Beneficiary Participation in Irrigation Water Management: The Kerala experience

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C. J. Joseph*

1. Introduction

Irrigation projects the world over have experienced wide divergence between their respective estimated benefited areas and the actual areas benefited, as also between their respective irrigation potentials created and the levels of their utilisation. Several experiments have gone into reducing these gaps. Earlier projects, now deemed "first generation of projects" used to undertake only construction of storage reservoirs and dams as well as networks of canals to take water to what is technically known as the outlet turnout level, leaving to the beneficiary farmers the construction and maintenance of field channels / water courses necessary for taking water to their farms. Beneficiary participation in almost all the projects was hesitant and inadequate. Even the maintenance of the major reservoirs and their distribution networks fell over time into disuse and disrepair.

Later, in the so called second generation of projects, a more integrated and comprehensive approach was followed. Under this category, irrigation is viewed as a soil-water-plant relationship; and irrigation water management came to enjoy a global dimension, with international bodies like FAO organising a series of international seminars on this subject[1]. The project now came to be designed for catering to all the water resource needs of a region comprising its agriculture and industry.

Active and sustained beneficiary participation in construction, management, and maintenance came to be ensured in all the second generation projects. In India, the introduction of the second generation approach to irrigation began in the mid-1970's. The Command Area Development Authority (CADA) introduced during the period envisaged more autonomy for States, in planning, execution, and management of irrigation projects with active involvement of beneficiaries at every stage, from launching of the project to its completion. Despite the introduction of CADA, beneficiary participation is found to be poor in India as a whole[2]; it would appear that, in this respect Kerala lags even behind the all-India performance level[3].

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No serious in-depth study of the causes for the failure or the measures of reform which ought to be taken to improve farmer involvement in major public sector irrigation projects seems to have been undertaken in the Kerala context. The present exercise constitutes an attempt to address this question.

Some cardinal issues which would be investigated in the study are given below:

A high level of efficiency in performance by Water Users Associations (WUAs) in functions like irrigation, water distribution, and resolution of conflicts is reported in India and abroad[4]. The performance of WUAs of Kerala[5], in these respects has not yet come under research scrutiny. The role of WUAs, in water distribution and resolution of conflicts among farmers and between farmers and project personnel is examined in depth. Thus, the existing status of farmer-involvement in the study area is assessed, the attitude of the project officials towards farmer-involvement is examined; the incentive structure to attract farmer participation is looked into; and the possibility of total farmer-involvement, commencing from the planning stage through the stages of designing and construction to management and maintenance examined.

The organisational and administrative autonomy permitted by the Centre to States, while constituting CADA, resulted in different organisational and administrative patterns at the State level. Assessment of the suitability of the organisational and administrative patterns of CADA, as has evolved and is functioning in Kerala also constitutes part of the present enquiry.

A common experience in the working of such voluntary associations is that the local (village level) power structure influences their functioning. Whether the village power structure has exerted any influence in the working of the Beneficiary Farmers Associations (BFAs) is a matter for investigation. If it has, the method of exerting influences, the extent of influence, the factors facilitating interference and the possible remedies for its elimination are issues calling for research attention. It is also necessary to understand the method by which Beneficiary Farmer's Associations are constituted in CADA projects in Kerala in order to examine its impact on their working.

A universally discharged function of WUAs is the maintenance of close laision with government agencies. This is necessary for (i) receiving advice from such agencies and taking decisions on matters of common interest to the body of farmers, and (ii) conveying information from the farm level to the higher government agencies and *vice versa*. Academics in India report that this is the least performed function in India[6]. The performance of this linkage function by Kerala Beneficiary Farmer's Associations would be examined in this study.

Farmer-involvement in irrigation system is found to enjoy the legal support from presidential/ governor's decrees and a series of regulations. Experience elsewhere suggests that success/ failure of WUAs has much to do with the legal support systems; the nature and extent of legal support in this regard in Kerala would be looked into in order to suggest legal reforms in this area.

The major sources of finance for the WUAs are membership fees, fines, and profit from input sales. The financing of WUAs in Kerala would be examined in the present study.

The by-laws of the BFA stipulate that, once constituted, it should follow a strict accounting procedure of its finance, and should adhere to some procedural formalities[7]. This procedure does not seem to be followed by the majority of the BFAs in Kerala, as a result of which BFAs become defunct in a short span of two to three years. An attempt would be made to identify the underlying factors for this lapse, both exogenous and endogenous. The lack of co-ordination among the different agencies of CADA is widely admitted. In the present rural scene, the role that the *Panchayat Raj* institutions would be able to play in achieving better co-ordination, and in the capacity of promoters of community action in irrigation, would be examined. An attempt would be made also to assess the benefits, accruing to the stakeholders, as a result of the functioning of the agencies.

The most important allegation usually raised against the working of WUAs and BFAs is that the BFA president and his caucus appropriate to themselves the lion's share of the benefits, that maintenance is really carried out by contractors, rather than by BFA, in which process the presidents take bribes, that the real role of the BFA is held back deliberately from beneficiaries by CADA officials and that engineers are reluctant to promote BFA farmers. Consequently, farmers are said to have developed a dependency syndrome. In this study, attempt will be made to examine the veracity of such allegations.

The major objectives of this exercise may be summarised as follows:

Objectives

(i) To assess the role-performance of BFAs in the study area, in water distribution, resolution of conflicts and linkage with government agencies;

(ii) To examine the suitability of the organisational and administrative pattern of CADA in Kerala in terms of its performance, given the village power structure in the State;

(iii) To evaluate the suitability of the method which government has followed for organising WUAs in the Kerala CADA projects;

(iv) To assess the adequacy / inadequacy of the legal support system available to WUAs in Kerala, and to examine the suitability of the method of financing them; and

(v) To suggest feasible reform measures to enhance beneficiary participation and improve the working of the system.

Methodology

There are 14 CADA projects in Kerala at present, 10 of which were launched around 1986, and the remaining begun less than five years ago. There exist nearly 4000 beneficiary farmers' associations formed in the CADA projects in Kerala (Appendix I).

In order to decide on the sample area and the sample size, information was gathered through informal interviews with CADA officials consisting of engineers, agricultural officers, and co-operative personnel, as also with a few knowledgeable persons in the concerned area, some beneficiary farmers and office-bearers of BFAs. Based on this information, the Malampuzha project which has the longest history was selected as the sample.

The Malampuzha project has 15 Canal Committees (CCs), out of which 12 are under the Left Bank Main Canal (LBC) and three are under the Right Bank Main Canal (RBC) [Appendix II]. From among them, seven LBCs and one RBC were chosen for detailed study (Appendix III). They represent Upper Reaches (UR), Middle Reaches (MR) and Lower Reaches (LR) of the Main Canal. One Canal Committee may have one or more than one branch canal; there will be several sluices serving the ayacut of a branch canal. A BFA is formed, based on the ayacut of one or more of sluices. Hence samples are drawn of branch canals, and BFAs, from each such branch canal. The BFA's are so selected as to ensure that at least one association from each of the three reaches - U.R., M.R, and L.R – finds a place in the sample.

More than 10 percent of the total number of BFAs in the selected canal committees are represented in the sample. Some BFAs, formed under direct sluices from the main canal, which seldom experience problems of water scarcity, are also included in the sample. From each BFA, around 12 percent of the beneficiary farmers were chosen for detailed study. The selected BFAs are mentioned in the list given in Appendix IV.

To quantify the role-performance of the BFAs as well as of the reform measures the scalogram technique is used. The adequacy and reliability of the scale was tested before use in field survey. The views of knowledgeable persons in the area, experienced farmers and the Research Team (RT), are also taken into account. Performance Index (PI), (which measures the percentage of actual performance to ideal achievement) is the tool made use of to evaluate the role-performance of BFAs.

$$PI = \frac{\text{Actual score achieved}}{\text{Ideal/maximum score}} \times 100$$

A pre-tested structured schedule was used for collection of information from members. The interview was carried out by a few trained investigators who stayed in the area of study for a period of five months; the survey was conducted under the direct supervision of the Principal Investigator. Documents pertaining to the formation of the BFA, minutes of the BFA meetings, and details of the seminars and workshops, were examined and information on the amounts received by way of management subsidy collected. Scores were assigned to documentary evidences to measure quantitatively the activity status of BFAs, and to carry out an inter-BFA comparison of role performance. Interviews were conducted with knowledgeable persons in the command area of the Malampuzha project and farmers in the study area. Also, the top officials of the bureaucracy of the Revenue, Irrigation, and General Administration Departments of the Government of Kerala, as also some expert academics in the area, were interviewed in order to elicit their suggestions for reform. Also, visits to two other projects outside Kerala namely Khadak Vasala (Maharashtara) and Lower Bhavani (Tamil Nadu) were made for understanding the working of BFAs there and to compare performances between them and the Malampuzha project.

In carrying out the analysis, respondents are categorised into two groups, office-bearers (OBs) and ordinary members (OMs). OBs are responsible for discharging the manifold functions while OMs constitute the consumers of the project benefits.

Data requirements

Both primary and secondary data have been used in this exercise. The sources of secondary data comprise project documents and evaluation reports on BFAs at the international, national, and State levels including information presented at international and national conferences. For the State-level data, documents pertaining to functioning of BFAs such as minutes of meetings of Committees and General Body; internal evaluation reports and annual reports have been used. Primary data were collected from beneficiary farmers and governing body members and office-bearers of BFAs.

Chapter scheme

The relevant concepts and approaches involved in the study are discussed in Section II. In the review of literature in Section III, only those sources which are related to the WUAs/farmer groups are reviewed. While Section IV outlines the formation, structure, beneficiary participation, and performance of BFAs, Section V contains an analysis of the functions and the organisational and administrative aspects of these associations. In Section VI, the reasons for the weak performance of BFAs are examined. Some suggestions for improvement of BFA performance are also presented in this section. In the final section, the discussion is summarised and the general conclusion drawn.

2. Concepts, Theory, and Practice of Irrigation Water Management: An overview

Definition

Irrigation water management means the comprehensive control of such functions as taking in, conveyance, regulation, measurement, distribution, application at the proper time and in proper amounts, and drainage of excess water, if any, all aiming at the common target of increasing production and improving techniques of farming[8]. Water requirements vary with the crops grown, the age of the crops, the critical stages of their growth and temperature, humidity and other climatological factors; irrigation water management, therefore, implies basically the maintenance of soil, water, and plant relationship.

Irrigation water management: The concept

At the conceptual level, the crux of water management consists in matching supply of and demand for water. Water supply is governed by the characteristics of the dry and the wet seasons and the type of water storage used[9] - whether reservoir or diversion from a stream or lifted from the river - and the effective rainfall during the irrigation season. Very often, supply remains uncertain. The cropping pattern and the irrigation efficiencies at the farm as well as at the project level together determine the demand for water. Matching supply with demand is perhaps the most difficult part of the exercise. Three situations are possible. (i) Supply exceeds demand; the issue of matching supply with demand does not arise at all. But, the system will then be inefficient and would yield only poor returns on investment. (ii) Supply falls far short of demand: This is the case with many irrigation projects in several countries of the Middle East and in the Indian sub-continent where the deficit is more than 50 percent of the supply. As a consequence, cropping intensities are low, and the irrigation projects yield much less water than expected due to water losses, salinity in water, and failure to reach water to all those who are in need of it.[10] (iii) Supply falls short of demand, but only by a low margin say 10-20 percent. Here, there is better scope for improvement by resorting to, say restrictive measures, to match supply and demand. The chief restrictive measures adopted are (a) adjusting cropping pattern, (b) modifying water chargers, and (c) controlling water distribution practices. These measures are to be employed as management tools in irrigation. The theme of our study pertains to item (c).

Specialised water management organisation

Broadly the functions of these organisations comprise (i) operation of irrigation and drainage systems, (ii) maintenance of these systems, and (iii) assessment and collection of water charges. There are a few other minor functions as well. Three types of organisational structuress characterise these specialised water management organisations. They are organisations (i) controlled namely by farmers (ii) controlled by government, and (iii) under the mixed control of the government and the farmers. In the first category come Irrigation Districts of U.S.A, the Subak Irrigation Association of Indonesia, the Irrigation Association of Afghanistan, the Communidades de Regantes of Spain, and the Associanes de Canalisatas of Chile. There are Government-controlled organisations in Spain, Turkey, Boivia, and

Iraq. Those with mixed control are popular in the Far East and are on the increase in many Asian Countries.

Irrigation Associations might be formed through the model approach or the training approach, depending on whether the farmers are experienced or not. The model approach is adopted for farmers without sufficient experience. The public irrigation system, first demonstrates the different stages to the farmers thus affording them an opportunity to learn by seeing. Later they would be encouraged to form an irrigation association, and after its formation, the functions of irrigation management would be transferred to it. In Spain, this took 10 to 15 years. The training approach is introduced in areas where farmers have some experience, and support the idea of irrigation management wholeheartedly. Training is first imparted to leading farmers in the group. In Philippines, this programme was quite successful, through its Farm System Develop Corporation. Irrigation Associations have been formed following one of these approaches even in cases of mixed control. Mixed control is popular in cases in which water distribution at the field channel level or at lower levels is left uncared for by the public authority. Irrigation associations are formed for every water course or tertiary canal. The system above the water course and the tertiary canal is managed directly by the Government. This management alternative has proven to be a success and some pilot projects organised along the lines of the mixed control approach have recorded enhanced production.

Financing maintenance

Different systems are in vogue in financing maintenance of irrigation systems. Maintenance cost need not linearly related to the command area of a project; however, the larger the command area, the greater is the need for project maintenance. Experience suggests that there should be a balance between maintenance grant and revenue generation, particularly revenue from water charges. Such a relationship would serve an incentive for the irrigation bureaucracy, to actively get involved in collection; the farmers on their part are encouraged to pay the water charges regularly, as the charges are linked with price index and are revised periodically. In several countries including India, the funds for maintenance are provided by the state. States in India, most of which are revenue-deficit, provide only meagre funds for the purpose. Therefore "it is necessary to review and clearly spell out the policy with regard to the maintenance and then provide maintenance grants on a rational basis as per the need of the systems[11]".

Agency for maintenance

The question as to what is the most appropriate agency for maintenance and management of irrigation systems is still debated. In practice, the agencies are found to differ across countries. They are bound to since countries and governments differ in terms of people's awareness, climate, topography, size of the irrigation systems and availability of funds and maintenance is planned and executed by the governments straight away. At the other end of the scale, the responsibility vests solely with the beneficiary farmers. There are also in-between cases where a division of labour is agreed between the government and the beneficiaries and the management is executed jointly by both. Farmers' participation takes the form of contribution

of a few man-days of labour as is stipulated in the by-laws of the scheme, or of maintenance work carried out voluntarily under the auspices of irrigation associations. Farmers' participation is drawn successfully in cases of unskilled work in maintenance; skilled labour is, in general, hired, since it happens to be scarce or even unavailable in rural areas where the need arises. Again, in the case of maintenance of electro-mechanical equipment of gates, and remote control devices, or placing or removing of deep well pumps, it is the system of sub-contracting that is generally favoured[12].

For irrigation projects of over 10,000 hectares, it is desirable to have an independent chief of maintenance. For over 50,000 hectares, an Assistant Chief of maintenance for each unit of 30,000 hectares is necessary. For smaller schemes, the functions of operation and maintenance can be combined, and put under the charge of a single chief; even here, there may be arranged a small unit of repair, overhauling, and maintenance of machines and electrical equipment; such an arrangement would serve as an additional unit to the operation wing. But in arid regions, since irrigation season extends up to 10 to 11 months, these two functions cannot be combined in one person; maintenance might be needed during most part of the year.

Irrigation extension and training

In agricultural and irrigation extension and training, the relevant aspects to be considered are the personnel to be trained, the items of information to be disseminated, the institutional arrangement for imparting the instruction, and methods to be employed for training. Diverse conditions exist in different countries; therefore, diverse are the institutional arrangement provided, the personnel given training, the subjects chosen for instruction and training, and the methods by which irrigation extension is done. Still some kind of uniformity is found across countries in the extension work: all countries now accept an inter-disciplinary approach, and recognise the role of irrigation extension work among farmers and personnel of the different disciplines, and that too at different levels. Some broad common feature exists in the fields of training too; training is imparted to the agricultural engineers, extension workers, mangers, block leaders, fieldmen, tube well operators, canal operators, progressive farmers, office-bearers of water users; associations of irrigators and farmers' representatives. Similarly areas of training are methods of organising water-users' associations, crop management, water and water use management, (to improve scheduling and delivery of water to all parts of the system), and system maintenance.

Extension services in the past failed to yield good results. In most developing countries, one agent imparts instruction to roughly 2000 farmers. Obviously the agent is over-burdened with work. Besides he/she faces serious bottlenecks of finance and inadequate training in irrigated agriculture. Most of them have only training of a general nature in agriculture, with no special training in modern irrigation techniques and practices. What is said above applies equally well to the field assistants too.

The failure of the traditional extension services gave birth to new extension techniques like the Benor Training and Visit System, the National/Regional Plans for improved water use, Irrigation Scheduling Services and the project-area-based units.

Renovation and rehabilitation of early irrigation systems is acknowledged as essential all over the world, especially in countries in South and South East Asia (eg: Bangladesh, India, Indonesia, Philippines, Nepal, Srilanka, Thailand, Pakistan, Soviet Union, and Vietnam). It comprises levelling and grading of land, consolidation of holdings, and rectangulation. The question as to who should bear the costs of renovation and rehabilitation remains, however, unsettled.

In many countries, the responsibility was left to the beneficiary farmers; they failed to execute the task in most of the cases since technical knowledge and financial ability was required, which normally farmers did not possess. In some other countries, it was done by the project authority itself as part of the project. A compromise between the two approaches is also advocated by many. The government should stimulate the interest of the farmers to carry out improvements in their farms; this, government should do, by providing technical advice and a part of the finance.

The underlying idea behind on-farm development (OFD) when undertaken in the public sector is that every farmer is intrinsically interested in OFD activities and that he does not do it simply because he does not have the required technical skill, machinery, and finance. Therefore the public administration does the work in consultation with the farmer. The government meets a part of the cost, leaving the other part to be borne by the farmer, on the basis of a contract signed between the two. It is executed as a national programme with a large degree of financial and institutional autonomy. The project authority earmarks the total area to be covered during the life span of the programme, as also the priority regions and areas to be covered, each year. The general procedure is to concentrate on a particular region first and complete the work there, and then proceed to the area of the next priority; this process goes on until the targeted area is covered completely. The major impediment to the implementation of such programmes is the immense cost involved, which many developing countries with scant foreign exchange resources, find difficult to meet.

The next is OFD by the farmer himself. Under this, the farmer is supposed to be not only interested but capable of executing it as well. What he needs is some construction materials such as iron and cement, and some technical guidance for carrying out the different jobs. The available labour potential of the farming communities would be effectively employed to do the job rather than leaning on costly equipment and machinery for earth-moving.

3. Empirical Research on Irrigation Water Management: A review

Literature on empirical studies on irrigation water management is vast. In this section, we review only the studies focusing on beneficiary participation, with particular attention on studies made in Asian and African countries, having socio-economic problems and agro-climatic conditions comparable to those of India.

The study by George Chackacherry (1996), *Irrigation Water Management with Farmer Participation in Kerala-problems and Prospects*, focuses on the problems of beneficiary participation in irrigation water management. He has chosen 100 BFAs from Neyyar Project for field survey. The study has identified a few major issues involved in the irrigation water management system in Kerala. Though irrigated area has increased, productivity levels remain low and have not risen to any significant extent. The gap between irrigation potential created and utilised remains wide. He has rightly indicated the existing paradox of officials who are non-beneficiaries of irrigation controlling irrigation systems while the real beneficiaries, namely, farmers remain silent spectators. This paradox has, according to the author, debilitated scientific water utilisation and proper irrigation management.

The major findings of his study are the following: (i) only 30 percent of the farmers became members of the Beneficiary Farmer's Association (BFA), (ii) many farmers in the *ayacut* were unaware of such a thing as BFA (iii) introduction of CADA has benefited them to some extent though the major objectives of enhanced production and efficient, equitable water distribution could not be achieved, and (iv) efforts to impart among the beneficiary farmers, the principles of scientific agriculture, and scientific irrigation water management, through the instruments like seminars, symposia, and awareness-camps did not yield the expected results.

The author calls for greater efforts to enlist beneficiary participation and the willing co-cooperation of engineers and the bureaucracy. He enumerates the following reasons for the laxity in participation by the beneficiaries: (i) farmers are given responsibility without corresponding powers; (ii) there is mutual distrust between officials and farmers and also among farmers themselves; (iii) absence of effective, interested leadership for BFAs, since office-bearers in many of them were not real cultivators, (iv) declining interest in cultivation due to its non-profitability; and (v) non-implementation of structural reforms involving democratisation and decentralisation due to opposition from officials.

The author rightly recommends a stoppage of new projects till the existing projects are made efficient, effective implementation of laws, better co-operation on the part of farmers among themselves and with the officials of CADA, a change of attitude on the part of officials, recognition of the role of BFAs and appreciation of their problems, and keeping of politics away from irrigation water management. The study concludes with an optimistic note that BFA has ushered in the beginning of structural reforms, and improvements are expected in the attitude of farmers, officials, and the public at large in favour of beneficiary participation in irrigation water management. However, the conclusion of the author that most of the BFAs out of the 3431 (which constitute the total of all irrigation projects as on March 1995) are incapable of existing socially seems to be questionable.

Lele and Patil (1994) are concerned with the formation and working of a Water Users Association (WUA) in Ahamadnagar in Maharashtra. The command area served by the WUA was 500 hectares occupied by 345 landholders. The farmers were free to choose crops of their preference. It took 22 months to motivate the farmers, register the society, and arrive at an MOU with the irrigation department for receiving water in bulk for the 345 landholders. It was the responsibility of the WUA to distribute water among the members, collect water cess, and remit the same to the irrigation department. The authors give an account of the experience in the working of the society for a period of four years. According to them the yield increased by 25 percent; disputes were settled locally under WWA auspices; the area of irrigation increased marginally; inadequacies of the irrigation system were rectified promptly; and the rate of collection of water charges rose to 95 percent from the level of 45-50 percent in the non-society irrigation area. Though several lessons were learned from the Ahamadnagar experiment, the most prominent of them were that (i) the rights and duties of all the parties, namely, farmers, WUA, and government should be clearly defined before the society starts working, and (ii) there should be flexibility in the operation of the irrigation system to make the demand for water agree with its supply.

Chen H. Sing (1982) has given some useful information on mass participation in irrigation water management. In China, it was the local government that constructed and maintained the major and the medium irrigation systems. Each project had its own administration for maintenance and management; the local communes of people, which acted as distributing stations carried out OFD activities; in the beginning of every year, the Authority Committee, consisting of representatives of the communes and the administration discussed the irrigation plans for the year and got them approved for implementation. The water despatching station, in consultation with communes, drew up the detailed irrigation schedule. The quantum in each rotation was determined based on the recommendations of the experimental stations, water availability, and irrigation practices. All these show that there was beneficiary participation in a big way in China.

Ren Hongzun and James E. Nickum (1984) discussed how massive was the farmer participation in the construction and management of irrigation facilities in China in the 1970s. Water management organisation in China consisted of (i) State Water Management Organisation and (ii) Mass Management Organisations.

According to the authors the Mass Management Organisations performed basically the task of enlisting participation of farmers in irrigation water conservation and management. The three organs in a Mass Management Organisation (viz, communes, production brigade, and production team) had a hierarchical structure, to perform the following tasks: (i) organise rural labour (ii) constitute embankment protection teams (iii) organise management for the various levels of canal systems at and below branch level, and (iv) resolve disputes over water use. It was the production team that supplied the list of construction labour as well as embankment protection personnel.

The major part of irrigation facilities in China after 1949 had consisted mainly of the handiwork of beneficiary farmers. The entire labour was supplied by farmers while the state provided the design, critical construction materials, and funds.

Our interest is neither in the Production Responsibility System (PRS) *per se* nor its variants, but on the effects of PRS on irrigation water management. One cardinal effect was that, with the advent of PRS, farmers enjoyed relatively more independence in the use of land and labour[13].

The paper narrated how some of the problems, which are almost characteristic of irrigation projects all over the world, were encountered in China also. To indicate a few: destruction of the regulating gates as a result of disputes over water, the silting and collapse of some canals due to lack of timely maintenance, over-use of water in the upper reaches resulting in the shortage of water in tail ends, encroachments on the canal banks, and use of the universal flooding method in irrigation.

The paper also points out the absence of a strong legal framework. These problems emerged because of the absence of an irrigation organisation with authority. The series of management organs were busy with narrowly specialised tasks of expanding construction, maintenance and repair; none had specific, effective authority over water use and management. Therefore, it was necessary to define the duties and powers of each management organ both in the state and in the mass organisations to strengthen their authority in water management by promulgating water laws and management systems. The authors also indicated the need for replacing the personnel then in position in water management with high level personnel in order to raise the level of management through modern management methods. They called for adoption of emerging irrigation techniques such as the use of furrows-buried pipes of sprinklers. Sprinkler irrigation was to be tested first in cotton and peanut growing areas where wind effect was relatively small and water availability from precipitation was relatively poor.

The paper threw light on how the production responsibility system (PRS) brought about some improvement in the water economy of China. Prior to the introduction of PRS, in well irrigation, expenses used to be met from water fees levied by the collectives. In gravity flow, irrigation from canals, water fees were charged on area basis rather than on the basis of volume. The result was that farmers remained indifferent over the use of water. Under production responsibility system, since water management departments began operating on economic principles, water cess became the source of income; and the cess collection methods they followed were based on the actual usage of water.

Obviously, beneficiary participation in irrigation in China, whether before or after PRS was much greater than in Kerala or in India as a whole. Their schemes were also infested with problems, conflicts, and malpractices, which are characteristic of the first generation of projects in Third World countries. Their irrigation methods and practices were far from modern or scientific.

A. M. H. Kanjyo (1982) reported that farm water management was altogether a new technology introduced in Pakistan in the 1970s. He has given details of the Integrated Programme that included formation of farmer-organisations, improvement of water courses, training of farmers, extension services in water management, and fixation of the staff pattern[14] required to implement the programme. Formation of Water Users Association (WUA) was

a pre-requisite for participating in the Integrated Programme. WUA was expected to participate in all phases of implementation. Its special responsibilities included planning, arrangement of labour, supervision of labour, entering into agreement with contractors and artisans, settlement of disputes and establishment of routine maintenance programmes. The problems, which are found associated with irrigation projects in India and Pakistan are similar[15].

Budiman Notat Modjo (1981) describes how all-pervasive beneficiary participation was in providing irrigation facilities in Indonesia. Irrigation projects of all types, major, medium and small scale and ground water were subjected to all the problems and constraints common with first generation projects. Design, construction, operation and maintenance, extension services in water management and development of WUAs were the main activities carried out under the On-Farm Water Management Scheme. The government, on its part, performed the tasks of supervision, extension, and training in water management to WUAs on the lines stipulated for BFAs in CADA Act in Kerala. Accordingly, short training courses of two to five days' duration were carried out in respect of WUAs and irrigation committees; the participants in the training programme included irrigation engineers and officials of agricultural department at all levels from the main canal to the farm level.

In a way, the brunt of the responsibility of modernisation was on farmers. WUAs had to be formed before the construction began; the layout of the irrigation system had to be approved by WUAs and the village chief; design had to done by a competent consultant; construction was to be carried out by mutual work teams or contractors. If executed by contractors, they were required to employ labour from 'job-site farmers' who also did the supervision under the mutual help system.

Beneficiary participation on a large scale was achieved; the modernisation plan of the irrigation system through decentralisation of powers from government to farmers produced good results; and there was tangible improvement in productivity. Rice yield was reported to have increased by 0.73 tons/ha in the wet season and 0.65 tons/ha in the dry season.

Another more exhaustive paper (Budiman Notat Modjo, 1984) presented four models of irrigation organisation and farm water management in Indonesia: (i) the *Subak* irrigation system (ii) the village irrigation system (iii) village water master irrigation scheme, and (iv) the tertiary level of larger irrigation system. Unique practices were followed in each of them; further, different models involved different degrees of farmer involvement. Under the *Subak* system beneficiary participation is almost total; O&M of the irrigation system are done entirely by farmers and that too quite independent of the village administration. The *Subak* irrigation system had some additional objectives to be achieved such as organising social and religious activities of its members. Thus *Subak* irrigation model was all-pervasive since planning, design, and construction of the system were carried out only through mutual assistance of farmers, while under the village irrigation system, these activities were carried out jointly by the government and the farmers. Part of the main system and the diversion weir was built by government and the tertiary level facilities were provided by mutual assistance of farmers. As for the third and the fourth models are concerned, operation and maintenance were performed more by officials than by farmers[16].

The author points out how the pressure for rapid results and timely implementation has brought about changes in procedures. For instance, during the first Five-Year Plan (1969-'74) rehabilitation of the existing irrigation system was pushed through, with foreign assistance from the World Bank and the Asian Development Bank. Violating norms, which ought to have been achieved primarily through community efforts, tertiary rehabilitation was given on contract to private construction firms; similarly, the design work, which should have been carried out by the irrigation service officials, was given on contract to private designers. Exactly similar type of things has happened in many of our irrigation projects in several States of India including Kerala. This fact would be highlighted in the discussion of the results of the present study.

In his assessment of the system performance, Notat Modjo points out that farmers in community-managed systems such as the *Subak* and *Dharmatirta* village irrigation systems did achieve high levels of performance and efficiency in water distribution. The underlying reason for this achievement, he says, was the direct involvement of farmers in planning, design, construction and O&M of these systems. Another factor leading to success was the adequacy of finance. The major contributions towards farmers' association fund were membership fee periodically raised[17], and the non-periodical fee, which was realised during acute financial stringency, and for rehabilitation and improvement. All funds were spent mainly for the O&M of the system, for religious offerings, for *Subak* committee salaries, and for the reserve fund. The lion's share of the funds was usually taken away by religious offerings[18]. It is seen that the fund collection was so large and *Subak* system was so financially viable that only around 25 percent of the total fund was required for O&M.

Some encouraging results of the *Subak* system, were the following: (i) the cropping pattern changed and cropping intensity increased significantly (ii) use of HYV rice increased and the extent of fallow land declined; (iii) increased in rice yield (from 3.78 tonnes/ha) to 8.0 tonnes/ha raised incomes of farmers (from Rs 430,000 to Rs 580,000/year), indebtedness of farmers fell and land tax grew; (iv) the areas of water distribution improved in fertility and water management, (v) conflicts among farmers were successfully resolved, and (vi) for system maintenance, farmers made not only significant labour contributions, but made other contributions in kind as well[19].They also raised a temporary fund for carrying out major rehabilitation programmes and improvement of the irrigation system[20].

Another advantage of farmer involvement was that water fee collection was regular and substantial and its utilisation was systematic[21] and heavy fines were imposed for malpractices[22]. Better farmer involvement and improved water management in irrigation yielded other beneficial results as well. Compared to the conditions prior to the introduction of improvement, cropping intensity increased by 25 percent, and yield increased by 33 percent in Mitra Cai and by 77 percent in Hippa.

S. H. Thavaraj (1982) has thrown light on the irrigation system in Malaysia. The problems usually associated with the first generation of projects had to be faced in Malaysia also; the irrigation system had to be upgraded. The upgrading of the Muda Irrigation Scheme Stage II was representative of the rehabilitation process, implemented all over Malaysia. A series of dialogue sessions were held with farmers in order to explain to them the scope of

modernisation and its functions. The views and comments of farmers were accommodated to the extent they were technically and economically feasible. The boundaries of farmer groups usually coincided with the boundaries of the physical irrigation unit. One noteworthy feature of the farmer groups was that the leader of the group was more accountable to the farmer groups, than to the project authority who operated the irrigation system. Mass participation and group activity were encouraged in all water and farm management activities. A Farmers Organisation Authority was formed which undertook the responsibility of staffing and management of farmers' co-operatives, provision of mechanised agricultural services rendered necessary due to shortage of farm labour in Malaysia, imparting training to members and staff of farmers' co-operatives, and provision of chemical fertilisers. It is worth remembering that all these functions were introduced in a land, in which farmers had traditionally operated their farms on an individual basis, using own and hired labour, and the practice of mutual assistance had been in vogue for transplantation of paddy seedlings and for harvesting. The efforts resulted in increase in productivity of rice from 2 tons to 3 tons per hectare.

N. G. R. De Silva (1984) reported details of irrigation water management in Sri Lanka. He traced the history of farmer associations in Sri Lanka, and identified factors of their success or failure in the socio-economic and cultural milieu of the country. Cultivation Committees which constituted the first attempt since independence at democratisation and decentralisation were composed solely of elected farmer representatives with powers to develop and maintain irrigation works within their areas of operation. The Committees failed to serve their purpose and met the same fate of the Headmen System[23]. The reasons for the failure were the following: (i) members of the Committees, mostly old farmers were not receptive to changes; (ii) individualism and lack of the spirit of co-operation were displayed by members, and (iii) village financiers and landlords, who were not real farmers, crept into the system and hijacked the Cultivation Committees. They spread their tentacles of influence over all matters that came under the purview of these Committees, and took decisions favourable to their vested interests. Lack of finance and sources of funds was a major constraint. The area-levy, which was the major source proved to be inadequate. There was difficulty even in enforcing this levy among the defaulters. The ineffectiveness of these Committees led to their replacement by Agrarian Services Committees in 1979, composed mostly of public officials. This was not an effective organisation of farmers either.

According to De Silva, (i) attendance of officials of some government departments was low due to poor co-ordination of activities at the district and the national levels (ii) lack of funds proved to be a constraint in accelerating the pace of the programme to achieve the social transformation aimed at, (iii) resource personnel were required in fairly large numbers to act as change agents, (iv) farmers got acquainted with the decision-making process, and (v) officers admitted that the extension task had become easier once the pilot project was executed.

The organisation of the new Committee System seems to have been closely similar to the one being practised in Kerala for beneficiary participation. The project W.M. Committee was more or less the same as the Project Advisory Committee (PAC) of the Malampuzha project[24] and the sub-project committee consisting of 12 farmer representatives plus the

field level officers resemble the canal committees. The difference is that in Kerala the performance of canal committees has been poor while the project sub-committees in Sri Lanka functioned well and promoted better understanding between farmers and officers.

Mahesh M. Shreshtha (1982) explained how the concept of water management was in an embryonic stage in Nepal, and how the rugged topography and abrupt variations in agro-ecological conditions had influenced the choice[25] of irrigation projects and how the choice had made the task of renovation of projects complicated.

According to Shrestha, a major component of water management in Nepal was the provision of residential quarters for waterguards in the proximity of every gate control structure in the surface schemes. Irrigation problems in a 200 ha block were to be solved by a waterguard.

Mass participation, in extent and magnitude, was strictly burdensome in Nepal because, the guiding principles of renovation of old projects and introduction of new ones were stringent and binding on the beneficiaries. The principles are listed below: (i) Projects will be initiated only on farmers' request made through the *panchayat*, (ii) WUAs will be formed for each project, and they will do repair and maintenance work, drawing technical assistance from FIWUD [a government organisation] (iii) Five percent of the estimated cost will be deposited by WUAs in Agricultural Development Bank and another 20 percent will be contributed in the form of voluntary labour, or ADBN group loan; when once so much is done, the remaining 75 percent of the total cost will be deposited in the same Agricultural Development Bank by FIWUD on behalf of the government; (iv) The capital so accumulated will be jointly operated by WUAs and FIWUD.

With the introduction of WUAs, which were made liable to meet 25 percent of the cost, the farmers became more judicious in water use. Cropping intensity increased by 250 percent; yield of rice increased by 57 percent, of wheat by 130 percent maize by 55 percent, and sugar by 20 percent.

The details of Mahaveli Irrigation Project, the practice of irrigation in Sri Lanka both under the conventional and the newly established systems, the efforts made for and the extent achieved in beneficiary participation and the broad elements of irrigation extension were discussed by Walter Abhaye Gunawardena (1982). Being the largest settlement project[26] in Sri Lanka it had the special objective of providing relief to the problem of landlessness and setting up of growth centres, besides the traditional objectives of increasing production and reducing rural unemployment.

Beneficiary participation assumed a new form in the Mahaveli project, namely the settlement of landless agriculturists. Farmers participated in on-farm work, land development, and construction of contour bunds, but they received wages; the purpose of payment was to provide them, the settlers, with an income to eke out their existence. Also, farmer involvement in the management was stimulated by this UNICEF-assisted programme.

Training in irrigation extension, community action, and water management was given to

representatives of farmers. This is the method broadly adopted in India and in the study area of the Malampuzha project in Kerala. These trainees functioned as partners in the planning and implementation of social welfare projects, water supply, and sanitation.

Paitoon Palayasoot (1982) discussed the functions and performance of WUAs in Thailand, which has a long history of more than 700 years of irrigation by dug-canals. Thailand set up in 1963 the Royal Irrigation Department and the largest project, the Cho Phya diversion dam had been completed even earlier, in 1950 with World Bank aid.

Most of the problems or constraints associated with the Thailand irrigation system were of the same genre[27] as are found in India. Despite its long history of irrigation, rehabilitation at the farm level began in Thailand only in 1962, and consisted of the following: construction of irrigation and drainage ditches. This was assigned top most priority. Ditches of 1 to 2 km in length at 400-500m interval were constructed to serve 1.2m hectares of command area. Next priority was assigned to OFD components, such as land levelling, grading, and land consolidation. Unlike in many countries, land consolidation seems to have been specially stressed here. Following the Land Consolidation Act of 1974, the Royal Decree prescribing the area for land consolidation, the central and the provisional committees were set-up for the purpose. The rule was that land consolidation could be effected in areas where more than 50 percent of the land holders agreed to consolidation.

It appears that the centralised administration[28] and the hierarchical order in existence restricted the role of WUAs in Thailand. WUAs were formed in areas where irrigation ditches and dikes had been completed, in which no role had been assigned to farmer groups regarding their location and method of construction. The area decided per WUA was 1500 hectares or less. They were organised in each service unit. The elected ditch president acted as the common irrigator or contact farmer, who did the extension service.

The practice followed in the formation of and assignment of role to, WUAs in Thailand is very similar to the practice in India (and Kerala). Practically, farmers' associations in both were given no role in deciding the canal and field channel layouts. Also, in both the irrigation departments concerned took the initiative in forming WUAs.

The irrigation system, its management problems and programmes to involve farmers in Sierra Leone were discussed by Kargbo (1984). This country, lying in the West Coast of Africa, had relatively little irrigation facilities; it had only surface irrigation by gravity. Even the surface irrigation was beset with problems since dams were constructed without consulting hydrological data.

Farmers' participation was organised into groups each of which had a leader. In effect these groups served as work gangs, helping the construction of irrigation canals, drains and bunds, and levelling paddies.

The group leaders served as the link between the project and the group members. Field days were organised by the training officer of the project in collaboration with the Chief Extension and Land Development Officer. The farmers were taken to different successful farmers'

fields and project demonstration farms where they were taught the design,operation, and maintenance of irrigation and drainage schemes.

Farmer involvement in irrigation systems was a traditional practice. Farmers themselves used to enter into irrigation water regulation agreements without the intervention of any government agency. There existed a high degree of co-operation among farmers and disputes were not frequent. If at all any problem arose, it used to be referred to the group leader first, and then to the local village headman, the paramount chief who was the final and the most powerful authority to settle disputes. Another peculiarity was the absence of a regular practice of water fee payment by farmers. Farmers received loans in kind in the form of cement, iron rods, etc. Sparingly some cash payment, as part of the loan, was also made just to enable them to pay wages to hired labour. Loans used to be repaid within a period of four years.

Beneficiary participation improved; water availability, water distribution, and the system of maintenance which irrigators voluntarily did also improved in consequence. High yields from developed swamps, financial assistance to farmers from the project and availability of variable inputs were a few elements of encouragement; the major constraints were high levels of illiteracy of the farmers and poor transportation facilities.

C.M Osoro (1982) gave details on beneficiary participation in Kenya. Kenya did not have a tradition of irrigation. It developed irrigation systems both under the public and the private sectors[29].

The thrust given to beneficiary participation in providing irrigation facilities in Kenya, was amply demonstrated in the general criteria laid down for taking up new irrigation schemes, such as the following: farmers must participate in the implementation process of new projects or the rehabilitation of existing ones; priority would be given to those proposals of projects in the formulation of which farmers took the initiative; and the project land should belong to farmers concerned. Osoro did not give any information on the success or failure of the mass participation programme because he wrote about it at its beginning stage.

The strategy of the Agrarian Research and Training Institute (ARTI) in Sri Lanka to achieve full-fledged farmer involvement was, to permit farmers to form an organisation, based on the methods and rules of their own choice (C M Vijayaratne, 1984). ARTI, on its part, made planned intervention in the community, strong enough to catalyse its internal dynamism. This was made through a catalyst agent called Institutional Organiser (IO).

University graduates in social science, and agricultural development students having practical experience in rice farming, willing and able to live with rural populations in remote villages and having past membership and experience in village level organisations were chosen for the task. No interference, political or otherwise, was allowed in their recruitment, or in the goal of promoting people's participation.

In training, the instruments and techniques used to bring home the concepts and to develop the needed skills were lectures, discussions, and role-playing games and

exercises. The IO is so trained that he learns the art of acquiring knowledge about the physical environment, and the economic, social, political, and cultural aspects of his area of operation; he must also have knowledge of formal and informal organisations, leadership patterns in the community, political structure and political factors in community organisation, influence of party politics in water management, administrative infrastructure and so on. To give practical, on the job-training, the last four weeks of their training were devoted to field training in the project area. In brief, by means of training, they would be taught how to enter into the community, how to familiarise themselves with the social and physical environment of the village, how to study farmer problems and needs as well as issues in irrigated agriculture, and how to establish the process of dialogue for problem identification and solution.

Having acquired the knowledge of the area of his operation, an IO is required to prepare four different 'profiles'; water management, community organisation, land and land tenure, and agriculture.

IO enters into the community with a trained but open mind; he has taken with him no model by-laws, nor any defined objectives/functions nor any set pattern of an organisation. In short, he is neither an instructor nor an educator, but just a facilitator, who has confidence in the ability of the irrigators to identify their felt needs and problems, and to arrive at pragmatic solutions, take their own decisions and implement them. As a facilitator, he promotes interaction among farmers and also between farmers and officials, develops group consciousness and sense of self-reliance among farmers. He promotes beneficiary farmers' associations, but leaves the decision-making to farmers themselves, about the form, structure, membership subscription, rules, and regulations of the associations.

The IO farmer ratio was about 60 to 100. But this was expected to be increased as experience grows; so also, the field organising activity was planned to be accompanied by process documentation, the underlying idea being that in attempting to achieve beneficiary participation through a novel device or approach, through a process of trial and error, mistakes were likely to be committed. Process documentation was the method used continuously to evaluate assessment of the field organising activity.

The strategy of ARTI to organise farmers' associations was well conceived, well planned, and systematic. The manner of the discussions made, the nature of interaction among farmers themselves and between officials and farmers, and the degree of autonomy enjoyed by farmers in taking independent decision on matters like whether to form an association after all or not, and if to form, what should be its form, structure, subscriptions, rules, and regulations. These characteristics are found to be absent in the cases which we study in Kerala. Naturally, therefore the results are glaringly different, the former a grand success and the latter, as we shall see presently, a total failure.

By 1981, Egypt had grown to be a country practising relatively advanced techniques[30] in irrigation. Hussain Walhely- Aly (1982) discussed the problem of irrigation water management in Egypt; the problems were the same as[31] those found in other Third World countries.

To ameliorate the situation, the Egypt Water-use and Management project which was a forerunner to CADA in India, was introduced throughout the Nile Delta. As in every case, mass participation was a major component of modernisation. Farmers' organisations were to be formed to control irrigation on the scale of water courses. Irrigators were entrusted with the operation and management of water including maintenance; the expenses so incurred were to be met by the irrigators.

It is natural that CADA adopted some features of the Egyptian project such as organising BFAs on the scale of sluices. But it seems that CADA failed to incorporate progressive elements such as transferring O&M to BFA, carrying out maintenance and sharing costs.

The Philippines is a country where beneficiary participation is promoted and developed in a big way. Benjamine U. Bhagadion (1982) gave details on the type of irrigation, renovation of schemes and formation of WUAs. There were three types of irrigation projects in the Philippines: (i) The National Irrigation System (NIS) in which projects were constructed, operated, and maintained by NIA. The irrigators paid water fees differing with seasons and types of irrigation[32]. (ii) Communal irrigation schemes (CIS) which had *ayacut*s of less than 1000 hectares and were constructed with and without technical assistance from Government but handed over to WUAs for operation and maintenance. In fact CIS had a long history[33]. (iii) Private Irrigation Systems (PIS) were those constructed, operated, and maintained by individual farmers; in most cases a big landlord built a dam to irrigate his own land and often that of a few neighbours. In 1981, out of the total irrigated area of 12.97 lakh hectares, 45.2 percent belonged to CIS, 37 percent to NIS and only 17.5 percent to PIS, indicating that communal irrigation schemes were more popular than the other two in the Philippines.

The irrigation projects set up by NIA prior to 1970 had encountered the same problems and conflicts as those faced by projects in India constructed prior to the emergence of CADA. Those set up after 1970 contained some modern features, the most important of which being the formation of WUAs for better mass participation. Benjamine admitted that modernising the physical system was easier than forming WUAs.

Formation of WUAs in the Philippines involved the following steps: (i) Community organisers (COs) were put in position 6-9 months ahead of actual construction; (ii) The engineers discussed with farmers designs of canals and farm layouts before implementation; (iii) Farmers were grouped into construction units, each unit with a group leader chosen from among themselves, (iv) COs motivated and directed farmers to negotiate with NIA about the manner in which operation and maintenance and their costs were to be shared between WUAs and the NIA. The WUAs then registered their by-laws with the government in order to have a legal basis. Another noteworthy feature was the immense interest evinced by the Government of the Philippines, in setting up WUAs and in bringing about development and decentralisation. The government on its part went to the extent of institutionalising WUAs, by organising a Farmers' Assistance Department within NIA.

In another paper [Farmers Involvement in Irrigation Development in the Philippines (presented in international water management seminar held in Indonesia, 1984)] Bagodion gave more

details on irrigation improvement programmes and strategies adopted to involve the farmers, the major problems faced by NIA, and the lessons learnt from the participatory experience in irrigation water management.

The 1977 general policy on beneficiary participation apportioned the cost of irrigation between NIA and the government corporate body[34] on the one hand and the irrigators, on the other. The NIA constructed NIS and CIS, and bore the interest cost. The beneficiaries bore the O&M cost; the capital free of interest was to be recovered from irrigators in 50 years' time. Also, the cost on roads, flood-control, reforestation, etc., was excluded from computation of water fees.

Prior to 1982, in the national systems as well as in the communal systems assisted by NIA, the planning, design, and construction had been undertaken by NIA. But, from 1982 onwards a shift in policy was effected and beneficiary participation was sought for renovation of the existing system, from the stages of planning via, construction to rehabilitation and improvement of minor distributory canals and farm level facilities. Once these were over IAs assumed certain responsibilities of O&M, which varied with the capability of the IAs concerned. Thus the tasks they took up ranged from clearing and maintenance of canals to water distribution and collection of irrigation fees. In CIS, farmers' involvement in these processes was extensive. Farmer participation ranged from the location of the site for diversion to operation and maintenance. In the case of National Systems, planning, design, construction, O&M were performed by NIA.

The management in NIS was carried out by NIA; in CIS, it is by IAs, drawing the assistance from NIA, as and when required by them. The most pressing problem faced in NIS was inadequate collection of water fees, relative to the cost of O&M. The major reasons for the low collection of water fees were: (i) dissatisfaction of the farmer-clientele with adequacy and timing of water supply; (ii) water shortage due to damaged distribution structures and (iii) poor maintenance and general deterioration in facilities; (iv) the low paying capacity of farmers (v) difficulty in forcing collection from the rich and powerful farmers; (vi) the attitude prevalent among a significant number of farmers that irrigation facilities should be a free good to be provided by the government; and (vii) health problems arising from schistosomiasis, primarily a waterborne disease in some areas. In communal systems, the main problem was the non-viability of irrigation associations[35].

The most noteworthy constraint was the difficulty of 'organising the irrigation association', despite its glorious past[36]. The series of efforts[37] made by NIA, to form farmers' associations, eventually gave birth to the Participatory Approach.

The achievements, which the IA acquired were impressive[38]. IA.s mobilised labour for construction by sectors and made Counterpart Contributions.

Important lessons, learnt from the experience of these projects are the following: (i) COs should be given enough lead time for organising, motivating, and mobilising farmers before construction; (ii) Engineers should have fair understanding of the role of institutional

development factors and processes, (iii) The integration of technical and organising activities can be achieved only through close co-operation between engineers and COs.

Some of the other major conclusions drawn by Bagodion are listed below: (i) the choice of the organising process is crucial. The strategy for organising should be so designed as to include activities meaningful to the farmers. (ii) The organising process should be linked to the technical process of planning, design, construction, operation, and maintenance; in other words, tight co-ordination is needed between organisation work and the technical activities. (iii) Organising effective participation of farmers takes time. Therefore the efforts should start well before the construction begins. (iv) The agencies of administration and implementation of projects must be capable of responding positively to beneficiary participation. (v) Support to irrigation associations from the highest to the lowest levels is vital.

Against the foregoing discussion of the results of empirical research elsewhere in the Third World, we may now proceed to take stock of the performance in Kerala.

4. Organisational Structure and Beneficiary Participation

In this section we discuss the organisational structure for beneficiary participation of irrigators and participation in and performance of Beneficiary Farmers' Associations, in Kerala. The discussion is confined to the Malampuzha Irrigation Project (MIP). This project consisted of the construction of a masonry dam across Malampuzha River, a tributary of Bharathapuzha. The dam and its reservoir are located at 8 km north-east of Olavakode railway station. Its construction, which began in 1949 was completed in 1966; it has an estimated *ayacut* of 21, 045 hectares spread over the *taluks* of Alathur, Chittoor, and Palakkad of the Palakkad district. Drinking water requirements of the Palakkad town are also met from the Malampuzha reservoir.

Organisational Structure

The Command Area Development Authority (CADA) came into force by an act of Parliament in 1986. According to Chapter VI, section 17, sub section (1) of CADA Act, farmers coming under one or more sluices forming part of the canal system of major, medium or minor irrigation projects are eligible to become members of Beneficiary Farmers' Associations (BFAs). BFAs, coming in *ayacuts* in the region of the erstwhile Malabar district of Madras presidency are registered under the Central Registration Act of 1860, while those in the erstwhile Travancore-Cochin area are registered under Travancore-Cochin Literary, Scientific, and Charitable Societies Act. It is stipulated that in the event of any amendment to the above acts, BFAs may be registered under the act in force in the State.

The presumption is that CADA activities will be organised adhering to the recommendations of the BFAs, or the felt needs arrived at, during the discussions between BFA members and officials.

The CADA Act envisages a three-tier system consisting of (i) the project advisory committee at the project level, (ii) canal committee at the branch/distributory level, and (iii) beneficiary farmers' associations (BFAs), at the sluice/sluices level. Each of them has well-defined functions.

Project Advisory Committee **(PAC)**

It is the apex body of the three-tier system constituted for every CADA irrigation project. The ex-officio members of PAC are the District Collector (Chairman), the Executive Engineer (Convenor), MPs, and MLAs coming under the *ayacut* of the irrigation project, one official each of the departments of Agriculture and Co-operation, one representative each of the Canal Committees elected for the purpose and up to five other members consisting of knowledgeable persons in agriculture and irrigation. The major functions of the PAC are ensuring adequate water supply, equitable distribution among different parts of the command area in accordance with the water requirement of crops and co-ordinating the activities of the Canal Committees. Also, it is the Project Advisory Committee which is responsible for discharging any other residuary function laid down in the statute.

***Canal Committee* (CC)**

Canal Committee is a federal society of several BFAs coming under one distributory / branch canal. It is conceived of as the most strategically important tier in the new decentralised operation and management of the CAD irrigation system. The president of each BFA is an ex-officio member of the CC in whose absence, any member of BFA, as president-representative, may attend the canal committee meetings; the committee is entitled to discuss all problems faced by BFAs in general and its members individually in particular, from time to time with a view to finding possible solutions. Also the BFA president is expected to convey to the members of the BFA the decisions of the CC. The extent to which these expectations were realised in the sample project under study will be discussed presently. A representative each from the departments of Agriculture and Co-operation, a representative of lending agencies, and five members chosen from the *ayacut* area of the canal are the other members of CC. Co-ordination of the working of BFAs for achieving equitable distribution of water and enforcing uniform cropping pattern in the *ayacut* are the major functions of CC.

***Beneficiary Farmers Association* (BFA)**

Beneficiary Farmers Associations are formed at the sluice/sluices level. The affairs of the BFA are looked after by an elected president, secretary, and other office-bearers, if any, and an executive committee of not more than seven members, chosen from the annual general body of the Association. The tenure of the office-bearers (OBs) comes to an end on every 31 March.

In practice, BFAs do not seem to be functioning on expected lines. In the area of our study, we found that it was the CADA officials who had taken the initiative for forming the CCs and BFAs. An adhoc committee was constituted in this first meeting convened under their initiative to proceed with measures for forming BFAs. The adhoc committee formed the general body. The membership fee was fixed as Rs 5 in most of the cases, Rs.10 in a few cases, and no payment was insisted upon in the case of a good number of BFAs; but in such cases of non-payment, actual payment of admission fee was made, not by BFAs directly but by prospective contractors for the works of field channel lining or by potential office-bearers or even by any interested, relatively large holders in the *ayacut*, on behalf of BFA. The adhoc committee summoned the whole body of registered members formally got the MOU passed by the general body, and elected office-bearers of BFA. This is what happened in the case of several BFAs. In some others it was reported by the office-bearers themselves that no such preliminary steps had been taken; they were formed purely on the initiative of a few persons who managed to give shape to BFAs according to their fancies, which were then duly registered according to rules.

In respect of CCs and PACs, CADA does not stipulate registration. Hence they remained unregistered and functioned only nominally. They were formed casually and light-heartedly and they functioned, as we shall see presently, quite ineffectively.

Responsibilities of BFAs

The major responsibilities of BFAs include the following: giving membership to all farmers in the *ayacut*, keeping an *ayacut* register, keeping accounts, summoning annual general

body meetings for presentation and approval of the audited statement of accounts, election of the new office-bearers and preparation of the action plan for the ensuing year, and monitoring of its implementation. These fall under two categories: (i) Non-recurring functions (NRF) and (ii) Recurring functions (RF). The former may be or need be discharged only once; they include functions such as consolidation of holdings, soil conservation, land development through levelling and grading, etc., and construction of farm roads and field channels. The recurring functions include resolution of conflicts between member-farmers, helping government agencies and farmers to resolve problems which may arise from time to time in all matters connected with the prosecution of scientific agriculture and equitable distribution of water, and sensitising farmers of the need for adoption of group farming.

Performance of BFAs

A significant difference is observed in the extent of land holdings as between office-bearers (OBs) and ordinary members (OMs) of BFAs. The mean area is 573 cents for office-bearers, while it is only 290.33 cents for ordinary members. The difference is large and significant at 1 percent level of significance (Table 4.1).

Table 4.1 Total Area under Cultivation – Members Vs Office-bearers

Office-bearers			Ordinary Members			T.Value
Total Area	Mean Area	S.D.	Total Area	Mean Area	S.D.	
27494	572.79	365.11	118746	290.33	355.94	5.0909

Rice is the crop which receives bulk of the irrigation. Only 3 respondents out of 457 were found to have employed irrigation water for crops other than rice, that too only in an insignificantly small area. All the BFA members - both OBs and OMs - are rice-growers. There are in all 48 office-bearers of BFA.

All the farmer-members are well experienced in rice cultivation, the period of their experience ranging from 5 to 35 years (Table 4.2). Office-bearers of BFA are found to be, in general, more educated than OMs. There were no illiterates among them, while 2 percent of OMs was illiterate. Eight percent of them had education at the collegiate level as against 4 per cent among OMs; and 83 per cent of them had education up to SSLC, as against 55 per cent among the OMs (Table 4.3).

Table 4.2 Details of Experience – Members Vs Office-Bearers

Office Bearers		Ordinary Members		T.Value
Mean Years	S.D.	Mean Years	S.D.	
21.21	14.45	24.20	13.72	1.24376

It is understood that farmers, owning larger holdings show greater interest in the formation and working of BFAs. It is these large holders who were called upon to take up greater responsibilities in the formation and running of the BFAs, as compared to ordinary members.

This fact was endorsed by both office-bearers and ordinary members of the BFAs during interview.

Table 4.3 Level of Education - OBs. vs Ordinary Members (OMs)

	Office-bearers			Ordinary Members		
	Frequency	**Perce-ntage**	**Over all Percentage**	**Frequency**	**Perce-ntage**	**Overall Percentage**
Illiterate	Nil	Nil	Nil	9	1.96	1.96
Up to IV Std.	4	8.33	0.875	159	38.88	34.8
Up to S.S.LC/ Diploma	40	83.34	8.75	223	54.52	48.8
College and Above	4	8.33	0.875	18	4.40	3.93
Total	48	100%	10.5	409	100%	89.49

Source: Field Survey, Note : O.Bs = Office -Beares

Registration and Renewals of BFAs

Table 4.4 gives details of the registration and renewal processes of BFAs followed in the study area. The data relate to years between 1986 when CADA was introduced in Kerala, and 1996 the year just completed at the time of data collection. There was a heavy rush for registration of BFAs in the first two years, 1986 and 1987. Of the total of 420 BFAs in existence, 128 (30 percent) were registered in 1986, and another 231 (forming 55 percent) in 1987. Thus, we find that 86 per cent of the registration of BFAs took place in the first two years. From 1988 till 1993 there was not much of BFA formation taking place in the area. It is in 1994 that the activity revived: 26 BFAs were formed in 1994, 9 in 1955, and 5 in 1996.

The BFA formation process witnessed many an unpleasant experience, an aspect which we will dwell upon later. BFA formation in Kerala turned out to be, by and large, a government-sponsored programme, implemented rather casually and in an adhoc fashion; in countries like the Philippines, Indonesia, Malaysia, and Sri Lanka, catalysts were employed specially for the task. The great attention that these countries bestowed on BFA formation – after motivation, discussions, and dialogue sessions – fetched rich dividends. In Kerala and in the rest of India as well as in Pakistan the BFA attempt has drawn flak due mainly to the casual approach followed. In Kerala, BFAs were pushed through in haste in 1986 and 1987 just to see that the time schedule of international lending agencies was adhered to and their funds were promptly made use of without allowing them to lapse. The sudden upsurge in BFA-formation in 1994 follows the implementation of the management subsidy system in CADA, a response of the usual kind to an incentive by farmer groups. Even many defunct and dead BFAs were revived to avail of the management subsidy.

Annual renewal of BFAs is a pre-requisite for availing of the various incentives from CADA.

Table 4.4 Registration - Renewal Details of BFAs

Years	No. of Societies Registered	Cumulative Number of Societies	Number of Societies Renewed to Total Societies Registered	Renewed Societies (Cumulative)	Number of Societies Submitting list of G.B.M	Number of BFAs Submitting Balance Sheet
1986	28 (30.8)	128 (30.8)	66 (51.6)	66 (51.6)	66	47
1987	231 (55.0)	359 (85.8)	149 (64.5)	215 (58.9)	149	106
1988	10 (2.3)	369 (88.1)	4 (40)	219 (59.3)	4	3
1989	1 (0.23)	370 (88.3)	1 (100)	220 (59.5)	1	1
1990	0	370 (88.3)	0 (0)	220 (59.5)	—	—
1991	0	370 (88.3)	0 (0)	220 (59.5)	-	-
1992	6 (1.4)	376 (89.5)	2 (33.3)	222 (59.1)	2	-
1993	4 (0.92)	380 (90.4)	2 (50)	224 (58.9)	2	2
1994	26	406 (96.7)	8 (30.8)	232 (57.1)	8	7
1995	9	415 (98.8)	4 (44.4)	236 (56.2)	4	4
1996	5 (1.2)	420 (100)	0 (0)	0 (0)	-	-
Total	420	-	236	-	236	170

Source: District Registrar of Societies (General) Palakkad
Note: GBM - Governing Body Members/Executive Committee

Renewal is given based on the lists of office-bearers and the statements of accounts submitted by BFAs. In Kerala only a fraction of registered BFAs used to apply for renewal every year. More than 40 per cent of them remained unrenewed.

Only 236 BFAs out of 420 renewed their registration during the span of 11 years since 1986. Renewals were regularly done only during the first three years, mainly to derive the benefit of field channel lining. Out of the 236, 219 fall in this category. Only 17 are found to have renewed since 1989 for all the rest eight years. Though all the 236 BFAs were registered as per rules and had submitted the list of governing body members, only 170 are found to have submitted their audited statements of accounts. Submission of the budget for the ensuing year was a requirement for renewal; it was neither done by the BFAs, nor was it insisted upon by CADA. Many office-bearers of BFAs were not aware of such a requirement.

Even this absolute number of 236 renewals, is misleading. Despite the statutory obligation to renew BFAs every year, renewals were made after delays for years together (Table 4.5). Out of 236 BFAs which were renewed, 227 had renewals, after varying periods of delay; 34 of them delay was of 1-3 years' duration; 143 had renewed registration after 4-7 years of delay and 50 of them after 8-11 of years delay. Once the field channel lining was achieved, under the banner of BFA, every BFA, with very few exceptions, developed a tendency to fall into passivity, ignoring statutory obligations and virtually becoming defunct. Even office-bearers of these defunct BFAs were unaware or feigned ignorance of the statutory requirements, not to speak of their ordinary members. As per records, only nine BFAs, out of the 236, which got renewed, did the renewal observing all formalities in time and every year. This forms only 2.1 percent of the total number of BFAs registered over the span of 11 years, 1986 to 1996.

Table 4.5 Details on Delayed Renewals - Lapse in Years

Year	1-3 Years	4-7 Years	8-11 Years
1986	8	33	23
1987	10	105	27
1988	—	4	-
1989	—	1	-
1990	-	-	-
1991	-	-	-
1992	2	-	-
1993	2	-	-
1994	8	-	-
1995	4	-	-
1996	-	-	-
Total	34	143	50

Source: District Registrar of Societies (General) Palakkad

In brief, the heavy rush for registration and renewals evinced during the first two or three

Source: District Registrar of Societies (General) Palakkad

years after the introduction of CADA in Kerala, was to avail the facility of funds from international lending agencies. The casual and adhoc approach followed in the formation of BFAs seems to have contributed to their failure. The CADA authorities were forced to compromise on the statutory obligations of BFAs, such as renewal of irrigation, submission of the list of office-bearers and furnishing of the annual statements of accounts.

Role of GBM

Annual general body meeting is a statutory obligation on the part of registered BFAs. There could be any number of general body meetings in a year depending upon requirements, such as for taking decisions on innovative programmes and issues connected with water distribution, for discussing and responding to decisions of the Canal Committee/Project Advisory Committee, for arriving at general consensus on issues demanding group activity and for working out solutions of disputes among BFA members, among different BFAs, and between BFA and Canal Committee. The frequency with which general body meetings are held and the quality of decisions taken in them would reflect the health of the BFA, in general.

Success factors of GBM

The success of a general body meeting depends on the seriousness with which it is held and factors like its timeliness and the place at which it is held. Meetings held as mere ritual render the general body ineffective. The interest which the office-bearers show in facing the general body is a decisive determinant of its performance. The response of sample irrigators to statements about general body meetings are presented in Table 4.6.

To the statement that office-bearers are genuinely interested in facing the ordinary members in the general body meeting of BFA, 62 percent respondents disagreed; more than one-third disagreeing 'strongly' a conclusive indication that office-bearers are to a large extent reluctant in facing the general body. More than one-third of the office-bearers admitted that the allegation of lack of interest in the matter on their part was valid. The majority of the members were of the view that general body had to be summoned at least at the commencement of every crop season.

General body meetings are held more at the convenience of office-bearers than of ordinary members. In fact the vast majority of ordinary members did not have any idea as to whose convenience the meetings are held. Most of them pleaded ignorance of general body meetings at all. Some pointed out that general body meetings are not held for years together in a large number of BFAs, and that the question of convenience does not arise at all. Documentary evidence corroborates this allegation. Our field enquiry convinced us that manipulation and even falsification of records have taken place in BFAs in order to secure renewal of registration with a view to securing management subsidy and other incentives from CADA.

The majority of office-bearers of BFAs agreed with the statement that general body meeting was only a ritual and that the ordinary members were right in making such an allegation.

Table 4.6 Details of General Body Meeting

Qt.No.	Statements	Total					O.Bs					O.ms					T. Value
		S.A	A	D.A	SDA	D.K	S.A	A	D.A	SDA	D.K	S.A	A	D.A	SDA	D.K	
22	O.Bs are interested in facing the ordinary members in G.B. meeting	59 12.9	96 21.0	116 25.4	166 36.3	20 4.4	14 29.2	16 33.3	9 18.8	9 18.8	-	45 11.0	80 19.6	107 26.2	153 38.4	20 4.9	4.71130
23	Good that G.B is summoned in the beginning of every season	340 74.4	95 20.8	12 2.6	7 1.5	3 0.66	20 41.7	12 25.0	12 25.0	4 8.33	-	320 78.3	83 20.3	-	3 0.73	3 0.73	0.82421
24	G.B is summoned after ascertaining the convenience of members to attend	12 2.6	51 11.2	28 6.1	8 1.8	358 78.3	5 10.4	26 54.1	13 27.0	4 48.3	-	7 1.7	25 6.1	15 3.7	4 0.99	358 87.5	1.98306
27	G.B is summoned only as per the convenience of office bearers	4 8.75	28 6.1	45 9.8	15 3.3	365 79.9	2 4.16	4 8.33	30 62.5	12 25.0	-	2 0.5	24 5.9	15 3.7	3 0.73	365 89.2	1.22855
26	Summoning G.B is just a ritual now	23 5.0	36 7.8	92 20.1	11 2.4	295 64.6	10 20.8	16 33.3	15 31.3	7 14.6	-	13 3.2	20 4.9	77 18.8	4 0.98	295 72.1	0.95956
28	Members participate in G.B only for the sake of participation	40 8.8	49 10.7	65 14.2	8 1.8	295 64.6	20 4.17	15 31.3	10 20.8	3 6.3	-	20 4.9	34 8.3	55 13.5	5 1.2	295 72.1	0.00974
25	All irrigation issues are discussed in G.B	28 6.1	98 21.4	21 4.6	18 3.9	292 63.9	10 20.8	35 72.9	2 4.2	1 2.1	-	18 4.4	63 15.4	19 4.7	17 4.2	292 71.4	0.62216

Source: Field Survey

Note: O.B - Office-bearers, O.Ms - Ordinary memebers of BFA, Qn. No - Question Number (in shedule), S.A - Strongly Agree, A - Agree, D.A - Disagree, S.D.A - Strongly disagree, D.K - Don't Know.

To the question whether irrigation issues were discussed in the general body, about two-thirds of the members pleaded ignorance. About one-fourth of the members were, however, of the view that all irrigation issues were discussed in the general body in order to arrive at pragmatic solutions to problems. Interestingly, one-third of the members who expressed this view were themselves office-bearers. In brief, responses of the respondents, the documentary evidences from the minutes of the general body meetings, and the observations of the research team lead to the conclusion that irrigation issues are not discussed in general body meetings, with as much seriousness as they really should receive.

Surprisingly as many as 31 BFAs, out of a total 45 in the sample, did not have minutes of general body meetings at all; even out of the 14 BFAs which had, only six had minutes maintained in the proper form.

In brief, a large section of BFA members was in favour of holding general body meetings before the commencement of every crop season. This was seldom done. As a rule, the BFA leadership was not interested in summoning the general body and facing the members. Whenever the general body was held, it appears that the place, time, and convenience of OMs to attend, were not given due consideration. Participation in the few general body meetings held was, for the office-bearers and the ordinary members, more of a ritual than serious business.

Canal Committees (CC)

The Canal Committee is perhaps the most strategic part of irrigation management since much of the success in the working of BFAs depends on its effective functioning. As the co-ordinator of BFAs, and as an agency that takes important policy decisions, it sets the pace at which BFAs operate and achieve the goals of decentralisation and democratisation aimed at by CADA Act of 1986. The salient items of information collected from the minutes of CCs in the sample are given in Tables 4.7 and 4.8.

Formation

It appears that Canal Committees were first constituted in Malampuzha for the left bank canal the Kottayi–Peringottukurissi; its first meeting was held on 29 July 1987. For the next year-and-a- half, no other committee was formed. On 14 March 1989, two Canal Committees, Kannadi-Odannur, and Kannannur-Pulinelli, were formed and they held their first meetings the same day. The CADA authorities took, however, nearly 18 months to give approval to these two Canal Committees. The next wave of formation came after a span of full five years, when the Erimayour-Kunnissery Committees were summoned for their first meeting on 26 April 1994. Formation of Committees for the Right Bank Canal began only in 1994. The first of them viz. Kinavalloor-Mankara Committee was formed on 25 October 1994; then came Palappuram, and Kavilappad-Vallikodeu with intervals of about a year in-between. The delays involved in the formation of committees is an indication enough of indifference in the implementation of the entire scheme of decentralisation of power and functions, downwards from irrigation officials to beneficiary farmers.

Table 4.7 Details of Canal Committee Meetings

Sl. No	Name of Canal Committee (CC)	Date of Formation	Total Number of CC Meetings up to June1977)	Number with Quorum	Number without Quorum	Number with Zero-Attendance
I	Kottayi-Peringo-ttukurissi CC	29-787	29(100)	3(10.3)	2(6.9)	24(82.8)
II	Kannadi-Odannur CC	14-3-89	4(100)	1(25)	-	3(75.0)
III	Kannannur-Pulinelli CC	14-3-89	4(100)	1(25)	-	3(75.0)
IV	ErimayurCC	26-4-94	7(100)	1(14.3)	4(57.1)	2(28.6)
V	CKunisserry CC	26-4-94	7(100)	2(28.6)	2(28.6)	3(42.8)
VI	Kinavalloor-Mankara CC	25-10-94	3(100)	3(100)	-	-
VII	Pralappuram CC	30-8-95	2(100)	2(100)	-	-
VIII	Kavilppad-Vallikodu CC	25-9-96	1(100)	1(100)	-	-
	Total		57(100)	14(24.6)	8(14.0)	35(61.4)

Source: Field Survey (Secondary Data from Registers and Minutes)
Note: CCs - Canal Committees; Figures in parentheses indicate percentages

Performance

Performance is assessed in terms of (i) the number of committee meetings held (ii) the level of attendance in such meetings, (iii) the number of decisions taken, and (iv) the nature of such decisions. Only 57 canal committee meetings were held by the 8 Canal Committees till 1997. Out of this, only 14 had the required quorum. The other meetings which were held without quorum could not take any legally valid decisions. Of these 43, 35 were held even without the attendance of the BFA presidents or of the elected representatives such as CC Chairman and PAC member. However, the irrigation officials concerned were present in those meetings.

Even in this respect, it was only the Assistant Engineer and not the Assistant Executive Engineer who is the designated convenor, who attended and guided most of the canal committee meetings. The allegation that many of the minutes of such meetings are not faithful reports of the meetings but only fabrications seems to contain a lot of truth in it. It is, however, understandable that in the busy schedule of duty of Assistant Executive Engineers it was not possible for them to find time for convening or attending canal committee meetings.

The CADA activities like field channel lining, its construction, and minor repair of the canal net work were then hurriedly pushed through in order to achieve full utilisation of the allotted funds.

The minutes of CC meetings show that attendance was the highest in meetings in which CC Chairman and PAC member were elected. The practice of holding monthly meetings of canal committees on fixed dates, places, and time already decided upon, i.e., the second friday of every month, enabled members to plan in advance for participating in the meetings. Yet, it was found that attendance of BFA members in CC meetings was thin.

It is observed that the interest on the part of members to participate in CC meetings has declined over time. Attendance was the highest in the CC meeting in which election of CC Chairman and PAC member was conducted. Thereafter, after a few CC meetings their interest is found to have withered most of them tending not to respond to invitations from engineers. Differing explanations are offered for the withering of interest which we shall examine presently. There are, at the same time, indications to suggest that the BFAs would participate in CCs, which they feel are of vital interest to them, meetings which deliberate on things that would yield some benefits directly[39]. Twenty-nine out of the total of 57 CC meetings were those summoned by Kottayi-Peringottu Kurissi Committee. Only three meetings of this committee had the quorum for transacting business; two meetings were held without quorum and 24 with zero-attendance of non-official members. As regards Kannadi-Odannur CC and Kannannur-Pulinelli CC only four committee meetings each were held during a span of seven years, whereas Erimayur CC and Kunnisseri CC had seven CC meetings each to their credit during the span of two years. In terms of zero-attendance, these committees scored, however, fewer points than Kottayi-Peringottu Kurissi committee.

CCs formed after 1994, for the right bank canal, have done better than those formed prior to 1994. This is because government gave considerable stress to the formation and successful functioning of BFAs, as a major measure of decentralisation, from 1994 onwards. Reportedly, better awareness has been created among the irrigation officials and other CADA personnel on the necessity of enlisting better beneficiary involvement in the every day operation and management of irrigation projects, major, medium, and minor.

Table 4.8 gives details of the decisions, taken by canal committees. They are broadly grouped into five categories. We have noted earlier that 43 CC meetings out of 57 were held without the necessary quorum to take any valid and meaningful decisions. Yet, it is seen from the minutes of the CC meetings that major decisions like fixing the dates for releasing canal water for irrigation, and action to be taken for rectifying structural defects, were taken. This evidence illustrates the extent to which the canal committees remained, in fact, paralysed and inactive.

Altogether 29 decisions were found to have been taken in these CC meetings. Most decisions related to commencement and duration of water supply (in the majority of cases regarding extension of the period of water supply) followed by “rectifications of structural defects” and action against malpractices, in that order. There were only three decisions on crop

Table 4.8 Nature of Decisions in Canal Committees (Category-wise Details)

Sl. No.	Name of Canal Committee	Request for a change in Turn	Commencement of water supply & change of duration	Rectification of structural defects	Malpractices	Cropping pattern & cropping planning	Total
I	Kottayi - Perinquokurssi C.C	1	1	3	-	-	5
II	Kannadi - Odannur C.C	-	-	-	-	1	1
III	Kannannur - Pulinelli C.C	-	-	-	-	1	1
IV	Erimayur C.C	-	3	-	-	-	3
V	Kunisserry C.C	2	2	2	1	-	7
VI	Kinavalloor - Mankara C.C	-	2	2	3	1	8
VII	Palapuuram C.C	-	1	2	-	-	3
VIII	Kavilppad - Valikodu C.C	-	1	-	-	-	1
Total		3	10	9	4	3	29

Source: Field Survey (Secondary Data from Minutes)

Note: C.Cs - Canal Committees

planning and crop-pattern changes, one each from the Committees Kannadi-Odannur, Kannannur-Pulinelli, and Kinavalloor-Mankara. Eight out of 29 decisions came from the Kinavalloor-Mankara and Kunnissery committees of the Right Bank Canal established in 1994. The Committees met only thrice but every time with the necessary quorum. This is in clear contrast with the experience of the Kottayi-Peigottukurissi, the first to be constituted in the Malampuzha project in 1987 which took only five decisions over a period of 10 years.

It is seen, however, that only three out of the 29 decisions taken on crop planning and cropping pattern were pertinent and related to the carrying out of their assigned functions. All others were of a general nature such as request for a change in duty timings, commencement of water supply, extension in water supply to more areas, rectification of structural defects, and elimination of malpractices. Decisions which would involve the co-ordination of the activities of different BFAs or concerning equitable distribution of irrigation water among the BFAs were found absent. The Canal Committees did really fail to undertake the major tasks expected of them.

In sum, canal committees were formed at an inordinately slow pace. Fifty-seven meetings were held without quorum and more than 60 per cent with zero attendance of non-official members. This fact is indicative of the indifference or even aversion with which the non-official members viewed such meetings. The majority of decisions of the committees, taken during the span of 10 years, were broadly of a routine nature, not innovative or concerning the major functions of the canal committee as envisaged in the CADA Act.

Level of awareness

The level of awareness about the duties and responsibilities of the various committees, even about their existence, is found to be incredibly low among members of BFAs, including their office-bearers. Two office-bearers resolutely denied that any canal committee existed; 11ordinary members also shared this view. Another 18 OBs and 323 OMs forming four-fifths of the membership pleaded ignorance. Only two office-bearers and eight ordinary members knew about the structure and composition of canal committees. Knowledge of both OBs and OMs about the persons who hold the offices of Canal Committees was extremely poor. So, also of the *modus operandi* of taking decisions and implementing them. The knowledge level of the respondents from the upper reaches of the canal is found to be fairly good about the status of water supply; but it is higher among respondents from the middle and the lower reaches. Thus, the significance of BFAs appears to be less in areas in which water scarcity does not exist.

The level of understanding of the sample respondents about the Project Advisory Committee (PAC), such as its structure, composition and functions, is extremely low. About three-fifths of the office-bearers and more than one-fourth of the ordinary members know about the existence and the working of the PAC. Even canal committees were not adequately aware of the PACs. The official explanation for this sorry state of affairs was that PAC decisions on the dates of opening of the reservoir for supply of irrigation water and the dates of closing the studies were implemented straight away and all farmers keenly followed up the decisions

because of their vital importance to farming operations. The fact that PAC is the focal point of their interest, while CC is not felt so important, makes CC dispensable and insignificant; naturally therefore most of the CCs remain dormant. Conceptually, CC should have active interaction with the beneficiaries in the every day management of irrigation.

Table 4.9 Frequency Distribution by Knowledge on Canal Committee

Qn. No.	Statements	OBs		OMs		Reaches-wise Total					
						UR		MR		LR	
4		F	%	F	%	F	%	F	%	F	%
a	No. Canal Committee	2	4.2	11	2.7	0	0.0	6	4.4	5	4.1
b	Donot know	18	37.5	323	79.0	123	80.9	109	80.2	91	75.2
c	There is Canal Committee	28	58.3	67	16.4	28	18.4	17	12.50	22	18.2
d	Knowledge on structure	2	4.2	0	0.0	0	0.0	0	0.0	0	0.0
e	Knowledge on office-bearers	3	6.3	8	2.0	1	0.66	6	4.41	1	0.83
f	Implementing decisions	1	2.1	1	0.24	0	0.0	1	0.74	0	0.0
g	Working	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 4.10 Frequency Distribution by Knowledge on Details of Project Committee

Qn. No.	Statements	OBs		OMs		Reaches-wise Total					
						UR		MR		LR	
10		F	%	F	%	F	%	F	%	F	%
a	District Collector as Chairman and Engineer as Convener	28	56.0	110	26.9	68	44.7	27	19.9	15	12.4
b	Don't Know	20	41.7	284	69.4	103	67.8	77	56.6	104	86.0

Source: Field Survey
Note: O.Bs - Office Bearers of BFAs, O.Ms - Ordinary Members of BFA, Qn. No - Question Number in the SheduleU.R - Upper Reaches, M.R - Middle Reaches, L.R - Lower Reaches

We find that canal committees had been formed only in cases in which the concerned government official, the Assistant Executive Engineer, who is the convenor of CCs, is committed and active. While the officials we talked to blamed for the non-performance, the lack of interest of CCs the BFAs and their office-bearers, the BFAs members alleged lack of

commitment on the part of the officials to programmes of decentralisation of power and functions as the real reason. In consequence of the apathy on both sides, Canal Comittees have not played the strategic role intended of them in the CADA Act. In this context, it may be noted that CCs are functioning efficiently in some other States in India and several other countries in the world.

Corruption

Our field investigation disclosed that a large section of farmers had a feeling that officials were involved in corruptive practices especially in field channel lining. Only three office-bearers and 29 ordinary members pleaded ignorance of corruptive practices in field channel lining; four office-bearers and 207 ordinary members were, however, of the opposite view. Interestingly, it was the members of the lower reaches of the canal who were positive about malpractices of officials.

Table 4.11 Frequency distribution of corruption in canal-lining and construction by methods according to OBs and OMs

Qn. No.	Statements	OBs		OMs		Reaches-wise Total					
						UR		MR		LR	
14		F	%	F	%	F	%	F	%	F	%
a	No knowledge of corruption	3	6.3	29	7.1	19	12.5	6	4.4	4	3.3
b	There is corruption	4	8.3	207	50.6	71	46.7	69	50.7	67	55.4
c	Reduces the quality of work	17	35.4	148	36.2	35	23.1	56	41.2	57	47.9
d	Adds less cement than is needed	22	45.8	181	44.3	54	35.5	69	50.7	58	47.9
e	Absent from supervision	19	39.6	92	22.5	30	19.7	32	23.5	30	41.3
f	Undue interest in granting contract	25	52.1	140	34.2	42	27.6	48	35.3	50	41.3

Corruption entailed deterioration of the quality of work. Quality was affected adversely by reducing the proportion of cement in the grout, executing the work without supervision of engineers and awarding contract work to favoured parties with undue haste in gross violation of the guidelines of Government of India. The opportunity for members of BFAs to participate through contributions in the form of their labour was not made use of. According to ordinary members and office-bearers of BFAs, the practice of using cement in smaller proportions than the prescribed specification was found in 45 percent of the cases. Undue interest and haste in awarding construction work to contractors of their liking was reported by 52 percent

of the office-bearers and more than one-third of the ordinary members. Corrupt practices increased as one moved from the upper reaches of the canal to its tail end areas. Tail-enders are the worst sufferers in irrigation systems.

One of the multiple objectives of BFA is to provide an opportunity for mass action against malpractices. If BFA is active and alert, it would resort to such group activity. The extent to which this objective is realised was examined. The responses are presented in the Table 4.12.

Table 4.12 Frequency Distribution by Details of Mass Petition against Malpractices

Qn. No.	Statements	O.Bs		O.Ms		Reaches-wise Total					
						U.R		M.R		L.R	
14		F	%	F	%	F	%	F	%	F	%
	There was mass petition	10	20.8	14	9.8	15	3.7	5	1.2	20	4.9
a	No mass petition	36	75.0	339	82.9	112	73.7	121	89.0	106	87.6
b	No effective action taken	9	18.8	62	15.2	39	25.7	9	66	14	11.6
c	Nothing done by BFA	5	10.4	23	5.6	15	9.9	0	0.0	8	6.6

Source: Field Survey
Note: O.Bs - Office Bearers of BFAs, O.Ms - Ordinary Members of BFA, Qn. No - Question Number in the Shedule
U.R - Upper Reaches, M.R - Middle Reaches, L.R - Lower Reaches

According to 36 OBs, (representing 75 percent) and 339 OMs (forming 83 percent) there were no instances of BFAs submitting petitions against malpractices. Nine OBs (out of 10) admitted that no effective action had ever been taken on such malpractices and that BFAs, in general, had taken no initiative in organising such group actions against malpractices nor had they sought solutions to malpractices and corruption. Thus, it is clear that BFAs, organised for collective action against malpractices and resolution of conflicts, failed miserably in discharging their duties.

Recurring functions

Recurring functions are conferred on BFAs with different objectives in view. A few functions are designed to achieve efficient, effective, and equitable distribution of irrigation water and proper upkeep of the irrigation system, especially the canal network of the project[40]; another set of functions related to promoting group activity in farming and collective ownership of agricultural assets[41]; a third set aims at the creation of awareness regarding good irrigation practices and scientific agriculture[42]; a fourth set has the objective of formulation and implementation of a proper incentive structure[43]; the last set of functions pertain to proper administration[44].

In view of the fact that most of the BFAs have not been functioning effectively and that the majority of the ordinary members are not aware of the activities of BFAs, the ground level realities were probed by us in depth by staying in the study area for about five months and interacting with all the stakeholders intensively. We have examined whatever documentary evidence was available on the functioning of the BFAs.

On the basis of our final evaluation, we have classified the BFAs in terms of their performance of recurring functions into three broad categories: (i) satisfactory performance, (ii) no performance, and (iii) partial performance.

Satisfactory performance

The frequency Tables 4.13 (a, b, and c) provide the details of functions of BFAs whose performance was found, on a comparative basis, somewhat satisfactory. Creation of awareness, among the farming community, of the relevance of BFAs is relatively the most important recurring function determining performance; the other functions used for assessing performance are the organisation of camps, seminars, and tours to well-functioning BFAs in Tamil Nadu and Karnataka.

As for organising awareness seminars is concerned, out of the 457 respondents, only 44 (hardly 16 percent) respondents denied that this function had been performed by BFAs. True, the other 413 members differed among themselves on the frequency with which the seminars had been held. It seems that, in fact, BFA leadership and CADA officials together had managed to discharge this function to a large extent. There is adequate documentary evidence to prove active involvement of CADA officials in organising seminars. Again, our field experience also confirmed this claim. It was indeed the CADA officials who took the initiative and leadership in organising these awareness seminars and camps more than the BFA leadership. While 46 office-bearers (representing 96 per cent) testified to the fact that seminars had been organised, 90 percent of the OMs also concurred with that statement. As between reaches also, the result is the same. Around 90 percent of the respondents have confirmed that awareness seminars had been held periodically for the benefit of the farming community.

Awareness camps, the organisation of which demands more intensive planning and greater effort, had been held less frequently than seminars. Out of the 457 respondents (representing 19 per cent), 86 vouchsafed that no camps had been held. As against this 81 per cent respondents who testified to the holding of camps, 39 percent stated that camps had been held only very rarely; but the other 42 percent averred that camps had been held quite frequently. Reaches-wise, some difference is observed as between the upper and the middle reaches on the one side and the lower reaches on the other. While 85 percent of the former agreed with the statement that camps had been held frequently, only 71 per cent of the latter concurred with that statement.

The reason for this difference seems that the lower reaches, located at considerable distance from the upper reaches, were not given serious attention by CADA officials, in the matter of organising awareness camps.

Table 4.13a Performance of Recurring Functions by BFAs: BFAs whose performance was satisfactory

Qn. No.	Function)	Always	Often	Some Times	Never	Total
16	**Awareness creation Through**					
a	Seminars	160(35.0)	64(14.0)	189(41.4)	44(9.6)	4\57(100)
b	Camps	41(9.0)	151(33.0)	179(39.2)	86(18.8)	457(100)
c	Tour to Model BFAs	22(4.8)	58(12.7)	137(30.0)	240(52.5)	457(100)
17	**Centralised Procure-ment and Distribu-tion of**					
a	Subsidy	19(19.7)	44(9.6)	68(14.9)	255(55.8)	457(100)
b	Grant	50(10.9)	66(14.4)	49(10.7)	291(63.7)	457(100)
c	Other Assitance	24(5.3)	49(10.7)	55(12.0)	328(71.4)	457(100)
19	**Annual General Body Meeting**					
a	Audited Statement of Accounts	89(19.4)	61(13.4)	43(9.4)	264(57.8)	457(100)
b	Current Years Budget	29(6.4)	25(5.5)	83(18.2)	320(70.2)	457(100)
c	Election of New office Beares	32(7.0)	20(4.4)	66(14.4)	339(74.2)	457(100)

Out of the 457 respondents, 240, (53 percent) held that tours to model BFAs elsewhere had never been planned or conducted. The rest of the respondents were aware of such programmes, but had not participated in them.

Among office-bearers, 28 out of 45 (58 percent) held that such tours had never been held. However, one-fifth of them admitted that tours had been held, but very sparingly.

Beneficiaries in the upper reaches were more aware of the tours (64 percent) than those in the middle (34 percent) and lower (44 percent) reaches (Table 4.13c).

The comparatively large percentage of respondents who denied that seminars and camps had been organised was due to the fact that these programme had been organised and conducted at the instance of the officials concerned. A perusal of the list of participants in the tour to Tamil Nadu and Karnataka brought out the fact that they consisted mainly of office-bearers of BFAs, Canal Committees, and the Project Advisory Committee. Ordinary members complained that these tour programmes had been carried out without much publicity and that they came to know of it only after the event. Even persons who had no eligibility to be included in the teams were included in the team. Undoubtedly, such instances of

Table 4.13b Performance of Recurring Functions by BFAs: BFAs whose performance was satisfactory(ii) O.Bs vs O.Ms

Qn. No.	Functions	O.Bs				A.Mean S.D	O.Ms				A.Mean S.D	T. Value
		Always	Often	S.T	Never		Always	Often	S.T	Never		
16	**Awareness - Creation through**											
	A. Seminars	13 (27.1)	6 (12.5)	27 (56.3)	2 (4.2)	6.25 (1.85)	147 (35.9)	58 (14.2)	162 (39.6)	42 (10.3)	6.52 (2.10)	-0.92601
	B. Camps	5 (10.4)	14 (29.2)	22 (45.8)	7 (14.6)	5.71 (1.71)	36 (8.8)	137 (33.5)	157 (38.4)	79 (19.3)	5.64 (1.77)	0.27784
	C. Tours to Model BFAs	6 (12.5)	4 (8.3)	10 (20.8)	28 (58.3)	4.50 (2.10)	16 (3.9)	54 (13.2)	127 (31.1)	212 (51.8)	4.38 (1.69)	0.36915
11	**Centralised Procurem- ent and Distribution of:**											
19	A. Susbsidy	8 (16.7)	2 (4.2)	12 (25.0)	26 (54.2)	14.00 (6.63)	82 (20.1)	42 (10.3)	56 (13.7)	229 56.0)	14.66 (7.253)	-0.64808
	B. Grant	8 (16.7)	4 (8.3)	7 (14.6)	29 (60.4)	13.88 (6.89)	42 (10.3)	62 (15.2)	42 (10.3)	262 (64.1)	13.26 (6.39)	0.58776
	C. Other Assistances	5 (10.4)	3 (6.3)	7 (14.6)	33 (68.8)	12.50 (5.89)	19 (4.7)	46 (11.3)	48 (11.7)	295 (72.1)	11.87 (5.24)	0.70144
	Annual General Body Meeting											
	A. Audited Accounts	9 (18.8)	7 (14.6)	6 (12.5)	26 (54.2)	4.96 (2.398)	78 (19.1)	54 (13.2)	37 (9.1)	238 (58.2)	4.85 (2.435)	0.30001
	B. Current Years	5 (10.4)	5 (10.4)	8 (16.7)	30 (62.5)	4.38 (2.048)	24 (5.9)	20 (4.9)	75 (18.3)	290 (70.9)	3.91 (1.671)	1.50083
	C. Election of New Office-bearers	5 (10.4)	6 (12.5)	5 (10.4)	32 (66.7)	4.33 (2.095)	27 (6.6)	14 (3.4)	61 (14.9)	307 (75.1)	3.83 (1.682)	1.60081

Source: Field Survey

Note: Figures in brackets are percentages except in column 5 and 10. Figures in bracket with A.mean are standared deviation in columns 5 and 10

S.T - Some Times, S.D - Standard Deviation

Table 4.13 c Performance of Recurring Functions by BFAs: BFAs whose performance was satisfactory (iii) Reaches wise

Qn. No.	Functions	Always	Often	Some Times	Never	D.K	Mean Score (S.D)	T. Values UR & MR
16	**Awareness Creation Through**							
	A. Seminars	66 (43.4)	10 (6.6)	63 (41.5)	13 (8.6)	-	6.70 (2.16)	0.78739
	B. Camps	11 (7.2)	47 (30.9)	71 (46.7)	23 (15.1)	-	5.61 (1.62)	-1.39234
	C. Tour to Model BFAs	4 (2.6)	24 (15.8)	70 (46.0)	54 (35.5)	-	4.71 (1.55)	4.34032
11	**Centralised Procure - ment and Distribution of:**							
	A. Subsidy	43 (28.3)	10 (6.6)	9 (5.9)	90 (59.2)	-	5.08 (2.67)	3.64339
	B. Grant	24 (15.8)	21 (13.8)	13 (8.6)	94 (61.8)	-	4.67 (2.33)	3.62537
19	**Annual General Body Meeting**							
	A. Audited Accounts	23 (21.7)	18 (11.8)	19 (12.5)	81 (53.3)	1 (0.7)	5.08 (2.48)	3.79649
	B. Current Years Budget	1 (0.7)	10 (6.6)	44 (29.0)	97 (63.8)	-	3.88 (1.29)	1.20042
	C. Election of New Office- Bearers	3 (2.0)	6 (4.0)	41 (27.0)	102 (67.1)	-	3.82 (1.32)	2.23225

Source: Field Survey

Table 4.13 c contd.. Performance of Recurring Functions by BFAs: BFAs whose performance was satisfactory

(iii) Reaches wise

Qn. No.	Functions	Always	Often	Some Times	Never	D.K	Mean Score (S.D)	T. Values UR & MR	Always	Often	Some Times	Never	D.K	Mean Score (S.D)
16.	**Awareness Creation Through**													
	A. Seminars	44 (32.4)	28 (20.6)	48 (35.3)	16 (11.8)	-	6.47 (2.08)	0.82560	37 (30.6)	20 (16.5)	51 (42.2)	13 (10.7)	-	6.34 (2.05)
	B. Camps	14 (10.3)	55 (40.4)	46 (33.8)	21 (15.4)	-	5.91 (1.75)	2.79837	11 (9.1)	35 (28.9)	40 (33.1)	35 (28.9)	-	5.36 (1.99)
	C. Tour to Model BFAs	6 (4.4)	13 (9.6)	27 (19.9)	90 (66.2)	-	4.04 (1.68)	1.53212	6 (5.0)	17 (14.1)	30 (24.8)	68 (56.2)	-	4.36 (1.79)
11	**Centralised Procure -ment and Distribution of:**													
	A. Subsidy	15 (11.0)	7 (5.2)	24 (17.7)	90 (66.2)	-	4.22 (2.00)	-4.5118	24 (19.8)	25 (20.7)	23 (19.0)	49 (40.5)	-	5.40 (2.34)
	B. Grant	4 (2.9)	16 (11.8)	20 (14.7)	95 (69.9)	1 (0.7)	3.92 (1.66)	-3.3403	-	-	-	73 (60.3)	-	-
	Annual General Body Meeting													
19	A. Audited Accounts	15 (11.0)	10 (7.4)	7 (5.2)	104 (76.5)	-	4.06 (2.06)	-5.2041	30 (24.8)	26 (21.5)	11 (9.1)	53 (43.8)	1 (0.8)	5.52 (2.53)
	B. Current Years Budget	7 (5.2)	5 (3.7)	21 (15.4)	103 (75.7)	-	3.76 (1.57)	-1.7777	16 (13.2)	5 (4.1)	10 (8.3)	90 (74.4)	-	4.12 (2.12)
	C. Election of New Office-Bearers	7 (5.2)	4 (2.9)	10 (7.4)	115 (84.6)	-	3.57 (1.51)	-2.6072	17 (14.1)	4 (3.3)	10 (8.3)	90 (74.4)	-	4.14 (2.15)

Source: Field Survey

Note: D.K - Don't Know, Qn. No. - Question Number (in the schedule)

inclusion of ineligible persons in the tour programmes imply that actual farmers, for whom such programmes are intended, could not benefit from them. If they had been included, they could have contributed to the better functioning of BFAs and the irrigation system as well; also the very purpose for which such tours are financed by the government would have been better served. On enquiry, some officials did concede, on condition of anonymity, that undue pressure from above had been exerted on them for inclusion of persons, who would not have normally been selected. A very large section of th e ordinary members was unaware of such a facility, since sufficient publicity had not been given to the programmes by the officials. Here one finds an astonishing degree of collusion between officials and OBs.

In brief, the instruments of awareness-creation were made use of. Seminars and camps were organised to the satisfaction of all concerned, CADA officials taking the initiative and leadership more than the BFA leadership. Tour to model BFAs outside the State was confined to OBs of BFAs and a privileged few, keeping out to a large extent ordinary BFA members. Worse still, the OBs who had enjoyed the tour facility failed to disseminate their experiences to ordinary members, thereby defeating, by and large, the very propose of such tours.

It is expected that BFA leadership will arrange for collection and distribution of the management subsidy, grants, and other items of assistance, (if any); we proceed to examine the extent to which BFAs have performed this function.

Regarding subsidy and grant, 255 and 291 respondents respectively out of the total of 457 denied having received any. Most of them were unaware of such provisions and of the responsibility of BFAs in this connection. Regarding subsidy, around 44 percent of the respondents were, however, aware of this function to be discharged by their BFAs; in the case of grant, the corresponding percentage was 36. One of the reasons why the majority of the respondents denied having received any subsidy or grant was that several BFAs are defunct. It seems that they were formed and got registered only to acquire one major non-recurring benefit, namely field channel lining. After that work was over, they existed only in name. Only live societies are eligible for such incentives such as grants and subsidies. It is therefore natural that the defunct BFAs did not apply for them. The members of the live BFAs and the socially active irrigators in the study area were quite sure of such incentives, and they responded positively to questions on the availing of these facilities (Table 4.13b).

Reaches-wise, in the case of subsidy, responses of respondents between UR and MR differed significantly (Table 4.14c). Sixty-two out of 152 respondents (representing 41 percent) of the UR held the view that BFAs disbursed the subsidy among the members, while 46 out of 136 respondents, (representing 34 percent) of the MR alone concurred to the above view. Fifty-nine percent of the respondents of Lower Reaches admitted that BFAs played a useful role in the matter of subsidy disbursement (Table 4.13c).

In the case of grant disbursement, reaches-wise, the trend is more less the same as in the case of subsidy. The role played by BFA, in the disbursement of grant is found to be less efficient than in the case of subsidy.

Efforts to avail of ‘Other assistance’ referred to in the Kerala CADA Act, and made maximum

use of water users associations elsewhere (in other States like Tamil Nadu, and Maharashtra as also in other counties) were not at all made by the BFAs in our study area.

BFAs are statutorily obliged to summon the general body meeting before 15 March every year. This is considered important since the general body is the barometer of the 'activity status' of the association. The general body (i) reviews the audited statement of accounts of the year; (ii) approves the budget for the ensuing year, and (iii) elects the new office-bearers. It is observed that out of the total 457 respondents, 58 to 74 percent of respondents held the view that these things were never carried out, 9 to 14 percent claimed them to have been carried out 'some times', 4 to 13 percent were emphatic that they happened 'often' and 6 to 19 percent were sure that they were held 'always' (Table 4.13a).

Our field investigations and perusal of documents indicate that all these rival claims are correct and justified. It is natural that respondents of the defunct BFAs deny these formalities to have been done since they are unaware of any such happenings; as for the few functioning BFAs, they were carried out, 'sometimes' in a few, 'often' in some others, and 'always' in the rest. Among the three functions to be carried out by the general body, the one that is done in all cases is election of the new office-bearers; and the least performed function is presentation of the budget for the ensuing year. The fact is that the same office-bearers used to be elected in successive years in most cases. Since the recurrent sources of finance are almost zero, most of the BFAs had practically no statement of accounts to present and for that matter no new budget. They were involved only in a limited number of activities, and whatever small amounts were required, were met from the private funds of office-bearers. They had relatively large holdings of land, were relatively better off than others, and were elected from year to year. As between OBs and OMs, their opinions about the performance of these functions showed broad agreement (Table 4.13 b).

Partial performance

Conflicts among farmers, factional feuds and disputes among regions in the project command, concerning the operation, management, and distribution of irrigation water in the canal net work are acknowledged to be universally common. And they have remained an insurmountable problem, lacking effective solution for irrigation authorities, at all times and in every place. Water users associations were formed, therefore, in many countries, taking recourse to the experience of irrigation administrators that, success in irrigation, if at all, could be achieved only through enlisting the mass participation of beneficiaries in the every-day operation and management of the distribution system. BFAs, formed in the study area were based on this philosophy and resolution of conflicts among the farmers was therefore one of their cardinal functions. The extent to which this purpose was achieved by the sample BFAs may now be examined.

Here again, claims are varied; while a few claim frequent and successful intervention in conflicts, another section admits that performance was adhoc and inter-periodical; there were several others (72 per cent) who denied any performance at all. About 5 percent of the respondents exposed their ignorance of BFA having any such function at all. Thirty-one out of 48 OBs, (constituting 65 percent) reported total inactivity on the part of BFAs in this

aspect. The reasons reported for inactivity are defunctBFAs and lack of conflicts due to abundant availablity of water.

Table 4.14a Performance of Recurring Functions by BFAs: Partial performance only (i) All Members

Qn. No.	Function	Always	Often	Some Times	Never	D. K
8	Resolution of Conflict by BFA	14(3.06)	27(5.91)	65(14.22)	330(72.2)	21(4.6)
	a)Collective supply of seed	17(3.72)	8(1.75)	40(8.75)	391(85.6)	-
	b) Collective supply of fertiliser	4(0.9)	16(3.50)	13(2.84)	424(92.8)	-
10	Canal Committee decides appropriate crop pattern	13(2.8)	16(3.5)	20(4.4)	408(89.3)	-
16	BFA decides time for pesticide application	22(4.8)	57(12.5)	52(11.4)	323(70.7)	3(0.7)
18	BFA President attends C.C meetings regularly	18(3.9)	22(4.8)	31(6.78)	207(45.3)	179(39.2)

Source: Field Survey
Note: D.K - Don't Know, Qn. No. - Question Number (in the schedule)

BFA president is the ex-officio member of the canal committee, the mid-layer of the three-tier set-up, as statutorily laid down in CADA Act; Canal Committee is strategically an important part of the decentralised system, the extent of the functioning of which would determine the effectiveness of BFAs. Ex-officio membership is awarded to office-bearers of BFA, in order to enable them to be present in the meetings of the CC, present problems of the BFA area under their command, and to secure practical remedies to those problems. Having participated in CC the president of BFA is expected to apprise the members of his association, the details of discussion in the Canal Committee meeting, and decisions taken. His attendance in such meetings and subsequent discussion with members of BFA go a long way in achieving solutions to the problems they generally come across.

Out of 457 respondents, 179 pleaded ignorance and 207 straight away denied any such activity. These two categories together came to 80 per cent. Forty respondents, (constituting nearly 9 percent) alone claimed effective discharge of this function; another 7percent admitted that it was carried out only 'sometimes'. Only 16 OBs (representing one-third of the OBs) claimed that they had attended the Canal Committee meetings.

In order to reap the maximum benefit from the application of pesticides, it is necessary that

Table 4.14b Performance of Recurring Functions by BFAs: Partial performance only
(ii) OBs and OMs

Qn. No.	Functions	Always	Often	Some Times	Never	D.K	O.M.S					O.Bs	O.Ms	T. Value
							Always	Often	Some Times	Never	D.K	A.M & S.D	A.M & S.D	
8.	Resolution of Conflict by BFA	4 (8.3).	3 (6.3)	6 (12.5)	31 (64.6)	4 (8.3)	10 (2.4)	24 (5.9)	59 (14.4)	299 (73.1)	17 (4.1)	3.83 (2.034)	3.59 (1.482)	0.79842
9	a) Collective supply of seed	-	2 (4.2)	4 (8.3)	41 (85.4)	1 (2.1)	17 (4.2)	6 (1.5)	36 (8.8)	350 (85.6)	-	6.54 (2.111)	6.97 (2.719)	-1.28071
	b) Collective supply of fertiliser	-	-	1 (2.1)	47 (97.9)	-	4 (0.98)	16 (3.91)	12 (2.93)	377 (92.2)	-	6.08 (0.571)	6.55 (2.020)	-3.58474
10	Canal Committee decides appropriate crop pattern	1 (2.1)	3 (6.3)	1 (2.1)	43 (89.6)	-	12 (2.9)	13 (3.2)	19 (4.7)	365 (89.2)	-	3.42 (1.288)	3.40 (1.262)	0.10491
16	BFA Decides time for pesticide application	5 (10.4)	7 (14.6)	2 (4.2)	34 (70.8)	-	17 (4.2)	50 (12.2)	50 (12.2)	289 (70.7)	3 (0.73)	4.29 (2.140)	3.98 (1.731)	0.98605
18	BFA President attends C.C meetings regularly	6 (12.5)	7 (14.6)	3 (6.3)	29 (60.4)	-	12 (2.9)	15 (3.7)	28 (6.9)	178 (43.5)	176 (43.03)	4.40 (2.280)	3.63 (1.532)	4.04689

Source: Field Survey
Note: D.K - Don't Know, Qn. No. - Question Number (in the schedule)
A.M - Arithmetic Mean
S.B - Standard Deviation

Table 4.14c Performance of Recurring Functions by BFAs: Partial performance only
(iii) Reaches-wise

Qn. No.	Functions	Always	Often	Some Times	Never	D.K	Mean Score (S.D)	T. Values UR & MR
8.	Resolution of Conflict by BFA	3 (2.0)	3 (2.0)	15 (9.9)	122 (80.3)	9 (5.9)	3.29 (1.24)	0.54961
9	a) Collective supply of seed	5 (3.3)	5 (3.3)	10 (6.6)	132 (86.8)	-	3.46 (1.33)	3.36328
	b) Collective supply of fertiliser	3 (2.0)	8 (5.0)	3 (2.0)	138 (90.8)	-	3.37 (1.22)	3.32951
10	Canal Committee decides appropriate crop pattern	3 (0.0)	1 (0.7)	10 (6.6)	138 (90.8)	-	3.28 (1.00)	2.76199
16	BFA Decides time for pesticide application	10 (6.6)	18 (11.8)	18 (11.8)	106 (69.7)	-	4.11 (1.87)	3.17780
18	BFA President attends C.C meetings regularly	4 (2.6)	4 (2.6)	6 (4.0)	70 (46.1)	68 (44.7)	2.89 (1.40)	0.56430

Source: Field Survey
Note: D.K - Don't Know, Qn. No. - Question Number (in the schedule)

Table 4.14c (contd...) Performance of Recurring Functions by BFAs: Partial performance only
(iii) Reaches-wise

Qn. No.	Functions	Always	Often	Some Times	Never	D.K	Mean Score (S.D)	T Values UR & MR	Always	Often	Some Times	Never	D K	Mean Score (S D)
8.	Resolution of Conflict by BFA	-	6 (4.4)	12 (8.8)	110 (80.9)	8 (5.9)	3.24 (1.11)	-5 9989	7 (5.8)	15 (12.4)	32 (26 5)	67 (55.4)	-	4 37 (1 80)
9	a) Collective supply of seed	-	-	10 (7.4)	126 (92.7)	-	3.15 (0.52)	-4.5773	12 (9.9)	1 (0.8)	16 (13.2)	92 (76 0)	-	8 89 (1 85)
	b) Collective supply of fertiliser	-	-	1 (0.7)	135 (99.3)	-	3.01 (0.17)	-3.7653	1 (0.8)	8 (6.6)	8 (6.6)	104 (86 0)	-	3 45 (1 19)
10	Canal Committee decides appropriate crop pattern	-	1 (0.7)	2 (1.5)	133 (97.8)	-	3.06 (0.42)	-5.3537	9 (7.4)	11 (9.1)	7 (5.8)	94 (77.7)	-	3 93 (1 87)
16	BFA Decides time for pesticide application	2 (1.5)	9 (6.6)	19 (14)	106 (77.9)	-	3.63 (1.32)	-3 3005	5 (4.1)	23 (19 0)	13 (10 7)	77 (63 6)	3 (2 5)	4 20 (1 88)
18	BFA President attends C.C meetings regularly	3 (2.2)	3 (2.2)	10 (7.4)	65 (47.8)	55 (40.4)	2.96 (1.36)	-1.8755	5 (4.1)	8 (6.6)	12 (9.9)	43 (34.5)	53 (43 8)	3 27 (1 82)

Source: Field Survey

Note: D.K - Don't Know, Qn. No. - Question Number (in the schedule)

all farmers in an area did this activity simultaneously. BFA has to take up the leadership to fix the appropriate date and time for this work. This aspect of the cultivation is stressed in group farming by the Agricultural Department in Kerala in recent years. Some BFAs have done according to guidelines in the areas where BFAs were live and active. Seventy-nine respondents (around 17 percent) claimed that they had discharged this activity according to instructions; another 11 percent held that it was done only very rarely. The majority (71 percent) held that no such joint exercise had taken place. Almost all of them belonged to the defunct BFAs.

In brief, CADA officials had succeeded in creating awareness about the significance of this function; but the instructions were carried out only by the functioning BFAs. In the majority of cases, beneficiary farmers did not get proper leadership and guidance to carry out this activity. Some farmers, however, reported that joint pesticide application used to be practised by them even before CADA was installed and BFAs were formed.

Deciding the appropriate crop pattern for a region is the function of the Canal Committee, but implementation of the decision is the task of the BFAs. Since the BFAs under Malampuzha project are associations basically of rice cultivators, crop patterns may mean only choice of the different varieties of the crop to be cultivated in each season in a given year. In other words, pattern change implies only change in the varieties of rice to be cultivated in the irrigation areas. Only 6 percent of the total respondents claimed some activity in this regard while 89 per cent reported no such activity. Selection of the appropriate seed varieties for particular seasons might have happened only in areas in which BFAs were active.

Another argument runs like this: long before the setting up of BFAs, the farmers in some rice areas used to have this practice of arriving for each season at a consensus on the variety of rice to be cultivated. This cultivation practice is still in vogue in several areas. Of course, the setting up of BFAs must have rendered added relevance to this function. It is, however, non-performance observed that BFAs failed in performing this function. Minutes of the Canal Committee and field enquiry amply prove non-performance(Table 4.8). Out of the 29 decisions which the CCs had taken during a span of 10 years, only three (one decision each by three canal committees) were on crop pattern to be adopted.

The collective provision of seed, fertiliser, and agricultural implements intended to secure the economies of scale and to promote group activity among farmers, is a function reported to have been performed effectively in other States in India particularly in some projects in Maharashtra. In our study area, around 90 percent of the respondents denied having had any experience of joint supply of seed, fertiliser, and agricultural implements. Office-bearers of the BFAs also concurred with the views of the ordinary members in this respect.

Non-performance

A few functions, such as controlling the rich and the powerful, joint preparation of paddies, preparation of action plans, setting up of common nurseries for rice seedlings and fixing appropriate time for commencing agricultural operations were neglected by almost all BFAs,

particularly because such activities demanded high levels of mutual understanding and co-operation among their members.

Distortion of the irrigation water distribution schedule, in order to confer undue advantage to the rich and the powerful, is a common place in irrigation commands everywhere in the world. The strategy designed and put into operation to counter this tendency, is the formation of BFAs, and WUAs, in order to strengthen the hands of small farmers. However, around 90 per cent of the respondents, both OBs and OMs, reported that no effort in this direction had taken place. Reasons for such non-performance could be several: (i) lack of scarcity of water (ii) organisational weakness, (iii) dominance of the rich and the powerful among the office bearers of BFAs and in the Canal Committee. The same office-bearers and committee members continued in office from year to year.

Joint preparation of paddies for cultivation had not been attempted at all under the auspices of any BFA; however, a few farmer groups had in their traditional way followed this practice.

Common nursery is an excellent group activity contemplated under the CADA Act. It was expected that BFAs would undertake the initial investment for the purpose and arrange timely supply of quality seedlings to all BFA members. Such an arrangement was expected to help poor farmers by giving them seedlings on credit or in extreme cases, free. By controlling supply of seedlings BFAs would be able to fix appropriate time for commencing group agricultural operations.

The linkage with government and other agencies of development, which implied transmission of information from the farm level upwards and vice versa, was not maintained. BFAs did not have competent, committed leadership and lacked taut organisational structure. They were mere contrivances set up to avail the facility of foreign funds meant for minor civil work for rehabilitation of irrigation systems.

Table 4.15a Performance of Recurring Functions by BFAs: Non-performance
(i) All Members

Qn. No.	Statement	Always	Often	Some Times	Never	D.K
12	**Common Nursery by BFA**					
	A) Invest Initially	15 (3.3)	-	12 (2.6)	429 (93.9)	-
	B) Free Supply of Seedlings	-	13 (2.8)	8 (1.8)	435 (95.2)	-
	C) Fixes Common Time for Commencing Cultivation	4 (0.88)	7 (1.5)	11 (2.4)	435 (95.2)	-
13	BFA Gives Leadership for Group Preparation for Cultivation	13 (2.8)	51 (11.2)	46 (10.1)	347 (75.9)	-
15	**Malpractices by Rich & Powerful**					
	A) Drawing Water More than Due	33 (7.2)	6 (1.3)	17 (3.72)	396 (86.7)	5 (1.10)
	B) Build Artificial Bunds in Canals	20 (4.4)	15 (3.3)	14 (3.1)	408 (89.0)	-
	C) Tampering with Water Distri-bution Structure	21 (4.6)	10 (2.2)	18 (3.9)	408 (89.3)	-
17	BFA Prepares an Action Plan	5 (1.1)	7 (1.53)	24 (5.3)	421 (92.1)	-

Source: Field Survey

Table 4.15b Performance of Recurring Functions by BFAs: Non-performance
(ii) OBs and OMs

Qn. No.	Statements	O.Bs				O.Ms				O.Bs A.M (SD)	T. Value
		Always	Often	S.T	Never	Always	Often	S.T	Never		
12	**Common Nursery by BFA**										
	A) Invest Initially	-	-	2 (4.2)	46 (95.8)	15 (3.7)	-	10 (2.4)	384 (93.9)	9	-2.18110
	B) Free Supply of Seedlings	-	-	1 (2.1)	47 (97.9)	-	13 (3.2)	7 (1.7)	389 (95.1)		-2.01606
	C) Fixes Common Time for Commencing Cultivation	-	-	1 (2.1)	47 (97.9)	4 (0.98)	7 (1.7)	10 (2.4)	388 (94.9)		-2.30662
13	BFA Gives Leadership for Group Preparation for Cultivation	2 (4.2)	5 (10.4)	4 (8.3)	37 (77.1)	11 (2.7)	46 (11.3)	42 (10.3)	310 (75.8)		-0 07535
15	**Malpractices by Rich & Powerful**										
	A) Drawing Water More than Due	1 (2.1)	1 (2.1)	3 (6.3)	43 (89.6)	32 (7.8)	5 (1.2)	14 (3.4)	358 (87.5)		-1 28421
	B) Build Artificial Bunds in Canals	-	1 (2.1)	4 (8.3)	43 (89.6)	20 (4.9)	14 (3 4)	10 (2.4)	365 (89.2)		-1 87726
	C)Tampering with Water Distribution Structure	1 (2.1)	-	2 (4.2)	45 (93.8)	20 (4.9)	10 (2.4)	16 (3.9)	363 (88.8)		-1 69421
17	BFA Prepares an Action Plan	2 (4.2)	-	4 (8.3)	42 (87.5)	3 (0.73)	7 (1.7)	20 (4.89)	379 (92.7)		1.09657

Source: Field Survey

Table 4.15c Performance of Recurring Functions by BFAs: Non- performance
(iii) Reaches-wise

Qn. No.	Statement	Always	Often	Some Times	Never	D.K	Mean Score (S.D)	T. Values UR & MR
12	**Common Nursery by BFA** A) Invest Initially	6 (4.0)	-	8 (5.3)	138 (90 8)	-	3 34 (1.23)	3.65583
	B) Free Supply of Seedlings	-	8 (5.3)	4 (2.6)	140 (92.1)	-	3.26 (0 94)	3.71729
	C) Fixes Common Time for Commencing Cultivation	1 (0.7)	6 (4.0)	5 (3.3)	140 (92.1)	-	3 26 (0.94)	1 86709
13	BFA Gives Leadership for Group Preparation for Cultivation	5 (3.3)	17 (11.2)	18 (11.8)	112 (73.7)	-	3.88 (1.63)	1.90183
15	**Malpractices by Rich & Powerful** A) Drawing Water More than Due	11 (7.2)	2 (1.3)	8 (5.3)	130 (85.5)	1 (0.7)	3.58 (1 65)	4 76159
	B) Build Artificial Bunds in Canals	9 (5.9)	2 (1.3)	3 (2.0)	188 (90.8)	-	3 45 (1.49)	3.76835
	C) Tampering with Water -Distribution Net Work	7 (4 6)	2 (1.3)	5 (3.3)	137 (90.1)	1 (0.7)	53.39 (1.36)	2.89085
17	BFA Prepares an Action Plan	2 (1 3)	3 (2.0)	10 (6.6)	136 (89.5)	1 (0.7)	3 28 (0.99)	2 45265
						Total	**147.34**	
						Score	**(38.911)**	**4.87273**

Source: Field Survey

Table 4.15c (contd..) Performance of Recurring Functions by BFAs: Non-performance
(iii) Reaches-wise

Qn. No.	Statement	Always	Often	Some Times	Never	D.K	Mean Score (S.D)	T. Values MR & LR	Always	Often	Some Times	Never	D.K	Mean Score (S.D)	T. Values UR & MR
12	**Common Nursery by BFA**														
	A) Invest Initially	-	-	-	135 (99.3)	1 (0.7)	2.98 (0.26)	-3.52370	9 (7.4)	-	2 (1.7)	110 (90.9)	-	3.48 (1.59)	-0.84753
	B) Free Supply of Seedlings	-	-	-	135 (99.3)	1 (0.7)	2.98 (0.26)	-2.95581	-	5 (4.1)	3 (2.5)	113 (93.4)	-	3.21 (0.85)	-0.51100
	C) Fixes Common Time for Commencing Cultivation	-	-	2 (1.5)	134 (98.5)	-	3.09 (0.72)	-0.86387	1 (0.8)	1 (0.8)	5 (4.1)	114 (94.2)	-	3.17 (0.75)	1.01052
13	BFA Gives Leadership for Group Preparation for Cultivation	2 (1.5)	18 (3.2)	9 (6.6)	107 (78.7)	-	3.75 (1.53)	-0.70214	4 (3.3)	11 (9.1)	15 (12.4)	90 (74.4)	1 (0.8)	3.80 (1.58)	0.14609
15	**Malpractices by Rich & Powerful**														
	A) Drawing Water More than Due	-	-	1 (0.7)	132 (97.8)	3 (2.2)	2.97 (0.34)	-5.95211	21 (17.4)	3 (2.5)	5 (4.1)	91 (75.2)	1 (0.8)	4.21 (2.31)	-2.38729
	B) Build Artificial Bunds in Canals	-	-	2 (1.5)	133 (97.8)	1 (0.7)	3.01 (0.30)	-5.51470	11 (9.1)	12 (9.9)	5 (4.1)	93 (76.9)	-	4.02 (1.99)	-2.51147
	C) Tampering with Water - Distribution Net Work	1 (0.7)	-	2 (1.5)	133 (97.8)	-	3.07 (0.56)	-5.07049	-	-	-	-	-	-	-2.76248
17	BFA Prepares an Action Plan	-	1 (0.7)	4 (2.2)	131 (96.3)	-	3.09 (0.48)	-2.02082	1 (0.8)	3 (2.5)	6 (5.0)	111 (91.7)	-	3.25 (0.91)	0.20330
						Tot.	**130.46 21.92**	**-5.24792**						**151.48 41.420**	**-0.88807**

Source: Field Survey

5. Performance, Administration, and Participation

Level of performance

In this section, we make an attempt to evaluate performance and discuss organisation and administration of BFAs and CCs. The reasons for inadequate participation in them are also examined. Details on performance, measured in terms of performance indices, are given in Table 5.1 and 5.2. The overall performance (which is the aggregate of performance of recurring and non-recurring functions) came to only 42.18 per cent of the ideal. As between the two components, performance under RF was better than that under NRF (Table 5.1).

Table 5.1 Aggregate Levels of Performance

Sl. No.	Items	T.S Achievable	T.S.Achieved	P.I
1.	Non-Recurring Functions (NRF)	9597	2936	30.59
2.	Recurring Functions (R F)	152181	65303	42.91
3.	Total Functions (T F)	161778	68239	42.18

Table 5.2 Performance Levels OBs and OMs

Sl. No.	Items	O.Bs			OMs		
		T.S Achievable	T.S. Achieved	P.I	T.S Achievable	T.S. Achieved	P.I
1.	Non-Recurring Functions (NRF)	1008	304	30.15	8589	2632	30.64
2.	Recurring Functions (R F)	15984	6869	42.97	136197	58406	42.88
3.	Total Functions (T F)	16992	7201	42.38	144786	61038	42.16

The level of performance did not vary between office-bearers and ordinary members (Table 5.2). Both stood at about 42 percent.

The reaches-wise analysis of performance of functions, as gauged by Performance Index (PI) is given in Table 5.3. The level of performance is around 30 per cent in all the reaches.

Next, a scrutiny of the results, at the level of BFAs is attempted [Tables 5.4 (a to c)]. Table 5.4 (a) presents the results in respect of non-recurring functions.

Nearly 90 percent of them showed only a performance level of one-third. All sample BFAs taken together showed a performance level of one-half.

In respect of recurring functions (RF), none among the sample BFAs, showed a performance

Table 5.3 Performance Levels - Reaches-wise

Sl. No.	Items	Upper Reaches			Middle Reaches			Lower Reaches		
		T.S Achievable	T.S. Achieved	P.I	T.S Achievable	T.S. Achieved	P.I	T.S Achievable	T.S. Achieved	P.I
1.	Non-Recurring	1014	1014	31.76	2856	833	29.17	2541	785	30.89
2.	Recurring	50616	22247	43.95	17779	2856	39.26	40293	18380	45.62
3.	Total	53808	23261	43.23	48144	18612	38.66	42834	19165	44.74

Table 5.4 Distribution of BFAs by Performance Levels

(a)Non-Recurring Functions (NRF)				
Sl. No.	**Performance Index**	**No. of BFAs**	**Cumulative Number**	**Percentage**
1.	28-33	40	40	88.8
2	33-38	1	41	91.1
3	38-43	2	43	95.6
4	43-48	1	44	97.8
5	48-53	1	45	100
	Total	45	45	

level of less than one-third [Table 5.6 (b)]. It will be spelt out later. About one-tenth of the BFAs recorded performance levels of more than 50 percent.

Table 5.4b Recurring Functions (RFs)

Sl. No.	Performance Index	No. of BFAs	Cumulative Number	Percentage
1.	33-38	24	24	53.3
2	38-43	8	32	71.1
3	43-48	2	34	75.6
4	48-53	41	38	84.4
5	53-58	3	41	91.1
6	58-63	2	43	95
7	63-68	1	44	97.8
8	68-73	1	45	100.0
	Total	45		

Taking the two types of functions together, we find that the performance level was upwards of 33 percent and more than 90 percent showed performance levels in the range of less than 50 per cent.

Table 5.4c Total Functions (TFs)

Sl. No.	Performance Index	No. of BFAs	Cumulative Number	Percentage
1.	33-38	27	27	60
2	38-43	5	32	71.1
3	43-48	2	34	75.6
4	48-53	6	40	88.8
5	53-58	2	42	93.3
6	58-63	2	44	97.8
7	63-68	0	44	97.8
8	68-73	1	45	100.0
	Total	45		

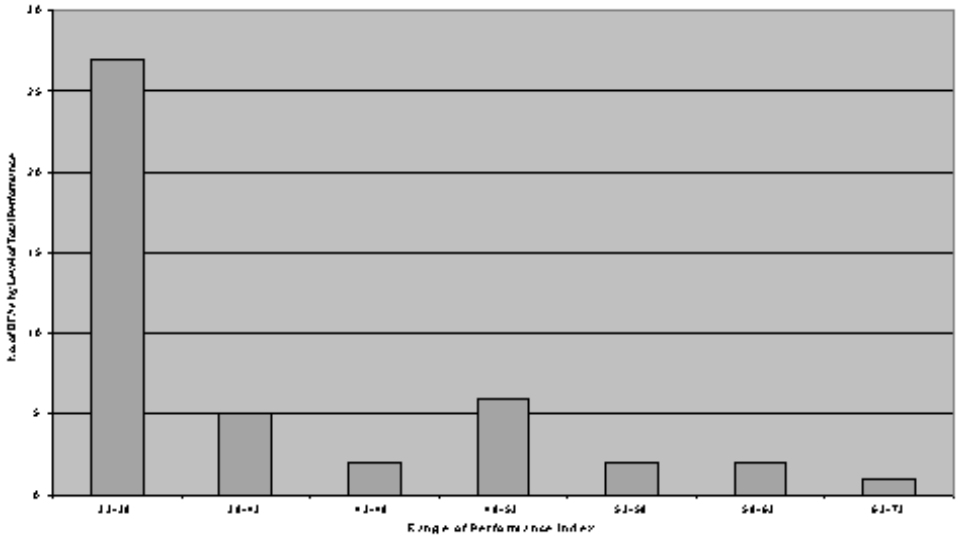
Organisation and administration

One of the reasons for the poor performance of BFAs could lie in the weakness of their organisation and administration.

Among the three approaches followed in organising irrigation projects - segregated, integrated, and multi-purpose - the multi-purpose approach seems to be the most appropriate in the context of Malampuzha, for the following reasons. The project under study, with a net command area of 29463 hectares, is not big enough to warrant adoption of a segregated approach and an organisational pattern with different sub-organisations set up to discharge individual functions. Obviously it will be uneconomic. The integrated approach too would

be inappropriate since it envisages a host of activities, including marketing, development of infrastructure and supply of input, including credit. These activities are not present in the case of the Malampuzha project unlike grand settlement projects elsewhere in the world[45].

Figure 5.1 Total Performance of BFAs



The multi-purpose pattern, which is a compromise of the other two approaches, performs functions directly related to water management. It combines functions like irrigation extension research, water quality management, and marketing. The integrated pattern which covers a host of activities including marketing and development of infrastructure has an inter-disciplinary approach and it combines irrigation water management with agricultural activities. The characteristic feature with second generation of irrigation projects is that they are multi-disciplinary. CADA in India and the Water-use and Management Project in Egypt, the forerunner of CADA, are conceived on the multi-disciplinary approach. Many irrigation organisations of Taiwan, Spain, and Chile are some other examples. The Farmer Associations of Taiwan take up functions like input supply, marketing, and provision of credit.

What the cultivators basically need is assured water supply, in sufficient amounts, and in times of need. Need can be satisfied, by efficient distribution and utilisation of available irrigation water, for which, the multi-purpose pattern is perhaps the best. Therefore, the failure in the working of BFAs must be attributed to reasons other than their organisational structure.

Generalists vs technocrats as administrator

The administration of irrigation projects could be either through generalists or specialists. Both these forms exist in India. In some States, engineers are at the apex of the CADA organisation, while in some others, agricultural officers do the job. The generalists, viz. officers of Administrative Service are CADA administrators in several large projects. In Kerala the projects being small, establishment of independent departments for each water

management function, with an expert at the top is uneconomic. Therefore, instead of a generalist administrator, a technician or other specialist competent to perform water management functions, namely distribution and utilisation of water, is desirable. The technician or specialist may be drawn from engineers (for managing distribution functions) or agricultural scientists (for handling utilisation aspects). For efficient performance, it could be desirable to conduct training programmes for engineers and agricultural scientists to apprise them of water management problems and techniques. The training programme should include modules on water course management and field-level application of water.

In Kerala, it is the technocrat rather than the generalist who is placed at the apex of CADA administration. The lapses observed must therefore be due to inefficiency in implementation.

Some issues in irrigation management

Irrigation Extension

Out of the three important field activities of irrigation management, viz. water distribution, system maintenance, and irrigation extension, extension activities should receive particular attention at the initial stages of the project; distribution and system maintenance arise only at the subsequent stages. But events have not turned out in India in this order. MIP has already a history of more than four full decades after its first commissioning and is one of the first four CADA projects in Kerala. With the introduction of CADA, the irrigation management organisation of MIP was remodelled with emphasis on extension. Lapses in the functioning do not seem therefore due to the organisational set-up; they should have been the result of defective implementation.

Government interference

Inadequate commitment and excessive interference of the public authority are the two main reasons for the ineffective management of irrigation projects[46]. The shortfalls in the performance of MIP seem to be due more to excessive interference of the public authority than to its inadequate commitment. The general trend the world over, is to attribute failure in irrigation management to poor organisation, caused primarily by the absence of a clear distinction between administrative and management tasks. Planning, designing, construction, and control are administrative tasks which might well be performed by government; operation and maintenance are, on the other hand, management tasks. When government tasks are performed jointly by several ministries conflicts are usual. This is due to lack of common understanding of the projects at hand to the personnel of these different ministries. Among the three possible management types – public authority, private agency, and water users – water users' associations are found to be the most desirable. When management tasks are assigned to public authority, confusion between the two types of tasks - distribution and utilisation - arises. Public companies are subjected to accountancy rules and other strict regulations. They may also have too many functions, to discharge. They usually end up in failure[47]. When the management tasks were entrusted to private agencies, they were found to be effective in some agro-industrial irrigation schemes like the production of sugar in Zimbabwe. Here besides the inherent defect that part or whole of the value-added might

move out of the region, or country; there is also the danger that the tasks and responsibilities might not be properly formulated and carried out. Water Users Association is found to be, on the other hand, acceptable everywhere. Even in African countries, where farmers have little experience in modern irrigated agriculture outside the family and tribal structures, management tasks of operation and maintenance are entrusted to water users, sometimes specifically linking these tasks to rehabilitation programmes. The governments train the users and help them set up necessary structures to control disorderly development like over-exploitation of local ground water or temporary over-production. In scattered areas of southern Sahara countries, non-governmental organisations also provide the required help to the water users associations.

Beneficiary participation

Another water management issue relates to the division of responsibility between irrigation officials and irrigation users in (i) operation and maintenance of irrigation and drainage systems, and (ii) assessment and collection of water charges. To carry out these functions, there are three types of organisational structures: (i) controlled by farmers (ii) controlled by government, and (iii) controlled by both government and farmers. For success of any agricultural programme, beneficiary participation to the extent possible has to be ensured.

The farmers in the study area are inexperienced in administration and management and not highly educated; they are not competent to handle on their own the technically complex problem of water distribution. Disputes are common among the farmers everywhere about water distribution and use which they themselves may find difficult to solve. This fact points to the need for another agency to act as an arbitrator. In the non-CADA projects, the exclusive control is with the government of operation, maintenance and assessment, and collection of water charges. Exclusive control by government is not entertained by farmers. In all CADA projects, mass participation in management of irrigation projects is sought to be achieved through formation of BFAs. The extent of mass participation contemplated and the extent to which it has been realised is discussed later in this section.

Beneficiary participation essentially has come to mean the involvement of the users of irrigation water in meeting the costs of the scheme, either in part or as in whole. Usually it is the recurring costs that the beneficiaries pay in part or in full. Beneficiary participation in the true sense has to go much beyond meeting costs. However, at present, no operational decisions are taken with beneficiary involvement though a Project Advisory Committee is in position. This is in contrast with the practice in some countries[48]. At no stage in the planning, formulation, and implementation of projects were the views of the local people, the potential beneficiaries, ascertained in Kerala. It is worth noting here that a project is likely to be more effective and irrigator-participation more active, if a project is launched with the acceptance of the community[49]. In such cases, the relationship between the beneficiaries and the government would be cordial and collaborative[50].

In MIP the fact that management of irrigation demands a co-ordinated approach is not adequately taken care of. The task of running the projects and supplying water to farmers is considered the exclusive task of officials. In the release and distribution of water, neither

the critical phases of growth of plants, nor the differing water requirements of the plants nor the nature of the soils is considered.

Considering the nature of the environment and its topography and the small irrigation commands of projects in Kerala, the organisational and administrative set-up is appropriate and adequate. However, it is high time that arrangements are made for active beneficiary participation.

The interference of the village power structure is not a serious problem in Kerala due to the insipidity of BFAs which do not create conditions for interference and the weakness of the village power structure in Kerala unlike its counterparts elsewhere in the country where caste and class divisions are strong and assertive. The reasons for the absence of beneficiary participation in the study area are examined in some depth in the next section.

Participation

The preceding discussion has shown that participation of beneficiaries in the management of the irrigation system was extremely poor. It was, however, revealed through a field enquiry that the majority of the members understood the relevance, need and, objectives of forming BFAs and that they had confidence in their capacity to participate in the activities effectively. The reasons for the wide gap between awareness and participation have therefore to be explored.

One of the major reasons seems to have been the limited role that they came to see for BFAs. Based on their experience during the period 1986-1996, they formed the view that, at best, BFA was an agency to provide some benefits to them. The immense potential of BFA, arising from decentralisation of power, management, and administration was not at all realised by them. Even office-bearers of BFAs concurred with this view.

Introduction of CADA and the subsequent formation of BFAs had originally generated great expectations among the farming community about benefits. These inflated expectations arose from the discussion at the joint sitting of CADA officials and the beneficiaries during the formative phase of BFA. CADA officials had given them exaggerated notions of functions of BFA, both non-recurring and recurring. Owing to failure to realise many of these benefits as per expectations, the beneficiaries lost interest and turned indifferent. However, BFA members themselves admitted that their indifference and feelings of inadequacy could also have led to non-participation in the BFA activities.

Decentralisation

Members of BFAs considered them adhoc and short-term agencies formed for specific purposes such as securing World Bank funds for field channel lining free of cost. This attitude of the initial years, 1987-1991, underwent some slight change with the introduction of the management subsidy scheme. Several BFAs which had by then become defunct were quickly revived by renewing their registration (since management subsidy could be given

only to live societies). Even after revival, most of the societies existed only for obtaining the management subsidy; no recurring and non-recurring functions were taken up. The farmers did not realise that BFA was a decentralised, permanent institution introduced for their cause in the management of the irrigation system.

The belief that formation of BFA was a measure taken for securing World Bank assistance had damaging consequences; once funds were obtained and civil works like field channel lining, and minor repairs were over, the entire enthusiasm built around BFAs vanished from the minds of ordinary members and office-bearers of BFAs and even CADA officials.

BFA as conflict-resolving agency

At the time of the formation of BFAs, the presumption was that they would go a long way in solving problems associated with irrigation water distribution because they entailed considerable decentralisation of administrative powers and functions to the local level. This does not seem to have been realised to any substantial degree.

The vast majority of the members, about 87 percent, thought that BFAs had not solved any water-distribution problem in the area; in fact they did not have any confidence in the ability of BFAs to take up such a problem-solving role. In this respect not much difference was observed between the opinions of ordinary members and office -bearers of BFAs.

Though about one-third of the respondents reported that they had got their field channels lined through the agency of BFAs and received management subsidy rather liberally, the vast majority of them had bitter complaints about non-performance of the recurring and non-recurring functions by BFAs. No wonder, only 30 per cent of the farmers in the *ayacut* area took membership of BFAs[51].

However, there was a higher proportion (about 46 percent) of office-bearers who were of the opinion that members had in fact benefited from BFAs. It could be the case that these office-bearers were recipients of 'special favourable treatment' by CADA officials.

BFA leadership

The success of a BFA depends to a large extent on the dynamics of its office-bearers. If they are vigilant, service-minded, and hard working, it would function effectively as several studies on farmers' associations in other countries (the Philippines, Sri Lanka, Indonesia, for example) have clearly brought out. BFA leadership in the study area appears to have functioned in an inhospitable environment. They faced problems of raising finances and securing co-operation of CADA officials. The office-bearers had to spend lot of their working time on BFA activities. In addition they had to incur financial losses. As stated earlier BFA had no perennial source of finance of its own. It endeavoured to raise finances, whenever required, through subscriptions or donations from among its members. The office-bearers had therefore to spend their own funds. This sort of experience sapped their enthusiasm and led to the virtual demise of the BFA. In the matter of the financial problems of the BFAs and the financial burden of the office-bearers, there existed little difference of opinion between ordinary members and office-bearers.

Lack of adequate co-operation of the officials of CADA is another obstacle which BFA leadership had to face. Office-bearers of BFAs complained about non-co-operation of engineers of the irrigation department and lack of their support. More than two-thirds of the ordinary members and about 87 percent of the office-bearers of BFAs endorsed this view.

Field Channel Lining

The CADA guidelines stipulate that civil works of a minor nature, including on-farm development, field channel construction, and channel lining must be carried out directly by BFA. Awarding these works to contractors is strictly prohibited. Surprisingly, we found that officials as well as a section of beneficiary farmers were of the view that the most pragmatic way of field channel lining was getting it done by experienced and resourceful contractors rather than entrusting it to inexperienced BFAs. Indications are that CADA officials had striven to create such a view point among beneficiaries. In 1986, following their formation in project commands in unusual haste, BFAs were assigned the task of field channel lining, for which they had neither a proper organisational apparatus and competence nor financial resources. In short, they lacked men, material, finance, and expertise to do field channel lining.

The failure of BFAs to carry out the work efficiently and in time created the conditions conducive to awarding this work to professional contractors. No wonder more than 90 percent of our respondents supported the view, i.e., that contractors should be entrusted with the minor civil works connected with the maintenance and repairs of the canal.

If one goes by documentary evidence alone, one would find that field channel lining was done by BFAs themselves. There existed a working arrangement at the BFA level to get the work done by experienced contractors but to get it recorded as having been done by BFAs and that BFA leadership supervised the work strictly in order to achieve standard quality in work. The first part of the working arrangement was strictly carried out, while the second part was almost totally ignored. Most of our respondents refused to answer questions on quality of the work; the majority, however, were of the view that BFAs should have paid greater attention to supervision of work.

Lack of experience, expertise, and resources, and above all, absence of a proper organisation prevented BFA members from taking up field channel lining work themselves. The unenthusiastic approach of officials towards BFAs and the signs of non-cooperation shown by engineers from time to time aggravated the situation. All these led to the formation of the “pragmatic view”, (contrary to CADA guidelines) which in effect, defeated the goal of beneficiary participation.

Administrative lapses

Administrative lapses[52] in running the irrigation system are found to account partly for lack of beneficiary participation, which in turn leads to failure of irrigation projects.

In order to make the operation of a canal system effective, a universally accepted principle

is that canal operators who are in charge of its day-to-day operation should stay in the area of their operation. With this end in view it is customary to construct residential quarters for canal operators in the different areas of the canal system in a project command; a number of such quarters were constructed in our study area also. But many of the family quarters of canal operators are found to be in a dilapidated condition. Further, they are left unused too. More than 90 percent of the respondents, ordinary members and office bearers included, reported that the family quarters are left unused.

The fact that about 10 per cent of our respondents reported that the quarters are being used, shows that a small proportion of canal operators do stay in the area of their operation and that a few BFAs function well. Some of the unused residential quarters are reportedly havens of anti-social activities.

The canal operators are personnel of the irrigation department. They are supposed to work under supervision by CADA officials, especially engineers of the irrigation department who are responsible for water distribution up to the sluice level. We are given to understand that the supervision work remains largely unattended to. Owing to want of supervision, water distribution has fallen into disarray, leading to misallocation of water, inefficiency, and corruption.

To sum up: supervision of canal operators and water guards was not effectively done in the study area. Engineers who were in charge of supervision were lethargic. As a result, water distribution became uncertain and erratic and the farming community frustrated. They also lost interest in participating in the activities of BFAs.

Officials and BFAs

Inadequate beneficiary participation is caused partly by the implicit non-cooperation of the majority of engineers right from the day CADA was introduced in Kerala. Non-cooperation was manifested in their (i) lack of participation in the awareness-creating efforts such as seminars, camps, and symposiums, (ii) unenthusiastic approach of BFAs and (iii) indifference to the functioning of BFAs. Not all CADA officials were, however, non-cooperative. There were a few among them who were earnest and enthusiastic.

Allegations

An allegation that some of our respondents raised against office-bearers of BFAs was about their undemocratic functioning. They complained that the executive committee played to the whims and fancies of the President.

It is alleged that in actual practice, major decisions were taken and implemented by office-bearers without the concurrence of the executive committee. Many a time the latter was summoned only after implementation of the decision either in whole or in part. Another allegation, which appears to be flimsy, is that office-bearers, by virtue of their acquaintance with officials, took undue advantage of their acquaintance. Both these allegations may be true to some extent, but not serious enough to merit discussion.

The failure in the working of BFAs does not mean that CADA was unsuccessful in every front. Farmers are almost unanimous in their opinion that canal lining improved efficiency of irrigation in the study area.

To conclude: The organisational and administrative pattern of the CADA agency in Kerala is found appropriate. Inadequate beneficiary participation is, however, an obvious fact due mainly to the understanding on the part of the farming community in the area that BFAs are temporary agencies with very limited scope for conferring any substantial benefit. Their role as an instrument of decentralisation in the administration, financing, and management of irrigation system was almost unknown to the beneficiaries. BFAs in the study area were not effective as a conflict-resolving mechanism. The manner in which they were constituted, and the conditions under which they were made to function turned BFA leadership into one which wasted its own time, energy, and funds and got frustrated in the process. The CADA guideline that civil works of minor nature like field channel lining, should not be given on contract was never strictly followed. Administrative lapses such as the canal operators/ water guards not staying in the area of their operation and engineers at different levels not supervising the work of their subordinates regularly and in time, also contributed to the paralysis of BFAs. Inter-departmental conflicts, lack of co-ordination of personnel drawn from departments of irrigation, agriculture, and co-operation, the factional feuds between engineers in CADA and in the irrigation department who control the operation of the system up to the sluice level, their differing view points on BFA activities - all these acted as disincentives to the farming community and resulted in low levels of beneficiary participation in the study area.

6. Measures of Reform

After having identified the possible reasons for the failure of BFAs, we may now deliberate on the possibilities of improving their working, based on the views obtained from our respondents, the documentary evidence obtained from BFAs, CCs, and CADA officials and our own field observations.

Legal support

The Central CADA Act, 1976, and the Kerala Act of 1986 stipulate that legal action on malpractices be initiated by officials of CADA, by reporting such instances to police, who, in turn, would take steps to punish the guilty. The acts passed by the various other State legislatures also have this provision. In actual practice, these expectations were belied in several States. Irrigation officials promptly reported malpractices to the police; the police did not however, take appropriate action due, according to them, to reasons of limitations of men, materials, resources, and time. In some cases, in which the police did really intervene, such as in Maharashtra and Tamil Nadu, the situation went worse; fresh malpractices began to be committed allegedly with the connivance of the police, by the rich and the powerful in the rural areas.

Such bitter experiences led to some re-thinking. As a result, officials of the irrigation department began to be empowered by according them legal support for taking direct action against offenders rather than reporting the cases to the police and waiting for them to take remedial action. Ren Hongzun and James E Nickum, in their paper[53] strongly advocated for better legal support to irrigation officials in China. They pointed out that China's irrigation system lacks an organisation with authority, that many of the problems arising from malpractices are due to lack of proper authority and that none of the management organs has specific, effective authority over water-use and management and that therefore new water laws were to be promulgated. George Chakacherry also came out with the same conclusion in his study relating to Kerala irrigation water management. In Kerala, the rules remain unchanged from their 1986 position. Hence, whether to accord greater legal support to irrigation officials was a question which we posed to our respondents – farmers, irrigation officials, and bureaucrats.

On the issue of the competency of the police in preventing the violation of irrigation rules in force, the response was wholesome and decisive. Nearly 95 percent of the respondents were of the view that the police was not the agency to be entrusted with cases of such malpractices.

Giving more legal powers to BFAs is likely to fetch them better co-operation from all concerned, particularly from the various officials of the departments of government who had not even given a patient hearing all these years. In our interviews, more than four-fifths of the respondents supported the idea of giving BFAs the legal status necessary to take direct action against malpractices.

Their demand must have been the result of the bitter experiences they had from the bureaucracy: denial of BFA demands, procedural delays, and insensitivity to farmers' grievances.

To sum up: past experience of the working of BFAs has convincingly shown that the existing legal frame work, within which they function, is inadequate. The futility of depending upon the police to act against malpractices is already proved. Conferment of legal status necessary to take action against malpractices would elevate BFAs in the eyes of the farming community and CADA officials. Alternatively, judicial powers may be conferred to officials of the appropriate level in the irrigation department.

Financing irrigation projects

In India, the responsibility for providing irrigation facilities vested primarily with the government: construction, operation, and maintenance of the system up to the sluice / outlet level was the governments' job. The beneficiary farmers either individually or collectively shared neither responsibility nor the cost burden. Their responsibility was confined to constructing field channels, their maintenance, and allocation of water among beneficiaries. Such an approach resulted in the virtual alienation of farmers from the projects and inculcation in them of a feeling that they have the right to get everything *gratis* from the public authority, they themselves having no role to play nor any burden to share. They looked up to the Department of Irrigation for all services, even for very minor repairs of channels, which they themselves could very well do locally.

In several other countries active involvement of the beneficiary groups at almost all stages of construction and maintenance of irrigation is encouraged. However, capital costs are borne by government. Only the costs of maintenance of field channels, minors and distributaries fall directly on the beneficiaries. There was of course the Chinese experience of peasants contributing to capital costs where local communities constructed and maintained major and medium irrigation projects[54].

In the Philippines[55], following the new general policy promulgated in 1977, the capital costs of irrigation projects were incurred first by the government but recovered from the beneficiaries in annual instalments spread over a period of up to 50 years. In cases where capital cost was not large, a counterpart contribution amounting to 10 percent was also required from beneficiaries. Operation and maintenance costs were met in full by the irrigation association formed before the construction began.

In Nepal[56], a contribution from beneficiaries, of 25 percent of the capital cost, (5 percent in cash in advance and 20 percent in voluntary labour contribution) were regarded pre-requisites for construction of irrigation schemes. In the Indonesian case[57], all the four models of the irrigation organisation had beneficiary participation, but in varying degrees; that in the *Subak* system was almost total while it was partial in the village irrigation system. There also exist cases of other nations in which capital cost, either in part or in full are incurred by irrigators. One noteworthy feature in these countries is that the farmers themselves are the owners of the irrigation systems and are responsible for maintaining them.

The question of bearing the costs of irrigation projects was posed to our respondents – whether the projects should be financed exclusively by government or by government and

beneficiaries together. Two-thirds of them favoured the idea of beneficiary farmers contributing a small portion of the cost of construction of irrigation projects. Obviously, such a contribution, however small it may be, is necessary to create among them a sense of ownership of the project, and inculcate a sense of responsibility for its upkeeping. It would also help reducing several malpractices, like tampering with the irrigation system. There were a few others (constituting about 27 percent of the total number of respondents) who held that the entire burden of the projects must be on the government. Their argument was that in Kerala most of the farmers are very small holders financially incapable of contributing towards meeting the costs. At best they might be able to contribute some amount of unskilled voluntary labour. This group did not attach much significance in conferment of consultative status to farmers either. In this question, much difference was not seen as between the opinions of ordinary members and office-bearers of BFAs.

Obviously, the shift in the views of farmers and office-bearers of BFAs, in favour of the farming community sharing a part of the costs of irrigation projects is borne out of their experience for the past quarter of a century of mismanagement of the Malampuzha project. The shift augurs well for the future of irrigation schemes in the State.

Measures of promotion

We have observed earlier that most BFAs in the study area are alive legally, in the sense that all of them annually renew registration to become eligible for management subsidy conducted tours, etc. For these benefits, performance is not at all a criterion. CADA makes no distinction among BFAs on this score. Most of BFA members and office- bearers endorsed the view that benefits should be given to BFAs on the basis of performance. In order to enhance the health of BFAs several measures were suggested. A major suggestion was incentives to well-performing BFAs such as economic incentives, merit certificates, and public recognition.

Measures to avoid contract work

CADA Act has stipulated that minor civil works such as field channel lining, repairs, and maintenance of minor canal networks must be entrusted with and undertaken by BFAs. With the exception of two BFAs, such works in our study area were done by professional contractors though official documents show otherwise. The contention of the BFA leadership in this regard was that, given the prevailing conditions they are not in a position to carry out the works themselves. This naturally raised the question, as to what all conditions are there which discourage BFAs from taking up these works themselves.

More than two-thirds of the office-bearers held lack of finance to make the initial investments as the major handicap. Ordinary members are too poor to make contributions for raising the required investment funds even if the BFA committee so decide. There may be a few among them who are rich enough to contribute; however, they are reluctant to take up the burden. Factional fights, village feuds, caste rivalry, and mutual distrust rampant among members of the BFA, also have played their role. In such circumstances they found that awarding contract to experienced contractors was the most practical solution.

Table 6.1 Measures of Reforms

n. No	Statements	Total					O.Bs					O.Ms					T.Values
		SA	A	DA	SDA	DK	SA	A	DA	SDA	DK	SA	A	DA	SDA	DK	
44.	Police, incapable of preventing violation of the irrigation rules	284 62.1	151 33.0	18 3.9	3 0.66	1 0.22	29 60.4	18 37.5	-	1 2.1	-	255 62.4	133 32.5	18 4.4	2 0.49	1 0.24	-0 01149
42.	BFA should be given added legal support	299 65.4	84 18.4	71 15.62	3 0.66	-	36 75.0	12 25.0	-	-	-	263 66.0	72 17.6	71 17.4	3 0.73	-	-0.70784
45.	Judicial powers should be given to appropriate level of irrigation officials	287 62.7	94 20.6	76 16.7	-	-	36 74.0	10 20.8	2 4.2	-	-	251 62.6	84 20.5	74 16.9	-	-	0.37510
48.	BFA should be given powers to control the working of canal operators	302 66.0	81 17.7	74 16.3	-	-	40 83.3	7 14.6	1 2.1	-	-	262 65.8	74 18.1	73 17.8	-	-	0.12124
57.	**Expenditure on irrigation projects to be bone by**																
	(a) whole amount by Govt. s (b). A part of it by beneficiaries.	116 13.5 251 62.6	16 2.38 41 3.50	21 4.62 12 0.22	-	- -	8 16.7 34 70.8	2 4.2 3 6.3	1 2.1 -	- -	- -	108 24.4 217 53.1	14 3.36 38 9.2	20 4.8 10 2.4	- 2 0.49	- -	0 06689 0.15148
62.	Assistance to the subsequent stage may be given to BFAs, that have achieved the target of the earlier stage.	296 64.8	121 26.5	34 7.4	6 1.31	-	31 64.6	11 22.9	5 10.4	1 2.1	-	265 64.8	110 26.9	29 7.1	5 1.2	-	-0.45610
63.	**To well-functioning BFAs.**																
	(a) give larger economic aid.	412 90.2	45 9.9	-	-	-	41 85.4	7 14.6	-	-	-	371 90.7	38 9.3	-	-	-	-0 99996
	(b) Issue merit certificate	386	70	1	-	-	37	11	-	-	-	349	59	1	-	-	-1 26488
	(c) Accord public recognition	263 57.6	118 25.8	67 14.7	5 1.09	3 0.66	31 64.6	8 16.7	8 16.7	1 2.1	-	232 56.7	110 26.9	60 14.7	4 0.98	3 0.73	0 01870

These facts point to the need to provide BFAs with seed money to enable them to take up minor works as stipulated in CADA Act. The provision of seed money must be made only after ensuring adequate safeguards against its possible misuse. The government should be able to ensure safeguards once BFAs are made full-fledged legal entities.

Table 6.2 On improving the working of BFAs by methods

Qn. No.	Statements	OBs		OMs		Reaches-wise Total					
						UR		MR		LR	
		F	%	F	%	F	%	F	%	F	%
a	Create more awareness	6	12.5	52	12.7	20	13.2	15	11.0	17	14.1
b	Simplify official procedures	15	31.3	152	37.7	46	30.3	51	37.5	55	45.5
c	Improve official attitude	28	58.3	283	69.2	93	61.2	91	66.9	99	81.8
d	Should have better leadership	10	20.8	140	34.0	48	13.6	61	44.9	31	25.6
e	Better legal support	48	100	401	98.0	148	98.0	133	97.7	120	99.1

Another measure suggested to avoid contract work is the supply of equipment centrally for use by BFAs. The irrigation department or CADA may arrange the supply. For field channel lining and other minor repairs, use of cement concrete is essential. Cement-mixing machines, wooden supports and plates are therefore to be made available to BFAs. Moreover, as had actually happened in our study areas, such minor civil works have to be carried out within short specified periods. Central provision of equipment for use by BFAs as and when required is therefore essential.

If BFAs, Canal Committees and Project Advisory Committees are made legal entities and adequate sources of funds are given to them provision of equipment centrally at the Canal Committee level or PAC level, might become a practical proposition.

The third measure of reform suggested for enabling BFAs to take up minor civil works is the 'provision for technical advice in time'. This suggestion has the implication that the technical personnel who were expected to give advice to those who sought for it had not been discharging their responsibility promptly or properly. The majority of the respondents were not in favour of these implications and therefore desisted from making this suggestion.

Another measure of reform suggested was that there should be proper phasing of minor civil works. Field channel lining used to be taken up simultaneously in all project commands coming under CADA division, Palakkad. The limited number of technical personnel, particularly the engineers available with the division, were not able to extend their services to all the worksites and in time. One assistant engineer had to supervise and render advice in a day to several works under several canal committee *ayacuts*.

"Extending better official co-operation" is still another measure of reform, suggested by a small section of respondents. In this case, it is the office-bearers who were insistent on this reform measure more than other members. May be it was because of their active involvement in the arrangement, supervision, and execution of work and their more intimate understanding of the actual problem.

Awareness creation

The success of BFAs would depend on the level of awareness of the farming community of the relevance of BFA, knowledge about its role as an instrument of decentralisation of power and administration, and understanding of the immense opportunities it offers. The level of awareness among the farmers of our study area was found to be low, as was shown earlier. However, respondents were not found to be enthusiastic to know more about BFAs and their role due, perhaps, to a feeling of disappointment and frustration about the performance of BFAs.

Amendment to procedures

The official procedure involved in the formation and working of BFAs is cumbersome and time-consuming. About 15 percent of office bearers and 31 percent of ordinary members suggested that the procedures should be simplified. It is not surprising that most respondents were indifferent to the question of procedures since the majority of BFAs were non-functioning.

Attitude of officials

The view that the attitude of officials particularly of engineers is not conducive to beneficiary participation is widespread. Several studies have come out with the recommendation that the mindset of officials needs radical change to appreciate decentralisation of administration (Chackacherry; Bagadion; Lele and Patil). The view of officials that BFA is not a permanent institution and their lack of genuine interest in its working, as well as their apathy to discuss irrigation issues with farmers in the Malampuzha project area, were all real obstacles to the functioning of BFAs.

Improving leadership

The present leadership in most BFAs is the one which was hurriedly formed during the initial years of 1987-'90. Most of the BFAs did not get competent farmers in leadership positions. Yet changing the leadership was not an idea favourable to the majority of our respondents, both office-bearers and ordinary members.

Staying in the respective areas of operation

Another suggestion which received overwhelming and spontaneous support is that persons in charge of water distribution (i.e., engineers and canal operators) must stay in their respective areas of operation. This condition is already there in the statue book, but was seldom implemented. More than 90 percent of the respondents wanted strict implementation of this clause.

BFA control of canal operators

Canal operators are employees of the irrigation department, answerable only to the department. Much of the inefficiency of the irrigation system, such as inadequate, untimely, and uncertain supply of water is attributed to the irresponsibility, absenteeism, favouritism, and unaccountability of the field level staff. Officials and field level staff act in collusion, each turning a blind eye to the misdeeds, absenteeism, and lack of responsibility of the other. Therefore, it is suggested the field level staff should be brought under the partial control of the Farmers Associations. Some of the methods to achieve this objective were suggested by the respondents themselves. They include giving administrative control to BFAs, conferring them legal status and introduction of the shift system of duty to field level staff.

Controlling the powerful

A universal experience with irrigation projects is malpractices by the rich and the powerful in the farming community; seldom are they found to be under any check. The most poppular method suggested by the sample respondents is collective action.

Reducing wastage

There was almost total agreement among the respondents that maintenance may be carried out with much less expenditure than is incurred. In the assessment of the respondents' wastage of government funds on maintenance, when carried out by the department, ranges from 25 percent to 67 percent. In the unlikely event of the farmers themselves taking up the responsibility, expenditure could be cut sizeably, agreed even the officials.

Financing BFAs

Availability of finance, in time and in adequate amounts is a prerequisite for the successful functioning of any institution engaged in the implementation of a scheme. This is an aspect totally ignored in the case of BFAs in Kerala. They have had no source of funds.In several other countries WUAs are provided with sources of adequate finances; and as a result the performance of such WUAs has been efficient. Lack of adequate finance has been identified to be a serious constraint on the performance of water users' associations[58].

The major sources of finance of WUAs are membership fee, proceeds from fines and penalties, periodical payments, compulsory payments, area levy and temporary funds. Budiman pointed out in 1984 that the two most important determinants of success of WUAs were adequate funds and direct involvement of farmers in design, construction, and O&M of these systems. The main obligation of a member of WUA in Indonesia is the contribution he is called upon to make to the collective work. Collective work is compulsory default of which is penalised. Fines paid by way of penalty are reported to be a significant source of funds for WUAs. Membership fee is periodically raised; and the non-periodical funds, are raised during acute financial stringency and for rehabilitation and renovation. The funds raised by WUAs under the different schemes – the *Subak* and the *Ulu-Ulu*

Table 6.3 Staying in the area of operation

Qt.No.	Statements	Total					OBs					OMs					T. Value
		S.A	A	D.A	SDA	D.K	S.A	A	D.A	SDA	D.K	S.A	A	D.A	SDA	D.K	
a	Canal Operators	365 79.9	83 18.2	9 2.0	-	-	35 72.9	12 25.0	1 2.1	-	-	330 80.7	71 17.4	8 2.0	-	-	-1.04785
b	Respective Engineers	379 82.9	73 16.0	5 11	-	-	35 72.9	13 27.1	-	-	-	344 84.1	60 14.7	4 1.2	-	-	1.48258

Table 6.4 Better control over canal operators - Suggestion of reform by methods

Qn. No.	Statements	OBs		OMs		Reaches-wise Total					
						UR		MR		L.R	
9		F	%	F	%	F	%	F	%	F	%
a	Provide BFA with some voice in appointment	9	18.8	92	22.5	58	38.2	24	17.7	10	8.3
b	O.Bs should have better administrative control over them	38	79.2	255	62.4	103	67.8	82	60.3	70	57.9
c	Equip BFA with more powers by legislation	25	52.1	147	35.9	74	48.7	44	32.4	29	24.0
d	Introduce Beat Duty System	7	14.6	66	16.1	24	15.8	18	13.2	24	19.8
e	Pay them through BFA	4	8.3	23	5.6	5	3.3	9	6.6	5	7.4

Table 6.5 Methods of controlling the rich and powerful farmers

Qn. No.	Statements	OBs		OMs		Reaches-wise Total					
						UR		MR		LR	
3		F	%	F	%	F	%	F	%	F	%
a	Collective Action	259	63.3	30	62.5	86	56.6	79	58.1	94	77.7
b	Strong Position of BFA Leadership	203	49.6	20	41.7	61	40.1	69	50.7	73	60.3
c	Police Action	31	7.6	2	4.2	13	8.6	5	3.7	13	10.7
d	Remedying Structural	6	1.5	2	4.2	4	2.6	1	0.74	1	0.83

Table 6.6 On BFA taking up maintenance

Qn. No.	Statements	O.Bs		O.Ms		Reaches-wise Total					
						U.R		M.R		L.R	
		F	%	F	%	F	%	F	%	F	%
11	Currently maintenance is carried out by department. At what percentage of that expenditure can BFA take it up?										
a		2	4.2	32	7.8	8	5.3	11	8.0	13	10.7
b		2	4.2	61	14.9	18	11.8	21	15.4	22	18.2
c		44	91.7	316	77.3	126	82.9	104	76.5	86	71.1

Desa schemes are found to have been more than adequate for discharging all their functions.

As for Kerala BFAs are concerned, the only source to fall back upon for finance, was the membership fee ranging between Rs 5 and Rs 10. Even this item of finance was not tapped properly; there is no periodical payment, annual or seasonal, as in countries like Indonesia. Collection of membership fee for annual renewal of membership is not in practice. Not a single BFA in our sample was found to have any fund worth the name, a fact which was admitted by office-bearers and revealed by BFAs' statements of accounts. It would be desirable if efforts to improve the financial position are made in two phases: In the first phase, (i) Revise upwards the membership fee and make it an annual payment;

(ii) Entrust water charges collection with BFAs, and earmark 3 to 5 percent of the proceeds to BFAs; and (iii) Impose an equitable area levy.

In the second phase, after having had sufficient experience in levy and collection of inputs and after ensuring co-operation by all concerned, the following steps may be taken:

(i) Replace area levy by periodical payments;
(ii) Introduce the system of fines and penalties;
(iii) Resort to raising temporary funds to undertake minor repairs, minor renovation schemes and rehabilitation work. The quantum of temporary funds to be levied and the manner, in which they are to be levied, will have to be decided by the BFAs themselves in their general body meetings convened for the purpose.

On method of organising beneficiary participation in Kerala

BFAs, the major instrument for mass participation was organised under the leadership of CADA, the Indian counterpart for renovation and rehabilitation of existing irrigation schemes. BFAs in Malampuzha project, partake of the features of a government-sponsored programme; this characteristic has been a major contributory factor for its failure. Inadequate commitment and excessive interference of the public authority are the two contrasting reasons for the ineffective functioning of irrigation schemes in several countries[59]. An active presence of the state is detrimental to farmer involvement[60]. Whatever be the claim of CADA officials, the fact remains that farmers in MIP area were not organised the way and to the extent they were expected to be organised. There was organisation on paper and a semblance of beneficiary participation without having much truth behind.

It would be ideal if farmers themselves were able to organise BFAs. Given the socio-economic conditions of the State, this ideal may be difficult to realise[61]. Some external agency would have to intervene. The government is not obviously the external agency suitable for the purpose. An appropriate NGO would be a better choice.

NGOs may not however, be without constraints of their own. NGOs are, by and large, unable to organise farmers on a massive scale. They may be able to generate some examples or models of organising farmers on a selective basis and demonstrate the same to others including the irrigation department that in turn might replicate the model in a scale appropriate to it. In brief, NGOs could be employed to organise farmers in part, but not for the whole project or projects. The task of replication should be entrusted with a separate agency.

For choosing an appropriate method of organising farmer's associations, one should draw lessons from experiences elsewhere. There is at the one extreme the Chinese example of beneficiary participation, and the experiments in the Philippines, Sri Lanka, Indonesia, Kenya, and Malaysia, on the other.

The feeling of a large section of officials in the Irrigation Department in Kerala that irrigation is exclusively their domain and the existence of a culture, unsuitable for organising farmers, impedes efforts to mobilisation of beneficiaries in the study area. If this ill-conceived notion

were removed from the minds of engineers and the culture given a favourable twist, the administrative apparatus of the Irrigation Department itself might become the separate agency one is looking for.

Not all engineers underestimate the importance of beneficiary participation. There are a few among them who recognise the cardinal role that beneficiaries could play in irrigation water management. It should be the endeavour of the government to identify such engineers through an appropriate agency (such as CWRDM) and give them training in the principles and methods of orgnaising farmers' groups. They may be given the performance criteria and the time schedule within which to complete their job.

Where NGOS competent to spearhead the task of organising farmers do not exist, a team of organisers may be given shape to on the line of community organisers (COs) of the Philippines and Institutional Organisers (IOs) of Sri Lanka. The relevant considerations which ought to be taken into account are qualifications, method of identifying them, the training scheme and training materials, and a time frame to organise farmers. In Kerala, where literacy is relatively high and unemployment levels of the educated are also high graduates (or even postgraduates) may be recruited for the purpose. The recruitees should come from a rural background and have basic understanding of rural problems. It would be ideal if they are (i) persons looking for experience in mobilising farmers, (ii) desirous of getting social and political recognition through community work, (iii) for improving the socio-economic status of the rural community, and (iv) participating in the community effort.

Level of participation

There are varying levels of participation of beneficiaries in different countries today. In some cases, beneficiaries participate at all the stages starting from planning the project to the management of its operation and maintenance. In others, such as Pakistan and India, beneficiary participation is the minimum. From a practical view point, the appropriate level of participation may differ from country to country and project to project.

Beneficiary participation in Kerala may be contemplated in terms of contribution of unskilled labour for canal maintenance. Here again, maintenance of reservoirs and lined main canals and big branch canals which requires technical skills, may not be within the capability of the farming community. Therefore, it must be left to engineers. The items of maintenance going to be taken up by the farmers' organisation, the consultative status assigned to it, etc. must be made clear. It is true that the National Water Policy of 1985 and subsequent guidelines, aspire much more than this. These additional responsibilities may be kept as the long-term objectives of these organisations.

7. Summary and Conclusions

Most irrigation projects the world over, wide difference exists between the estimated and the actual areas benefited, and between potential created and utilised. Several experiments have gone into reducing such differences. As a result, in the "first generation of projects", beneficiary farmers were expected to take up the construction and maintenance of field channels and water distribution below the sluice level. These expectations were seldom realised. Beneficiary participation in almost all the projects remained hesitant and inadequate.

Therefore, in the "second generation of irrigation projects" which began with the introduction of CADA in India, beneficiary involvement came to be stressed even more. In Kerala, Beneficiary Farmers Associations (BFAs) were formed to achieve this objective. Yet, beneficiary participation remained low in major irrigation projects. The present study attempts at a critical evaluation of the working of BFAs, identifying reasons for their failure, and suggesting remedial measures.

We have examined the performance of BFAs in relation to their various activities stipulated in CADA Act such as water distribution and resolution of conflicts; the functioning of CADA in Kerala; and the question of the legal status of BFAs and methods of financing them.

The CADA Act of 1986 stipulates a three-tier system: the Project Advisory Committee (PAC) at the project level, the canal committee at the branch level, and beneficiary farmers association (BFAs) at the sluice / sluices level. Each of them has well-defined functions. The major functions of PAC are ensuring adequate water supply, equitable water distribution among the different areas of project command, and co-ordination of the activities of canal committees. The CCs, on their part, co-ordinate the activities of BFAs, arrange for equitable water distribution among the *ayacuts* of different BFAs, and enforce uniform cropping pattern to resolve conflicts among BFAs. The major functions of BFAs include taking up of minor civil works, repairs and maintenance, playing of a leading role in water distribution in the BFA *ayacuts* concerned, and resolution of conflicts. BFAs have Non-Recurring Functions (NRF) and Recurring Functions (RFs).

All the sample respondents in our survey were rice cultivators, whose interest was to augment irrigation facilities for cultivation. They were experienced persons with an average experience of about 20 years in rice cultivation. As between office-bearers (OBs) and ordinary members (OMs), the average size of holdings of the former came to about double that of OMs. Higher levels of interest in augmenting irrigation facilities were evinced by cultivators with larger holdings. The level of education was also higher among OBs.

Some of the noteworthy features in the formation and working of BFAs in Kerala are the following: It is CADA officials who took the initiative in their formation and not the farmer groups. In most cases, the membership fee of Rs 5 was not paid by the farmers concerned; payment was made on their behalf by prospective office-bearers, or the potential contractors of field-channel lining or the large farmers in the *ayacut*. Further, there was heavy concentration of BFA formation in 1986 and 1987; 86 percent were formed in these two

years. The period till 1994 was one of passivity, when only about 26 BFAs were formed. BFAs were formed in great haste during 1986 and 1987 for making possible the utilisation of the funds made available during the period. The result was formation of adhoc BFAs, incompetent to carry out the several other functions assigned to them.

Canal Committees are strategically important as the co-ordinating agency of the BFAs, taking policy decisions on cropping pattern in the *ayacut*. Only 57 CC meetings were held by the eight canal committees during a span of 10 years. Forty-three of them were held without quorum and 35 with zero attendance of non-official members. Attendance of non-official members was ensured only for meetings held for election of office-bearers. Only 29 decisions were taken in the 57 CC meetings held, which were of a routine nature, not pertaining to the major functions of the Canal Committees as envisaged in the CADA Act.

The level of knowledge on the part of farmers about the existence of CCs and the PACs, and their structure and functions was extremely low.

Most BFA members were in favour of holding the general body meetings before commencement of the crop season. But this was seldom done. The office-bearers kept ordinary members only for the sake of record.

CADA officials organised seminars and camps. BFA leadership collected and disbursed the management subsidy, grants, and other items of assistance, but did not take any initiative in organising any other activity of the farmers.

Summoning the general body, presenting the audited statement of accounts and budget for the ensuing year, and conducting the election of new office-bearers, are statutory obligations of a BFA. These were performed by a very few proportion of the sample BFAs.

Functions such as are resolution of conflicts, attending canal committee meetings, disseminating the decisions of canal committee to BFA members, fixing the appropriate timings for simultaneous application of pesticides, and providing seed and seedlings, fertiliser and agricultural implements were performed only partly and that too only by a small number of BFAs. Several BFAs who existed only in name did not even know about these functions. Items like collective provision of seed and fertiliser could not be carried far, since many cultivators were not agreeable to such joint action.

Group preparation of fields for cultivation, preparation of Action Plan, setting up of common nursery for supply of seedlings, and fixing appropriate timings for commencing agricultural operations were functions which BFAs did not perform at all. Farmers in the study area were not inclined to perform this activity on a collective basis.

BFAS were not able to maintain linkages with the government for several reasons: they did not enjoy the required legal status, were financially unviable and lacked competent leadership. The BFAs were too weak even to invite any interference from vested interests of the class and community leaderships.

Corruption also had its place in the functioning of BFAs. They were manifested in the form

of using less cement than is required in cement concreting, negligence and evasion of supervision by engineers and unusual haste in awarding work on contract. No mass action against malpractices was reported from the study area.

We observed that the organisational pattern and the administrative model of CADA in Kerala are appropriate. Lack of beneficiary participation cannot, therefore, be attributed to these factors. At the ideological level, the farming community in Malampuzha project area had faith in the useful role of BFAs. But at the empirical level, they have come to harbour serious doubts about the efficiency of BFAs. According to them BFAs were short-term, adhoc, arrangements for providing benefits which were themselves trivial. Their role as an instrument of decentralisation in administration, financing, and management of irrigation system was almost unknown to the community. The seminars, camps, and tours do not seem to have enlightened them very much on these aspects.

No wonder, under these conditions beneficiary participation on a significant extent did not come forth as a conflict-resolving agency. The manner in which they were constituted, and the conditions under which they were made to function, rendered BFA leadership a waste of time, energy, and finance. The CADA guideline that civil works of a minor nature like field channel lining should not be given on contract was not adhered to in the majority of cases. Absenteeism on the part of canal operators / water guards caused by their not staying in the area of their operation, and negligence of supervising work by the engineers also contributed to the non-performance of BFAs. Above all, the unenthusiastic approach of officials towards BFAs, led to its atrophying. Inter-departmental conflicts, absence of a co-ordinating agency belonging to CADA but drawn from the departments of irrigation, agriculture, and co-operation, the factional feuds between CADA engineers and engineers of the irrigation department controlling the operation of the system up to sluice level, their divergent viewpoints on BFA activities – all these produced disincentive effects on the farming community.

Measures of reform

The following are some of the measures suggested.

1. Legal status of the officials of the irrigation department may be raised by conferring on them appropriate judicial powers.
2. Alternative methods may be devised for successful awareness creation among ordinary members since the efforts in the past were inadequate and grossly ineffective.
3. Economic and moral incentives may be given to BFAs on the basis of performance. Successful performance may be rewarded with larger finding support, merit certificates, and public recognition.
4. In view of the fact the BFAs have no funds to finance civil works and that they are unable to raise funds from among their members, BFAs may be given a seed money to carry out such works under adequate safeguards. Since any BFA is unable to own costly equipment for itself and since most of the civil works are non-recurring in nature, costly equipment must be owned and provided to BFAs either by the Canal Committee or by the PAC. CADA administration should see to it that technical

advice to such works is given in time and in adequate doses. Proper phasing of minor civil works may be done, based on the availability of equipment and technical personnel.

5. The official procedure involved in the formation and working of BFAs is roundabout and complicated. Simplification of procedures to avoid delays and red-tapism may be attempted.

6. One important recommendation advanced by several researchers here as well as abroad is that the mindset of officials should undergo a change in the direction of favouring decentralisation of administration and functions. The need for a change in mindset is brought out in this study. But the proper mechanism for achieving this objective is not spelt out here. The government may strive to inculcate in the minds of officials an attitude in favour of decentralisation of administrative functions appropriate to the existing socio-economic conditions.

7. For effectiveness in water distribution, it should be made compulsory on the part of both engineers and canal operators to stay in the respective areas of their operation.

8. The field staff for water distribution is now the employees of irrigation department, who are not accountable in any way to BFAs; this situation must change. The BFA leadership should be assigned some powers in their selection and appointment as well as given supervisory powers in their everyday functioning.

9. Quality of maintenance of irrigation projects would be high if it is entrusted to farmers. Transparency in maintenance and active involvement of beneficiaries in meeting the costs of maintenance is sure to improve quality.

10. Proper legislation empowering BFAs legally must precede the earmarking of sources of funds to them, such as membership fee, penalties, and levies.

11. In government-owned major projects, irrigation officials, who recognise the desirable role of farmers' groups and who would have total commitment to them, may be identified, offered incentives, and employed in the project site.

12. The scope of participation of BFAs may be confined to maintenance of canals to begin with; it could be extended to larger areas after their gaining adequate experience.

13. The beneficiaries may be made to bear a part of the cost of maintenance of the project.

14. Controlling the rich and the powerful from arranging distribution of water in their favour is necessary. BFAs may be made legally powerful and financially viable, and saddled with competent office-bearers capable of organising group action and taking strong positions in confronting vested interests.

Appendix - I

Number of Beneficiary Farmers' Associations in Kerala, 1986-'87 to 1994-'95

Projects	**86-87**	**87-88**	**88-89**	**89-90**	**90-91**	**91-92**	**92-93**	**93-94**	**94-95**	**Total**
Chalakudy	93	297	37	17	22	-	-	-	-	466
Cheerakkuzhy	1	31	-	-	-	-	-	-	-	32
Peechi-Vazhani	10	17	99	106	68	73	29	27	26	457
Malampuzha	45	19	-	20	5	11	18	13	-	131
Pothundi	57	27	19	20	-	-	-	-	1	124
Mangalam	8	47	2	5	-	-	-	-	-	62
Gayathri	1	-	54	73	-	-	-	-	-	128
Valayar	54	-	-	-	-	-	17	33	14	118
Neyyar	94	196	10	1	8	-	-	1	-	310
Chitturpuzha	-	-	-	-	-	164	84	126	86	460
Periyar	-	-	-	-	-	34	86	234	135	489
Pampa	-	-	-	-	-	82	-	3	-	85
Kuttiyadi	-	-	-	-	-	-	25	49	37	11
Total	**565**	**772**	**259**	**252**	**135**	**364**	**259**	**486**	**299**	**339**

Appendix II

List of Canal Committees in Malampuzha Project

I	Kottekkad-Puthur Canal Committee
II	Kodinthirapully-Edathara Canal Committee
III	Pirayiri-Kadalakurissi Canal Committee
IV	Kannadi Odanur Canal Committee
V	Kannanur-Pulinelli Canal Committee
VI	Kottayi-Peringottukurissi Canal Committee
VII	Thenkurisi - Coyalmannam Canal Committee
VIII	Kuthanur-Canal Committee
IX	Kavassery-Chulanur Canal Committee
X	Kurissi-Pampadi Canal Committee
XI	Erimayur Canal Committee
XII	Kunisseril Canal Committee
XIII	Kavilpad Vallikode Canal Committee
XIV	Kinavallur Mankara Canal Committee
XV	Palapuram Canal Committee

Appendix III

List of Canal Committees Chosen for Detailed Study

I	Kottekad - Puthur Canal Committee (CC) - Direct Sluices
II	Pirayari - kadalakurrissi C.C
III	Kannadi Odannur C.C
IV	Kottayi - Peringottukurissi C.C
V	Thenkurissi - Coyalmannam C.C
VI	Erimayur C.C
VII	Kunnisseril C.C
VIII	Kavilpadu - Vallikode C.C (R.B.C)

Appendix IV List of Sample BFAs

BFA Sample' Number	Name of C.C/BFA	Reg. No.	Schedule Number		Reach	No. of Schedules
			From	To		
1	Thuppalam Karshaka Samithy (K.S)	20/87	1	6	U.R	6
2	Karikodu Peelikodu K.S	354/87	7	13	M.R	7
3	Kallepully Manaly K.S	355/87	14	24	U.R	11
4	Anappara K.S	35/87	25	31	L.R	7
5	Thiruvaluthur Kallampotta K.S	340/87	32	41	U.R	10
6	Vakkilpadom-Mulleri K.S	341/87	42	52	U.R	11
7	Ollassery-Thiruvallathur	337/87	53	63	M.R	11
8	Kadalakurissi J.V.S	53/83	64	75	L.R	12
9	Thachangad K.S	55/86	76	89	U.R	14
10	Kunduthodi K.S	336/86	90	99	M.R	10
11	Odannur J.V.S	28/83	100	107	L.R	8
12	Palody K.S	225/86	108	115	M.R	8
13	Kishakekarapadom K.S	153/87	116	128	M.R	13
14	Kavupadom K.S	155/87	129	137	M.R	9
15	Pannikodu K.S	82/87	138	148	M.R	11
16	Koduvakod-Kampram K.S	91/87	149	155	L.R	7
17	Vadakkumpuram K.S	222/87	156	164	L.R	9
18	Puplikad K.S	170/87	165	175	U.R	11
19	Panchirpodu-Cheenamkodu K.S	208/87	176	190	M.R	15
20	Nochully K.S	166/87	191	202	T.E	12
21	Erramangalam K.S	316/86	203	211	U.R	9
22	Chimpukad K.S	256/87	212	218	T.E	7
23	Vadakkepadom K.S	297/87	219	228	M.R	10
24'	Malaythupadom K.S	207/86	229	234	U.R	6

Continued

BFA Sample' Number	Name of C.C/BFA	Reg. No.	Schedule Number		Reach	No. of Schedules
			From	To		
25	Maruthakod-Champachalla K.S	323/87	235	242	M.R	8
26	Thachanamkodu K.S	322/87	243	252	L.R	10
27	Akompadom-Champachalla K.S	181/87	253	272	L.R	20
28	Thuvancode K.S	280/87	273	283	U.R	11
29	Kakkayur-Vakkodu K.S	267/87	284	296	U.R	13
30	Chempanpully K.S	284/87	297	302	L.R	6
31	Panampully K.S	285/87	303	309	M.R	7
32	Koodallur K.S	176/87	310	320	U.R	11
33	Pavakkad K.S	153/86	321	340	M.R	20
34	Thirunilam K.S	175/87	341	350	U.R	10
35	Padinjarethara Chthumuk K.S	177/87	351	364	M.R	14
36	Chettiyarpadom K.S	269/87	365	374	L.R	10
37	Kumarmputhur K.S	179/87	375	385	L.R	11
38	Kadukumkunnam J.V.S	12/83	386	394	U.R	9
39	Kariachully Thekkemuri K.S	321/86	395	403	M.R	9
40	Murali K.S	158/86	404	410	M.R	7
41	Kaimodom K.S	47/86	411	418	U.R	8
42	Puthuppariyaram Vennakkara K.S	152/86	419	429	T.E	11
43	Poriyamippadom K.S	315/86	430	439	U.R	10
					(DSI)	
44	Pangal K.S	159/86	440	447	T.E	8
45	Kamba K.S	323/86	448	457	-	10

End Notes

1 a) "Farm Water Management - *Proceedings of the Export Consultation on Farm WaterManagement,* held in Islamabad, 26th September to 4th October, 1981 - FAO, UN.

b*) Proceedings of the seminar on the "Improvement of Irrigation Performance, at the Project Level (1984)* - W.R. series no. 56, held at Krasmodar, USSR, 25th September.

c) *Consultation on Irrigation in Africa* (1987), FAO, UN.

2 K. K. Singh, (1984), *Farmer's Associations in the Pochampad Irrigation Project: A Case Study,* FAO.

3 a) Dr C. Malony (1996), "Farmer Management in Irrigation in the World as well as in Kerala", Conference Paper presented in Thiruvananthapuram, February.

b) Department of Irrigation, February (1996), *Irrigation Water Management with Beneficiary Participation in India,* Government of India, February.

4 a) The projects referred to here are the *Subak* and *Dharmtirta* Irrigation Schemes. (See for details Budiman Notoat Modjo in *The Water Users Association in Indonesia*.

5 W UAs are voluntary association of farmers participating in the administration and management of irrigation projects in Philippines, Indonesia, and Sri-Lanka. BFAs are their counterparts in Indian irrigation systems, including Kerala.

6 K.K. Singh, op. cit.

7 Korten F.F, "Community Participation: A Management Perspective on Obstacles and Options" in *The Bureaucracy and The Poor*, (ed.) F. B. Alphonso & P. C. Korten.

8 Hitoshi Fukuda, Irrigation in the World - Comparative Development, P.104.

9 Water supply can be from a dam or from a barrage wherefrom water is diverted to canals by gravity flow or by lifts. The simple cases where no uncertainty in supply exists are when diverting or pumping water from rivers, with an average flow greater than what is usually pumped, and pumping from abundant acquifers, Uncertainty will be less, if the dam storage is carried out at a season different from the copping season.

10 FAP. Rome Organization, *Operation and Maintenance of Irrigation Scheme, Irrigation & Drainage,* Paper 40. P.61.

11 Ibid, P.44

12 FAO-op. cit, P.99, 1981.

13 Individual farmers entered into contracts with production teams, which spelt out farmers' rights and obligations. They contained the absolute figures of produce the farmers were obliged to surrender to the state or the collective, which amount they arrived at basing what could be expected from the rational use of the land. Whatever surplus generated could be retained by the households and they were free to dispose of the surplus the way they liked.

14 Nine subjects matter specialists were appointed. The team leader was a water management specialist; there were two water conveyance engineers, five L.D. officers, and one agricultural officer.

15 The operational losses in the water courses were as high as 46 to 50 percent as against

the assumed losses of 11 to 20 percent. The reasons for the losses were seepage, overtapping, dead storage, leaky junctions and turn outs, poor OFD, and outdated agronomic and agricultural practices. Education of farmers and professional groups was a basic problem; engineers with training in agriculture were needed badly. There was shortage of water arising from the distributional problem caused by defective design; outlets needed improvements and water courses required renovation and remodelling. Water users associations were defunct. The associations formed were only of an adhoc nature. Extension services were inadequate. Kanjyo noted that the project goal of higher income would be achieved only if the WUAs took up field channel cleaning and maintenance to assure adequate water supplies and farmers were trained in improved water management practices.

[16] The village water master scheme was mostly a single-purpose agency entrusted with the responsibility of O&M by two (or more) special village officials, one who was in charge of the task of agricultural production and the other who was the Mayor Manages of the irrigation system. Under the fourth model (Tertiary level W.M. system) the appointed official, the tertiary water master, had the overall responsibility of water management at the tertiary level. Obviously, the role of farmers was minimal.

[17] Membership fee consisted of a periodical payment in cash; in the case of *Subak* it was Rs 1000/ha for members who were not active participations; but, for those who were, the payment was limited to Rs 500/ha.

[18] In 1982 accounts were as follows:

Religious Ceremonies	= 62 percent
O&M of irrigation system	= 25 percent
Subak Staff salaries	= 3 percent
Others	= 10 percent

[19] The contributions comprised the following compulsory payments, used for O&M.

Membership fee : 15 kg rice/ha/season.

Compulsory fee : 60-150 kg of rice per season (wet season 60kg/ha, dry season 2=150 kg/ha)

[20] Temporary fund: This was also raised for major rehabilitation purposes and improvement of the irrigation system.

[21] The Fund utilisation scheme was as follows: 45 percent for O&M, 30 percent for committee compensation, 10 percent for administration, and 15 percent for other purposes including savings.

[22] Rs 1000 in cash for unauthorised draw of water, and Rs 1000 for water use for purposes other than cropping.

[23] This was a legacy of the colonial past. In several areas, it was the responsibility of the Headman to see that cultivators together did proper maintenance even during the period prior to the formation of cultivation committees.

[24] In Kerala, District Collector is the chairman of PAC and Executive Engineer, the convenor. In Nepal an official of the administrative service was the chairman and an irrigation engineer, its secretary.

[25] The two major areas are (i) Tarai, the flat low lands and (ii) Hills. All the major irrigation projects were Tarai, while small-scale schemes which are indigenous too, dominated in the hills.

[26] Certainly it was the largest in Sri Lanka. It had a total command area of 9.0 lakh acres: 2.46 lakh under the old reservoirs and 6.54 lakh acres under the new project. The scheme comprised 15 reservoirs. The settlement of the landless was done by distributing three acres of land per household based on the principle of the cluster system of settlement.

[27] For example, irrigation and drainage systems at the farm level were designed to supplement water supply to rice in wet season; information/guidance given by officials was inadequate. Above all, there existed no co-ordination of activities taken up by several departments for achieving agricultural development and for providing assistance to farmers.

[28] The Royal Irrigation Department (RID) had a water operation centre which allocated water among the projects. The centre assisted project engineers to distribute water at the main canal level, who in turn, gave it to the water master's section (a sub-unit of command area). The water master instructed the zone man on the supply schedule to be followed for the check regulators and on the off takes to be applied.

[29] Public sector irrigation projects were (i) The National Irrigation Board for large schemes, set up in 1966, which were settlement schemes, and (ii) The small-scale irrigation programme set up in 1977 with small holder participation. Most of the common small-scale irrigation systems were small canal systems into which water used to be diverted from rivers either by gravity or by pumping. The private sector irrigation projects concentrated on plantation crops like, coffee, fruits, and pineapple, which were major export items.

[30] In marked contrast to irrigation practices in many Third World countries, Egypt used the tensiometer to decide when to irrigate, after measuring the tension in the pore space of the root system. Also underground pipes were used for some distributory canals to prevent large-scale seepage through the sandly soil. These were to operative as a low pressure system and water-lifting was not required.

[31] This has reference to common problems like over-irrigation in upper reaches and the consequent shortage of water in the tail-end areas, disputes over water distribution, tampering with the canal system and the irrigation structures like sluices and turnouts. Over-irrigation resulted in the raising of the water table and the consequent leaching of nutrients, poor aeration at the root zone and low yield.

[32] It was 100 kg of rice/ha for the wet season and 150 kg of rice for the dry season in the run-of-the-river gravity system. With storage reservoirs, it was 25kg/ha or more. In pumping systems the rates were still higher than in reservoir projects; these rates were decided on a case-by-case basis. The level of water fee thus depended on the level of certainty of supplying water.

[33] Historically CIS were in existence even prior to the Spanish colonisation of the Philippines. Both during and after the Spanish rule, 3,00,000 hectares were reported to be covered by CIS; most of them had simple, temporary low dams of logs, stone, and bush built across mountain streams to divert water to paddy fields below through earthen canals.

[34] The NIA was a government corporate body of six directors and an administrator as its chief executive officer. It had offices in the 12 regions and 68 provinces in the country. It is analogous to PWD in India in terms of functions, since it is in charge of the overall development of irrigation in the country. In 1984, NIA was constructing 33 new projects and improving 42 schemes, expecting command areas of 2,37,000 hectares and 81,000 hectares respectively.

[35] The problems faced in organising the associations effectively were inadequacy and untimely supply, of water, defective design of irrigation structures, inability of office-bearers of associations to resolve conflicts and to achieve equitable water distribution, and inability of members to make the contractual contributions in cash and labour and to meet other obligations.

[36] Originally CIS had mostly been constituted and operated by farmers themselves. They had commanded good support from irrigators and were administered in accordance with rules decided upon by the general membership. Every farmer-member knew and accepted his responsibility in the organisation.

[37] When the methods employed by it failed to achieve farmer involvement NIA made arrangement with Farm Systems Development Corporation (FSDC) to organise farmers; that attempt too failed before long. Thereupon, through case studies of old but existing and successful instances, NIA evolved the participatory approach (PA).

[38] Twentysix Pilot programmes were set up to help organise farmers by the end of 1983, which together covered an area of 23,000 hectares. Two pilot projects in Laur, Neuva Ecija; (i) The Pinagbaryuthan Irrigation System (1600 ha) and (ii) The Bagting-siclong Irrigation Systems (600ha) were cases in point.

[39] For instance, the attendance of BFAs was relatively high in the Canal Committees in which the Agricultural Officers were present to advise on cropping patterns, variety of seeds to be used, and the crop planning to be done in the area.

[40] These include resolution of conflicts and control of the rich and the powerful.

[41] Refers to collective procurement and distribution of seed, fertiliser, and simple agricultural implements, common nursery, group preparation for cultivation, fixing appropriate time for commencing cultivation and for pesticide application, fixing appropriate crop-pattern for the area, and preparation of action plans.

[42] These include arranging awareness camps, seminars, and tours for model BFAs in neighbouring areas.

[43] Group procurement of management subsidy under the auspices of BFAs and its disbursement among the BFA members, come under this set of functions.

[44] Summoning annual General Body and periodical Executive Committee meetings are the major functions in this category.

[45] C. J. Josseph, *Irrigation Water Management Problems in Kerala – a case study of Periyar Valley project*, P.VII – 3.

[46] UN, *Consultation on Irrigation in Africa*, FAO, ROM, 1987, p.44.

[47] Recently at the suggestion of the World Bank, these were formed in which the tasks and the means to do the tasks were defined. These tasks include provision of water against payment and provision of extension service by government, charged to the national budget.

[48] UN, Proceedings of the seminar on the improvement of irrigation performance at the project Level-water Resource series. No. 56, P.3.

[49] UN, FAO op.cit., p.66

[50] *ibid*, p. 67

[51] Geroge Chackacherry, op.cit.

[52] Such lapses include absenteeism, corruptive practices, negligence of duty, and non-involvement in the carrying out of new schemes and programmes designed to ameliorate the environment

[53] UN, "China's Responsibility System and Farmer Participation in Water Management: the example of Yuchung County, Shandong-Participatory Experiences" in *Irrigation Water Management: Proceedings of the Export Consultation on Irrigation Water Management* I held in Indonesia, FAO, July 1984.

[54] *ibid*

[55] *ibid*

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