CHAPTER - 2

The Research Study

- Role of IMTI
- Importance and significance of the study
- Review of literature
- Need for the study
- Objectives of the study
- Methodology and sampling
INTRODUCTION

Construction of irrigation projects will serve the purpose of augmenting agricultural production only to a certain extent. Sensitizing the farmers about proper use of irrigation water and fine-tuning the technologies adopted by them and introducing them to new frontiers of farm and allied technologies go a long way in improving the productivity levels to the desired standards. Efforts must be focused to see that various technologies developed by agricultural scientists should be transmitted to farmers in proper form. In this context, the roles of institutions involved in imparting training to agriculturists assume great importance in realizing the production targets of various crops.

ROLE OF IMTI

The government of India launched the Irrigation Management Training Project (IMTP) assisted by USAID during September 1983 with the objectives of “Developing necessary training capabilities and infrastructure facilities, updating the knowledge and skills of different levels of government officials, field staff and farmers, who are operating the various irrigation systems to achieve increased agricultural production through improved productivity by ensuring effective irrigation systems development, operation and maintenance. Tamil Nadu is a state, which has almost utilized its available surface water resources. The ground water is also over extracted in many places. As such the need for optimization of water use is paramount. Hence, the state Government came forward to implement this training project in Tamil Nadu state and established Irrigation Management Training Institute (IMTI) at Tiruchirappalli during April 1984.
It is one among the eleven institutes in the country established with USAID. It is registered as a society and governed by a Governing council headed by the Secretary to Government, Public Works Department and assisted by ten members comprising the Secretaries to Government of allied departments and technocrats from various fields. The institute is conducting training programmes on irrigation management for the benefit of farmers, field staff, agricultural officers, and agricultural engineers and irrigation engineers.

The development of Professionals requires a see-change in the behavioral disposition of the individuals working with the above departments. Therefore, IMTI with a multidisciplinary approach of training made many efforts in increasing the knowledge, the skills performance abilities and re-orienting the attitudes towards increasing the production per unit of water made available in the command areas of various irrigation projects in the state.

**IMPORTANCE AND SIGNIFICANCE OF THE STUDY**

Agricultural Research in India has given scope to new possibilities of increasing agricultural production. But at the same time, effective action depends on the transfer of viable technology to those for whom it is meant. In the face of continuous technological innovation, higher levels of knowledge and skills and their application are crucial resources that can be mobilized by training.

Training has been widely accepted as a development strategy with high returns on investment. The success of an organization’s plans for the future depends largely on a sound training strategy. Imparting training to the employees
is important to organizational development. In India, attention has been given by the industry, government as well as training institutes towards a systematic development of their employees. As a consequence of the awareness of management training in the country, there has been a growing need to find ways and means to determine the efficiency and effectiveness of training activity, from the point of organizational improvement. The issue of training evaluation has been the subject of considerable discussion over the years, as the employers are investing large sums of money on training. It, is, therefore, natural that management should seek verification that they are getting value for their money.

Perhaps one of the most important problems for the trainer or consultant in the entire training and development process is 'How will this effort be evaluated?' In other words, determining how well a training programme meets its objectives is the essence of evaluation. Many evaluation efforts have come to naught producing findings that are inconsistent and are simply ignored.

Training personnel are accused of making unsound evaluations and of being biased to ensure their programme survival. Their findings are suspected because most of them evaluate only those areas, which are easy to measure. The counter argument is explained by trainers through rationalization, like evaluation is too expensive, why risk self evaluation, devices to evaluate training are not available, the staff is not qualified, the statistical work is too cumbersome and complicated, impossible to determine the relationship between training and results, too many variables are operating at the same time, etc. But this kind of thinking ultimately spells either the demise of training or renders training an innocuous entity within the organisation.
Trainee, Trainer, User department and Training Institute are several partners in a training programme, and all of them are the clients of evaluation. Their needs for feedback and use of feedback for improvement will naturally be different with some overlapping\(^9\). Although the immediate purpose of evaluation is to determine how well the training programme achieves its assigned goals and objectives, ultimately it provides a source of information upon which a variety of decisions can be made and a variety of purposes can be served. Competent evaluation is the cornerstone of meeting both organizational and individual needs, as also improving the cost effectiveness of the training function\(^{10}\).

If a programme evaluation is to be considered successful, some substantive decision about the programme must be based on the evaluation data. The training programme should be cut, lengthened, changed, resequenced, rescheduled, eliminated or even retained as it is, because of evaluation findings. Trainers are threatened by evaluation because they fear it will expose their faulty programmes or unfairly scuttle good ones. They also view evaluation as a process that is difficult to understand and tough to implement\(^{11}\).

There are three stages of evaluating training programmes; pre-training stage, training stage and post training stage\(^{12}\). Designing a good evaluation effort involves knowing when to collect evaluation measures and which group to collect them from. The overall design of evaluation helps in planning the evaluation strategy in advance\(^{13}\).
Adequate institution building for training in irrigation management has a number of parameters. Probably in this field, in spite of recent developments, there are more areas of ignorance. Hence there is a scope for improvisation, innovation, and experimentation rather than the promise of perfection. Selectivity and qualitative approach to training programmes have to be reconciled with massive and wide ranging training requirements. Objectives of the training must be all along kept in view by every training programme and these should be carefully worked out.

Special efforts in the nature of making up certain lags in the educational system may also sometimes have to be made by the training institution for its trainees. The institution must take note of the managerial content of modern irrigation management and ought to provide for it. It should so develop its programmes and methods of working that it leaves a professional stamp on trainees. As a matter of fact, it should not only help to establish professional norms but also try to project the image of the public service adequately equipped to meet the challenges of the fast changing society. Hence it should always be alive to the need for critical assessment and evaluation.

REVIEW OF LITERATURE

An acquaintance with earlier studies is necessary to Iran the slope of the present study and to highlight its relevance. Keeping in view the objectives of the study, an attempt was made in this chapter to review the literature on the evaluation of training programmes and institutes available in the academic body of knowledge. Some of the studies are presented in the section.
Leagans (1958)\textsuperscript{14} suggested that the following competencies should be developed in an extension worker to make him effective on the job:

1. Knowledge and understanding of the subject matter
2. Understanding extensions and its education role
3. Skills in human relations
4. Ability to clarify objectives
5. Ability to plan
6. Ability to organize
7. Communication skill and
8. Ability to evaluate

According to Singh, K.N., (1965)\textsuperscript{15} agricultural extension officers required competencies in the following areas

1. Programme planning
2. Communication
3. Understanding social system
4. Educational process and extension methods
5. Evaluation and reporting
6. Organization and administration

Suryanarayananamurthy (1965)\textsuperscript{16} found that Agricultural extension officers expressed need for training in office management, accounting and exertion methods.

Baskaran (1966)\textsuperscript{17} found that among the different methods followed in the farmers training programmes, Audio-visual aids, Lesson plans,
Practical teaching, Method demonstration, Village practices, demonstration and workshop were more effective.

According to Rizvi (1967) argues that among the teaching methods discussion and demonstration are more effective followed by lecture with teaching aids.

Sundarajan (1970) reported that lecture method, demonstration and outdoor practicals were rated as most effective by the trainees. He found that a sound combination of methods were effective. Posters and chalkboards could be used as important visual aids.

It was reported by Singh (1970) that Agricultural extension officers needed more inservice training in preparing sound cropping patterns, land reclamation, soil and water conservation and improved plant protection measures.

Kulkarni (1970) stated that small and marginal farmers inclined more towards the mass media of communication like radio broadcast, screening of agricultural films and other visual graphic communication media which had promising results for them.

Viswanathan (1972) reported that 40.49 percent of small farmers depend on utilized formal sources of information and the percentage of farmers who used mass media was 33.72 percent.

Moorti et al. (1972) stated that problems of uncertain rainfall and water availability in the tube wells influenced the cropping pattern and potentially
restricted the crop area in the tube well irrigated areas, leading to the reduction in the area under high yielding varieties. Quality and timing of irrigation were found to be the important factors shaping the cropping pattern.

Mani (1974)\textsuperscript{24} observed that in service training should be more practical and problem oriented than being theoretical.

In the opinion of Gill \textit{et al.} (1977)\textsuperscript{25} all the staff at the block level must be properly trained about the latest developments in modern agriculture.

According to Sandhu \textit{et al.}, (1977)\textsuperscript{26} there was a need for in service training for Agricultural extension officers to make their knowledge adequate particularly in the areas of organisational services and programme planning.

Rajendra (1978)\textsuperscript{27} found that there were no significant relationship between educational qualification and training need.

Ganesan (1978)\textsuperscript{28} reported that the subject matter areas for in service training of extension officers were plant protection, crop husbandry, irrigation, farm management, water management and manuring.

Annamalai (1979)\textsuperscript{29} found significant and positive relationship between the extension agency contact and information source utilization among 20 paddy growers.

Thiyagarajan (1979)\textsuperscript{30} observed a positive correlation between the number of training programmes attended by the Agricultural Officers and their post training working efficiency.
Mani (1980)\textsuperscript{31} found that the characteristics of participants viz. education, farm size, socio-economic status, mass media exposure showed positive and significant relationship with awareness.

Nandakumar (1980)\textsuperscript{32} found that education, economic status, mass exposure, risk orientation showed positive and significant relationship for participants while among non-participants mass media exposure, risk orientation showed positive and significant relationship with awareness.

Subramaniyan (1981)\textsuperscript{33} reported farm practices should be relevant to the farmer’s personnel, socio-economic and farming situation.

Arokoyo (1982)\textsuperscript{34} reported lack of credit and labor, non-availability of inputs, lack of sufficient information and lack of knowledge were the main reasons for non-adoption of modern technology in the farm sector.

Swaminathan (1982)\textsuperscript{35} advocates that productivity can be more than doubled by introducing farm level management through community action in water and soil conservation. The productivity of wheat in irrigated area is higher than the all India average where as the productivity of the outside irrigated area is lower than the all India average yield rate.

Arumugam (1983)\textsuperscript{36} reported that socio personnel variables of small farmers like contact with extension agency showed a positive relationship with their training needs.
Jeyakrishnan (1984) reported that education was positively and significantly associated with the adoption of post harvest technology by paddy growers.

Lakshiminarayanan (1984) reported that unawareness was the main reason for non-adoption of wheat technology.

Ganguly (1985) revealed that the occupational pattern closely followed the land distribution pattern and 40-46 percent of the household were either landless or small farmers owing less than 2.5 acres of land.

According to the reports of Devindra et al., (1986) training needs of Agricultural officers were in the following subjects: Communication process and agricultural technology, Preparation of Script for radio broadcast, Organizing field trips, Determining Training needs, Monitoring and evaluation of farmers training.

Angadi (1986) found that Agricultural assistants were the most credible source of information followed by neighbours and friends, radio, progressive farmers, extension literature, local leaders and co-operative society.

Vasudeva Rao (1987), in a study on rural development through irrigation stressed that canal systems should be improved with lining to avoid wastage due to seepage and to improve the distributory efficiency. Along with adequate irrigation, farmers should be properly trained to adopt new practices and modern agricultural implements to reap the benefits quickly and continuously.
Bhuyan et al. (1988)\(^43\) stated that in the Training and visit system, agricultural workers are the key persons in dissemination of farm technology to the farm families. The source of flow of information to the farm women are husbands, village agricultural workers, neighbours, discussion with friends near religious centre and bathing places and media.

Fujisaka et al., (1988)\(^44\) revealed that almost all the 55 informants (96\%) said they needed inorganic fertilizers, lime and chicken manure to boost up production and to maintain or improve soils. Most said that they could not afford these inputs and wanted to obtain to buy them. Application rates were learned from government programmes, chemical firm representatives, other farmers and personal experiences.

Selvakumar (1988)\(^45\) concluded that past experience, farm announcements on AIR, sharing the experiences of friends and neighbours, leaflets and pamphlets was the pattern of information support.

Sharma (1988)\(^46\) suggested that the content of the lecture should not be confined to only agronomical practices and plant protection measures; it should also have the skill of communication along with the preparation of simple visual aids.

Marchand (1988)\(^47\) found that farmers from several villages have changed their planning and stock raising methods. Slash and burn tactics were used less and less, and farmers now use fertilizer and grow a variety of crops on land they had previously exhausted. Grain production has increased. Cattle are no longer left in the bush during the dry season but kept in corals. These
changes are the result of a farming system in which the farmers closely cooperated with the multidisciplinary research. It is pointed out that multidisciplinary approach has been of vital importance to the project success.

Theodore (1988)\textsuperscript{48} reported a significant relationship between knowledge about contingency farming practices and rate of adoption among the contact farmers.

Reddy (1989)\textsuperscript{49} emphasized that training programmes for development officers should make use of the case study method to make them practically oriented. This should be supplemented by field experience, which would go beyond short visits and would permit direct observations and dialogue over extended periods.

Further he stated that the training institutions have not been able to meet the emerging requirements of human resource development owing to various constraints such as lack of adequate infrastructure, inadequate faculty and selection of trainees with an academic qualification is the problem.

Athimuthu (1990)\textsuperscript{50} stated that most of the respondents (54.00\%) were with low awareness on the nutrient use technology for paddy crop. Only 29 percent had high awareness while 17.00 percent had medium awareness.

Jacob (1991)\textsuperscript{51} found that the training of trainers had so far been very inadequate and many of the training institutes did not have sufficient infrastructure facilities.

Roling et.al.,(1991)\textsuperscript{52} Five interlinked elements which are considered essential to the alleviation of poverty are: mobilization, organization,
training, realistic opportunities and management. The principal actors in rural poverty alleviation are firstly the rural people, and secondly the agency, often a non-governmental development organization (NGO) which employs rural organizers to mobilize, organize and train rural people, thirdly, there is a technical or economic agency (often governmental) which can help to create opportunities. Fourth is the foreign donor, Astute management is considered necessary to maintain a balance between the actors involved. Finally it is said that the role of NGOs in creating the essential mix for poverty alleviation is gaining increasing attention

Perumal et.al (1993)\textsuperscript{53} suggested the replacement of conventional classroom training for extension workers with out of class room with more emphasis on skill demonstration and discussion.

Shankar (1993)\textsuperscript{54}, concluded that human beings are self centered .In intersectional situations everyone wants to give away little but wants to gain more. The farmers' organization is multi-religious, multi-caste and the land holdings indicate that it is economically stratified. Water management is a socio-technical process. Hence due consideration has to be given to the human element in addition to the scientific and technical aspects. The planning for water management has to give due weightage to the human aspects for its success and it has shown that social group has been responsible for the effective implementation of the scientific model of water management.
Manjunath et al. (1995) revealed that a good number of farmers belonged to medium knowledge category, while 24.00 percent and 23.00 percent of farmers belonged to high and low knowledge category respectively.

Upadhyay et al. (1996) conducted a study on trainers’ perception towards training processes organized by the vocational Training Institute in Uttar Pradesh. He concluded that trainers follow a systematic process of training to ensure the quality of training. The regular follow-up support of Krishi Vigyam Kendra (KVK) established a close contact with trained people where they are stimulated, reinforced and liked together to various departmental agencies to obtain additional benefits. The trained people were found to have a distinct faith in their work.

Norvell et al. (1999) reported that the farmers who had undergone Integrated Pest Management (IPM) Training adopted more sustainable practices than their untrained counterparts. Their results also revealed that IPM training and farmers knowledge of ecology of the farm were positive factors which significantly affected the adoption of sustainable practices in IPM.

Marimuthu (1998) inferred that more than one-fourth (26.67%) of the banana growers had education up to secondary level, followed by middle school level (20.83%). Collegiate and primary level education was observed with equal proportion among banana growers (19.67%) under each. Functional literates and illiterates constituted 13.16 per cent of them under each category. He also found that farming was the major occupation for 52.50 percent of the
banana growers. More than one-third (35.83%) had business along with farming, whereas 11.67 per cent were engaged in other activities in addition to farming.

Murtha (1998) opined that farmer residents of Ranipet taluk of Vellore district of Tamil Nadu were aware about the contaminating effects of effluents from tanneries on agriculture and drinking water.

Bharawadkar (1998), stated that the main role of water users association (WUA) is to create a sense of ownership and right amongst the members so that the members will feel that it is ‘ours’. They will use more economically and judiciously. Hence association is the appropriate media for Participatory Irrigation Management (PIM). The WUA will act as a liaison between the government and the enormous number of individual farmers. The WUA will be the assisting agency for government policy.

Sheela (2000) observed that more than one-third of the women respondents (38.33%) did not attend any training programmes. Almost an equal proportion of respondents attended one (21.68%) and two (20.00%) followed by three training programmes (16.67%).

Saravanan (2000) reported that majority of the farmers (83.34%) were aware of Micronutrients application in grapevines in the “before campaign” group and it went up to 90.00 per cent in the “after campaign” group due to promotional activities. He has also inferred that the share of farmers' knowledge about micronutrients was higher. In the “after” campaign group (59.25%) than the “before” campaign group (50.00%). Similarly the farmers were aware of different
brands of micronutrients, benefits of micronutrients, soil application application and different forms of micronutrients was higher in the “after “Campaign group.

**Venkatta kumar (2000)** reported that majority of the respondents in all the three types had medium to high level of awareness towards the effect of tannery effluent pollution.

**Ilayaraja (2001)** confirmed that nearly two-fifth of the grapevine grower (39.16%) had education up to secondary school level, followed by primary education (16.66%), middle school education (15.86%), collegiate (11.66%), illiterates (10.83%) and functional literates (85.83%). Further, he found that 55.00 per cent of the grapevine growers were found to have agriculture as their primary occupation while 19.16 per cent of the respondents had farming plus wage earning as their occupation.

**Ian Breard Well et.al., (2001)** viewed that training methods can be divided into ‘On the job training’ and ‘off-the-job’ training. There is a place for both types of training and each can be effective at meeting certain training requirements. On the job training is probably most common approach to training, and ranging from relatively unshophisticated ‘observe and copy’ methods to highly structured courses built into workshop or office practice. Evidence suggests that training in most organizations in Western and European countries is still carried out in traditional ways.

**JayaRaj (2002)** conducted a study on impact of training conducted by Water and land Management Training and Research Institute (WALAMTARI) Andhrapradesh. The total sample was 342 respondents and out of
which 171 were trained and 171 were untrained. He concluded that WALMTARI made its efforts in bringing about changes in knowledge, skill performance abilities and reorienting attitudes towards the management of irrigation water. Due to the intensive training activities, the knowledge on irrigation and agriculture technology was increased. Skill performance abilities were improved to manage the irrigation systems and inculcated positive attitude towards irrigation management of Participatory irrigation management (PIM). Training on farmers had made several changes in management of irrigation systems by the farmers organizations. New leadership has been developed to tackle many social problems in command areas.

Viswanathan (2002) observed that the disparities in the availability of water between the head and tail farmers, among small and big farmers are taking place in almost all the tank irrigation systems. Effective utilization of irrigation water should be optimized and an awareness of water as a scare resource should be fostered. Conservation and consciousness should be promoted through education, regulation and incentives.

Ramani (2004) found that farming was the major occupation for 95.00 per cent of the grapevine grower and the rest (5.00 %) were engaged in business in addition to farming. He reported that 28.83 per cent of the grapevine growers had education upto secondary level, followed by an equal proportion (20.83%) of the respondents who had education upto collegiate and primary level while 16.68 per cent of the respondents had education up to middle level.
He concluded that 67.50 per cent of the grapevine growers did not attend any training programme and only one training was attended by 28.33 per cent of the respondents. He reported that 72.50 per cent of the respondents had medium to low level of Knowledge with no significant difference between Pachadraksha and Muscat variety growers.

Noorjehan (2005), has found that majority of the farmers knew about irrigation management through broadcasts followed by lectures and newspapers. Easy accessibility of these methods be the portable reason. The other effective methods reported on irrigation management were exhibitions, print materials and farmer’s/field day, method demonstration and result demonstrations.

As presented in the foregoing pages, different authors and organizations had conducted elaborate studies on various aspects of Training. These studies were conducted in different parts of the country and some in foreign countries. The following inferences are found from the above studies: adequate and well trained manpower is necessary to improve the capabilities of operational and research organizations at the centre and in the states in the water resource sector. The concerned organizations should identify the training requirements and chalk out long term training plans and various training courses in consultation with the user agencies. The standardized course material, software and users manual should be prepared.

The course material should cover the latest techniques of solving the various water resources related problems. The training material should be
regularly updated. The trainees should come with specific problems related to water resources and required data for solving the problem during the practice session of the training programmes. The training programmes should serve as two way process, wherein, the trainees should learn about the latest methodologies and procedures of water resources planning, the development and management from the trainers and the trainers should learn about the problems and experiences from the trainees. At the same time, the training institute should have adequate infrastructure and well qualified trainers for imparting training.

There should be close interaction and coordination among the various organizations involved in organizing the training programmes for avoiding duplication of the efforts and capacity building. At the same time, a study on performance appraisal of any institution is essential at certain intervals to know strengths and weaknesses so that appropriate steps can be taken to improve the capabilities of the institute. Since IMTI is involved in imparting training to the farmers and officials related to irrigation management of Tamil Nadu state for the last twenty years, it is felt essential to undertake an in-depth study on institution's role in disseminating modern methods of water management.

**NEED FOR THE STUDY**

It is quite heartening to note that Tamil Nadu is one of the few states of India, which has taken the initiative to train the personnel of the irrigation systems. As about two decades have elapsed since its inception and over these years, several batches of engineers and farmers have been trained by the
institute, it is high time that an evaluation study was undertaken to assess the strategies adopted by IMTI towards the achievement of its objectives. It was felt that a study of this kind would throw light on the various operational issues and further specify the role in the scheme of things related to Irrigation for the institute. Further, it would help in strengthening the training programmes such that adoption of innovative practices by the people concerned becomes easy.

OBJECTIVES OF THE STUDY

The present study, therefore, was undertaken to evaluate the effectiveness of the training programmes of IMTI with the following objectives:

- To study the adequacy of institute’s infrastructure, expertise of the trainers, training process, teaching methods followed;
- To evaluate the post training performance of the trainees on the job;
- To suggest ways and means of enhancing the quality and effectiveness of the training programmes;
- To assess the additional training needs if any, of the personnel and to ascertain whether there are any gaps.

METHODOLOGY AND SAMPLING

IMTI as training institute it organizes different training programmes and their effectiveness are the primary focus of the research study. IMTI’s training programme, comprises the following stakeholders: Trainees, officials at various levels in Public Works Department, Agricultural Department and
Agricultural Engineering Department of the Government of Tamilnadu and the end users, the farmers of various irrigation systems. This structure is shown in the figure-1.

For the purpose of this study the following sampling selection was adopted.

(1) As the number of trainers (faculty members) is small, all the trainers of the institute who are engaged in the training process were chosen.

(2) With regard to farmer trainees it was considered that 300 respondents were randomly selected from the list, as the training is an ongoing process as per the training schedule finalized at the beginning of each year, It was decided to select a sample of 10 percent trainees at random category wise (officials and farmers) who have participated in the training. 300 response for the trainees could be adequate based on statistical condition. Therefore, with a view to non-response Thus out of 4382 officials trained during 2002-03, 438 officials (10% of the population) were randomly selected based on stratified random sampling method. Similarly, of the 3,849 farmers trained during 2002-003, 380 farmers (constituting 10% of the population) were chosen.

However, out of 438 officials (300/430) to whom questionnaire was mailed; only 300 of them returned the filled in questionnaire. Out of the 384 farmers, 300 (300/380) farmers only could be reached by the researcher in person for a personal interview. The remaining 80 farmers were not available when the personal interviews were scheduled. Thus, respondents for the study include 15 trainers; 600 trainees, (300 officials and 300 farmers) randomly selected.
Fig-1 IMTI’S stakeholders on the sketch

IMTI

- Trainers (Faculty Members)
- Trainees
- Officials of Agriculture and other related departments
- Farmers
SOURCES OF DATA

The data for the study were collected from primary and secondary sources.

Primary Data

Primary data include information collected from the questionnaires filled by the respondents namely, the faculty of the institute and the officials among the trainees. As these two groups are educated, a well-structured and self-administers questionnaire was prepared to elicit information from them.

Another questionnaire in the vernacular language was prepared to collect information from the farmers. The researcher met the farmers and interviewed them in person with the help of this questionnaire.

Secondary Data

In addition to the above primary sources of data, the researcher also relied upon a few secondary of information to validate and substantiate some of the issues related to the research. As such, the following secondary sources were used; Annual Reports of IMTI, Published literature on irrigation systems, Reports of Public Works Department (PWD) of Tamil Nadu and other related publications were used.
REFERENCES


