and expenditure?			
4)	Whether the members have full knowledge regarding the procedure followed in planning, execution, monitoring and evaluation of the group activities?			

7. **Sustained profit**

Sl.No.	Statements	YES	NO
1)	Do you agree that your income from farming has improved substantially by being a member of the group?		
2)	Do you make continuous profit from farming since you joined the group?		
3)	Do you agree that group approach provides assured increased return from farming?		
4)	Do you think that the group activities promote continuous and regular profit from farming?		

8. **Productivity**

Please furnish the following details

Sl.No.	Crop	Last crop Season				
		Increase in Yield				
		No	<25%	26-50%	51-75%	>75%
1)	Paddy per acre					
2)	Vegetable per 25 cents					
3)	Coconut per palm					
4)	Others (specify)					

9. **Equity**

Please indicate your response as agreeable or disagreeable to the following statements

Sl.No.	Statements	SA	A	UD	DA	SDA
1)	Do you agree that the members of the group have equal opportunities to involve in group related activities					
2)	Do you agree that the major share of the benefits received through group approach will go to the elite and big farmer members					
3)	Do you agree that only some farmers of the group receive timely assistance for group activities?					
4)	Do you agree that some group leaders grab a major portion of the assistance received from Govt. to promote group approach					
5)	Do you think that distribution of production inputs and outputs among members is rational?					

10. Employment generation

Please indicate whether there is increase or decrease in employment opportunities through group-oriented crop production activities

Sl.No.	Activities	Increase		No Change	Decrease	
		<50%	>50%		<50%	>50%
1)	Nursery management					
2)	Land preparation and planting					
3)	Manuring and fertilization					
4)	Weed control and interculture					
5)	Irrigation/water management					
6)	Plant protection activities					
7)	Harvesting and post harvest operations					
8)	Marketing					

PART V

1. Group action plan

(A=Agree, UD=Undecided, DA=Disagree)

1)	Does the group prepare an action plan for each crop season in advance?	Yes/No
2)	Do you agree that an action plan will guide members properly in implementing the group activities?	A/UD/DA
3)	Group action plan is a must to achieve the group objectives?	A/UD/DA

2. Group size

Please indicate the size of your group by marking a (✓) in the appropriate column

Sl.No.	No. of members	
1)	Below 25	
2)	Between 26-50	
3)	Between 51-100	
4)	above 101	

3. Clear cut procedures

Sl.No.	Statements	Yes	No
1)	Whether the sponsoring agency of the group stipulates any rules and regulations for the functioning of the group?		
2)	Whether a model bye-law for the group was supplied by the sponsoring agency?		
3)	Whether the sponsoring agency has suggested the procedure for handling the money and maintenance of records?		
4)	Are you aware of the rules, regulations and procedures of the group?		

4. Effective supply of inputs

Please indicate the extent of availability of inputs for crop production.

A=Always, ST=Sometimes, N=Never, CQ=Correct quantity, CT=Correct time

Sl.No.	Inputs	A		ST		N	
		CQ	CT	CQ	CT	CQ	CT
1)	Seeds/planting materials						
2)	Manures and fertilizers						
3)	PP chemicals						
4)	Irrigation water						
5)	Credit						

5. Diversification of activities

1)	Does your group persuade the members to diversify their crop production activities by growing intercrops, multiple crops and undertaking dairy, poultry etc	Yes/No
2)	Does your group undertake post harvest and processing activities like: (a) Paddy procurement, paddy processing, marketing of rice (b) Vegetable procurement/marketing/processing (c) Coconut procurement/copra making/oil extraction/marketing	Yes/No Yes/No Yes/No
3)	Do you think that diversification of crop production activities increases profit from farming?	Yes/No
4)	Does majority of the group members undertake atleast any one of the diversification activities?	Yes/No

6. Information back stop

Sl.No.	Items	A	ST	N
1)	Do you have opportunities to undergo training on different group functions?			
2)	Whether the sponsoring agency arranges trainings to members?			
3)	Whether the group provides reading materials or library facilities for members to gather information on crop production?			
4)	Whether the group arranges exhibitions, melas and study tours to facilitate members to see and understand things.			
5)	Whether group conducts group discussions among members by involving local extension agent on latest information on crop production?			

7. Co-operation from other departments

Please indicate the extent of support your group received from other departments by marking (✓) in the appropriate column

Sl.No.	Statements	A	ST	N
1)	Agriculture Department			
2)	Irrigation dept (for providing Irrigation water)			
3)	KSEB (supplying power)			
4)	Local Panchayat			
5)	Co-operative banks and nationalised banks (for credits)			
6)	Kerala Agricultural University			
7)	Others (specify)			

8. Risk compensation

Sl.No.	Items	A	ST	N
1)	Do you agree that assistance provided by the sponsoring agency covers the risk of crop loss due to natural calamities?			
2)	Do you agree that assistance provided to under take plant protection measures covers the risks involved due to pests and disease attack?			
3)	Do you think that lack of provision to compensate failure of new technology affects adoption of improved practices adversely?			
4)	Do you agree that crop insurance scheme motivated the farmers to work in groups?			

9. Lobbying power

Please indicate your response to the following statements as 'Yes' or 'No'.

1)	Whether group has submitted any scheme for special assistance from Govt/ Localbody/Boards	Yes/No
2)	Whether sanction has been received for such scheme?	Yes/No
3)	Amount involved in the sanctioned scheme if any?	<1 lakh/ 1-5 lakhs/ 5-10 lakhs
4)	Whether any of the following persons are member/office bearer of your group?	

- (a) Minister
 (b) MP/MLA
 (c) Ex-Minister/Ex MLA/Ex MP
 (d) MDP/MBP/MVP/MNP
- 5) Do you have regular planned programmes to influence the officials/policy makers to get assistance for the group?

Yes/No

10. Incentives

Please indicate your extent of agreement or disagreement to the following statements

Sl.No.	Statements	SA	A	UD	DA	SDA
1)	Subsidies/assistance provided by the sponsoring agency motivated farmers to follow group approach in farming					
2)	Subsidies/assistance provided by the sponsoring agency are not adequate when compared to the expenditure in farming					
3)	Subsidised supply of inputs like seeds, seedlings fertilizers, PPC etc reduced the hardship faced by farmers following group approach					
4)	Free electricity provided by Govt. for farming is a boon for farmers to reduce cost of cultivation					

11. Political determinism

1)	Do the office bearers of the group belong to a particular political party?	Yes/No
2)	Do you think that political decisions are more acceptable to the group?	Yes/No
3)	Do you think political polarization among members badly affects the functioning of the group?	Yes/No
4)	Whether political parameters are considered more important by the group compared to technological parameters?	Yes/No
5)	Do you find that the discussions in the group are mostly focussed on politics?	Yes/No

12. Guidance and supervision

Sl.No.	Statements	A	ST	N
1)	Whether the local extension agent regularly visits your group and provides necessary technical advice?			
2)	Whether higher level officers of the sponsoring agency visit group and give necessary advice for the proper functioning of the group?			
3)	Whether the extension agent helps the group to identify, and solve problems related to raising of crops?			

13. Client driven agenda

Sl.No.	Statements	A	ST	N
1)	Do you agree that the activities of the group are finalised in consultation with all members of the group ?			
2)	Do you agree that priorities of group activities are fixed by group members themselves?			
3)	Do you agree that the activities of the group are decided by the officers of sponsoring agency?			
4)	Do you agree that programmes of the group are finalised based on the perceived needs of members?			

14. Non-antagonistic goals

Please indicate your extent of agreement or disagreement to the following statements

Sl.No.	Statements	SA	A	UD	DA	SDA
1)	Do you agree that goals of your group will help to increase crop production?					
2)	Do you feel that the aims of the group badly affect the interests of a section of farmers?					
3)	Do you agree that group goals provided in the bye-laws promote harmony in your society?					
4)	Do you agree that the group goals mainly protect the interests of small and marginal farmers?					

15. Satisfaction

Please indicate your response to the following items as Least satisfied (LTS), Less satisfied (LS), Satisfied (S), More satisfied (MS) and Most satisfied (MTS)

Sl.No.	Items	LTS	LT	S	MS	MTS
1)	To what extent does your status in the group satisfy you					
2)	To what extent the group activities give you satisfaction					
3)	To what extent are you satisfied in fulfilling your aspiration by being a member of the group					
4)	How much are you satisfied in terms of assistance from other members of the group					
5)	Does the teamspirit involved in your group action provide you satisfaction?					

PART VI

1. Problems/Constraints

Some of the problems pertaining to the operation of group approach are listed below. Please indicate your perception (Important=I, Undecided=UD, Less Important=LI)

Sl.No.	Problems/Constraints	I	UD	LI
Organisational problems				
1)	Lack of clear cut procedures for group formation			
2)	Want of clear objectives			
3)	Non-inclusion of local leaders in group activities			
4)	Non-availability of literature on group activities			
5)	Want of followup for group activities			
6)	Lack of co-ordination for different group activities			
7)	Ineffective linkage with PRIs.			
8)	Cumbersome office procedures for group formation and functioning			
9)	Inefficient monitoring mechanism			
Socio political problems				
1)	Small farm holdings			
2)	Predominance of part-time farmers			
3)	Political affiliation of members			
4)	Limited active members			
5)	Village factions/sub groups			
6)	Existence of other competing groups			
7)	Non-representation of all sections in the area.			
8)	Ego-centric and command attitude of some members			
9)	High influence of vested interests			
10)	Non-understanding of the objectives of group approach			

Sl.No.	Problems/Constraints	I	UD	II
Infrastructural problems				
1)	Non-availability of suitable agril implements and machineries			
2)	Non availability of credit institutions			
3)	Lack of irrigation facilities			
4)	Non availability of timely production inputs			
5)	Inadequate extension staff			
6)	Lack of marketing institutions			
7)	Non availability of processing centres			
8)	Want of office buildings for group meetings			
Economic problems				
1)	Lack of sufficient funds			
2)	High cost of production			
3)	Low price for produces			
4)	Non availability of timely credit			
5)	Inadequate profit to individual members			
Technological problems				
1)	Lack of viable and appropriate technology			
2)	Absence of effective machinery for Technology Transfer			
3)	High risk in new technology			
4)	Complexity of new technology			
Leadership and supervision problems				
1)	Interference of local leaders			
2)	Want of dedicated and efficient group leaders			
3)	Want of involvement of voluntary leaders			
4)	Autocratic leadership			
5)	Lack of professional guidance and supervision			
6)	Inefficient extension and supervisory staff			
Other Problems				
1)	Non availability of agricultural labourers in peak season			
2)	Labour disputes			
3)	Unstable agricultural policy of Govt:			
4)				
5)				
6)				
7)				
8)				
9)				

2. Suggestions

Please indicate your suggestions to improve the functioning of groups

- 1)
- 2)
- 3)
- 4)
- 5)

ANNEXURE - IV

KERALA AGRICULTURAL UNIVERSITY

Dr. G. Balakrishna Pillai
Professor

Department of Agricultural Extension
College of Agriculture
Vellayani-P.O., Thiruvananthapuram
Pin 695 522

dated 21.12.1998

Sir,

Mr. G. Surendran, Ph.D. Scholar of this department had taken up a research study on "Participatory Group Approach for Sustainable Development of Agriculture in Kerala" under my guidance.

An evaluation on the perception of group approach in farming by the officers of the implementing agencies and policy makers form part of the study. For this, a questionnaire containing statements on group approach, suggestions to improve the functioning of the groups and constraints in the functioning of the groups are prepared and enclosed here with.

Considering your vast experience and knowledge in this field, you have been selected as one of the the respondents of this study. I request you to kindly spare some time amidst your busy schedule, to go through the items in the questionnaire and offer your valuable response in the appropriate columns and return the same to the researcher at the earliest.

Yours Sincerely

G. Balakrishna Pillai

To

Dr/Sri/Smt

A. Perception about group approach in farming

(Perception refers to the mental process of recognizing the stimuli we receive.)

Please indicate your degree of agreement or disagreement to the following statements on a five point continuum as strongly agree(SA), agree (A) undecided (UD) disagree (DA) and strongly disagree (SDA)

Sl.No.	Statements	SA	A	UD	DA	SDA
1)	Group approach in farming helps to increase crop production substantively.					
2)	Maximum utilization of available resources of small and marginal farmers is possible through group approach.					
3)	Implementation of group approach encourages corruption					
4)	Group approach in farming is one of the best strategies adopted for agriculture development in the State.					
5)	Group approach in farming does not generate additional farm income.					
6)	Group approach does not have the potential to generate employment opportunities					
7)	Cost of cultivation can be significantly reduced by following group approach in farming.					
8)	Activities which require collective action like plant protection could be more efficiently taken up through group approach					
9)	Resource- poor farmers cannot adopt group approach					
10)	There is little work and more propaganda on group approach in farming					
11)	Suitable and sound technologies are not available for following group approach in farming.					
12)	Group approach in farming benefits only big and elite farmers					
13)	Effective Utilization of family labour is not possible through group approach					
14)	Group farming is more economical than individual farming					
15)	Group approach creates lot of difficulties in extension work					

B. Constraints in implementing group approach

Some of the constraints pertaining to the operation of group approach are listed below. Please indicate your perception (most important=MI, important=I, undecided=UD, less important=LI, least important=LTI)

Sl.No.	Problems/Constraints	MI	I	UD	LI	LTI
	Organisational problems					
1)	Lack of clear cut procedures for group formation					
2)	Want of clear objectives					
3)	Non-inclusion of local leaders in group activities					
4)	Non-availability of literature on group activities					
5)	Want of followup for group activities					
6)	Lack of co-ordination for different group activities					
7)	Ineffective linkage with Panchayati Raj Institutions					
8)	Cumbersome office procedures for group formation and functioning					
9)	Inefficient monitoring mechanism					

Sl.No.	Problems/Constraints	MI	I	UD	LI	LTI
	<i>Socio-political problems</i>					
1)	Small farm holdings					
2)	Predominance of part-time farmers					
3)	Political affiliation of members					
4)	Limited active members					
5)	Village factions/sub groups					
6)	Existence of other competing groups					
7)	Non-representation of all sections in the area.					
8)	Ego-centric and command attitude of some members					
9)	High influence of vested interests					
10)	Non-understanding of the objectives of group approach					
	<i>Infrastructural problems</i>					
1)	Non-availability of suitable agricultural implements and machineries					
2)	Non availability of credit institutions					
3)	Lack of irrigation facilities					
4)	Non availability of timely production inputs					
5)	Inadequate extension staff					
6)	Lack of marketing institutions					
7)	Non availability of processing centres					
8)	Want of office buildings for group meetings					
	<i>Economic problems</i>					
1)	Lack of sufficient funds					
2)	High cost of production					
3)	Low price for produces					
4)	Non availability of timely credit					
5)	Inadequate profit to individual members					
	<i>Technological problems</i>					
1)	Lack of viable and appropriate technology					
2)	Absence of effective machinery for Technology Transfer					
3)	High risk in new technology					
4)	Complexity of new technology					
	<i>Leadership and supervision problems</i>					
1)	Interference of local leaders					
2)	Want of dedicated and efficient group leaders					
3)	Want of involvement of voluntary leaders					
4)	Autocratic leadership					
5)	Lack of professional guidance and supervision					
6)	Inefficient extension and supervisory staff					
	<i>Other Problems</i>					
1)	Non availability of agricultural labourers in peak season					
2)	Labour disputes					
3)	Unstable agricultural policy of Govt:					
4)						
5)						
6)						
7)						
8)						
9)						

C. Suggestions to improve group approach

Some suggestions to improve the functioning of the group approach in farming are listed below. Please indicate your response to these items in a five-point continuum as very relevant (VR), relevant (R), undecided (UD), not relevant (NR) and not at all relevant (NAR)

Sl.No.	Items	VR	R	UD	NR	NAR
1)	Extension system is to be strengthened by providing exclusive staff for group approach					
2)	Sufficient publicity for group approach in farming has to be given through mass media					
3)	Sufficient training opportunities are to be provided for group members to upgrade their knowledge and skill in farming					
4)	There should be clear group norms to enforce discipline in group activities					
5)	Rewards and recognition are to be given to extension staff who have commitment in group approach					
6)	Group leaders are to be given regular training on group management and leadership					
7)	All members of the group should have access to the plans and programmes of group activities					
8)	Only small and marginal farmers are to be encouraged to become members of groups					
9)	Groups should be given full authority and powers to plan and implement programmes of their area					
10)	Sub-groups are to be formed from the group members to maintain liaison with Extension Agency					
11)	Implementation of all the agricultural development programmes should be made through groups					
12)	Groups should claim assistance for undertaking marketing of their agricultural produces					
13)	Assistance is to be given to groups to cover the risks of crop failure due to adoption of new technology, natural calamities, pests diseases out breaks etc.					
14)	Group members are to be brought under special insurance scheme					
15)	Active political leaders may be discouraged from becoming office bearers of the group					
16)	Groups should be considered as the stakeholders in the process transfer of technology					
17)	The control over the group by the agricultural department/ Sponsoring Agency is to be minimised.					
18)	Political interference should be avoided in the functioning of the groups					
19)	Only one registered group is to be formed in one Krishi Bhavan area, with sub-groups for each crop.					
20)	Assistance for groups should be given only for creating infrastructure development					
21)	There should be strong interface between scientists and extension personnel for promoting group activities.					
22)	Groups are to be involved in participatory technology development.					

Sl.No.	Items	VR	R	UD	NR	NAR
23)	Groups should be fully empowered to formulate, implement, monitor and evaluate the agricultural programmes.					
24)	Groups are to be empowered to mobilise resources like deposit collection , borrowing, cess collection etc. to undertake development activities					
25)	Local bodies are to be involved in group functioning					
26)	Rules are to be enacted to bring farmers under group approach					
27)	Very old people should not be made office bearers of groups					
28)	Others if any					

Position/Designation :
 Organisation :
 Years of experience :
 Qualification :

PARTICIPATORY GROUP APPROACH FOR SUSTAINABLE DEVELOPMENT OF AGRICULTURE IN KERALA

By

G. SURENDRAN

ABSTRACT OF THE THESIS
submitted in partial fulfilment of the
requirement for the Degree of
Doctor of Philosophy in Agriculture
(Agricultural Extension)
Faculty of Agriculture
Kerala Agricultural University

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COLLEGE OF AGRICULTURE
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ABSTRACT

The study was aimed to analyse the participation efficiency and group efficiency of Government, Quasi-government and NGO sponsored farmers' groups of the State and to suggest a strategy for sustainable development of agriculture through participatory group approach. A sample of 250 farmers was selected at random from 50 farmers' groups from the five agro-climatic regions of the State. Besides, one hundred extension personnel were selected as respondents of the study. The components and external factors of participation efficiency and group efficiency formed the variables of the study. The data were gathered by the use of interview schedule and questionnaire from farmers and extension personnel respectively. Statistical techniques such as Correlation, ANOVA, Principal components analysis and Step-wise multiple regression analysis were used to analyse the data.

All the components of participation efficiency exhibited significant association with Participation Efficiency Index Value. Majority of the respondents fell in medium level of participation efficiency. Quasi-governmental groups and groups in Alappuzha district showed high level of participation efficiency. Communication behaviour, Sharing of responsibility and Competitive spirit were the components which influenced higher magnitude of variation in participation efficiency. The external factors such as Achievement motivation, Age, Cosmopolitaness, Risk orientation, Knowledge in farming, Innovation proneness, Economic motivation and Entrepreneurial behaviour explained 72 per cent variation in participation efficiency. All the components of group efficiency showed

significant association with Group Efficiency Index Value. Majority of the respondents were in medium level of group efficiency. Group efficiency was high in Quasi-governmental groups and groups in Kozhikode district. The components such as Productivity, Equity, Employment generation, Group cohesion and Sustained profit influenced higher magnitude of variation in group efficiency. The external factors such as Group action plan, Non-antagonistic goals, Incentives, Group size, Diversification of group activities and Effective supply of inputs explained 62 per cent of variation in group efficiency. Lack of co-ordination of different agencies, predominance of part-time farmers and inefficient monitoring mechanism were some of the constraints perceived as important. Extension personnel perceived that significant reduction in cost of cultivation is possible through group approach. Based on the results of the study, a strategy is suggested for the sustainable development of agriculture through participatory group approach.