CHAPTER SIX
SUMMARY OF FINDINGS AND RECOMMENDATIONS

I will conclude by listing the main findings and recommendations about the evaluation of the supervisory and management training programmes of FCI. These are presented here into three sections. Section I presents the findings and recommendations of the study regarding FCI's challenges and responses. Section II deals with evaluation of supervisory and management training programmes at the plant level and section III examines their cumulative effect and policy implications.

I. CHALLENGES AND RESPONSES

FCI has not yet sharply defined what its training programmes are designed to do. So far, it has been groping in the dark and has not scientifically evaluated the success of its training programmes.

(1) It is my firm belief that effectiveness of training programmes could be better assessed if they are evaluated frequently on a regular basis in terms of the following objectives —

(a) To provide trained workers, supervisors and managers for yearly needs,

(b) To see the total effect of a series of such training programmes on —

(i) reduced number of accidents,
(ii) better industrial relations,
(iii) better supervisors and managers, and
(iv) increased output of fertilizers.
A - FCI's STANDING

Being the biggest producer of chemical fertilizers in India it accounts for 55% of the total nitrogenous fertilizers produced in the country and 4.4% of the total investment in all the Government of India Undertakings. Again it ranks 7th among the 77 central government undertakings and accounts for 3.2% of the total employment in public sector undertakings. As is evident from table 52, during the period under study (1961-67) it has trained or had under training in its full time and part time courses over 7500 managers, supervisors, workers and apprentices at its two training centres (Nangal and Sindri) and abroad.

TABLE 52. TRAINING PROGRESS IN FCI AT A GLANCE (1961-1967)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Particulars</th>
<th>Sindri</th>
<th>Nangal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Apprentices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Completed training</td>
<td>886</td>
<td>572</td>
</tr>
<tr>
<td>B</td>
<td>Under training</td>
<td>1409</td>
<td>1339</td>
</tr>
<tr>
<td>2</td>
<td>Part-time courses for workers and supervisors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Pre-Basic</td>
<td>76</td>
<td>102</td>
</tr>
<tr>
<td>B</td>
<td>Basic</td>
<td>228</td>
<td>53</td>
</tr>
<tr>
<td>C</td>
<td>Advance</td>
<td>487</td>
<td>45</td>
</tr>
<tr>
<td>3</td>
<td>Existing supervisors who have undergone supervisory development programmes</td>
<td>830</td>
<td>1028</td>
</tr>
<tr>
<td>4</td>
<td>Outside company training of supervisors</td>
<td>32</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Managers trained in company development programmes</td>
<td>213</td>
<td>236</td>
</tr>
<tr>
<td>6</td>
<td>Managers trained in external development programmes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>In India</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>B</td>
<td>Abroad</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>4174</strong></td>
<td><strong>3384</strong></td>
</tr>
</tbody>
</table>

SOURCE: Based on official records FCI, Sindri and Nangal.
These included 4206 apprentice trainees, 1890 supervisors, 471 managers and a mix-gathering of 991 of workers and supervisors (in FCI's part-time courses). Centre-wise Sindri trained more than Nangal because of its increased intake capacity.

FCI must look for the task lying ahead of training more supervisors and managers for its changing needs. At the level of junior managers and engineers training activity has been poor and unfortunately for senior managers much less is attempted. Comparing FCI's training programmes with other public undertakings such as Hindustan Steel Limited, the progress of development programmes has not been encouraging. Currently supervisory and management training programmes are confined only to two units in FCI — Sindri and Nangal.

I therefore recommend as follows:

1. In each new project supervisory staff should be selected three-six months in advance.
2. Selected chargeman, assistant foremen, foremen should be trained in the supervisory techniques as suggested in Chart VI (page 178). Besides, they must be assigned to the plants to get an idea of the nature of problems which arise in day-to-day work. They should also work in a different unit to get a broader picture of the work.
3. Till the facilities of supervisory training are fully installed at various units — divisions, FCI should avail of facilities of training supervisors and managers outside the company within India as this will broaden their
outlook and increase the possibility of their acquiring greater skills provided control is devised to have feedback of effectiveness and officers are encouraged to apply what they have learnt.

(4) Foreign training for supervisors and managers is not advocated in view of foreign exchange crisis and moreover most of know-how is now available in India.

(5) Nangal and Sindri must plan a massive programme for developing the managers of other units-projects of FCI.

B - FCI's NEEDS AND PROBLEMS

1 Absence of proper organization and suitable officers to attend specific function from the very beginning creates problems as FCI experienced in Trombay, Gorakhpur, Koraba and Namrup.

I therefore, recommend as follows:-

(1) The organizational set-up of a unit-project should not be decided on an ad hoc basis, instead it should be determined after a proper study of the needs of each unit-project.

(2) Needs for training must be ascertained through job description.

(3) Training in pert/cpm should be imparted to the P & D and other management officials who are entrusted with planning of the projects.
Desirability of reorganization of supervisory and management structure is urgent.

I therefore recommend as follows:

1. Common designations for similar functions should be adopted in order to facilitate transfers and make communication easier.

2. The organization structure of various units should be reviewed and remodelled on business principles. The hierarchical system of administration must be discarded.

3. Each unit-project must determine its organizational structure with particular reference to its objective and stage of development and this should be reviewed at regular intervals and adjusted according to the changing needs and experience. Otherwise, chances are that an organization would develop larger than the needs, as has been the case in Sindri.

4. The ratio between the officers and the workers and also between non-technical and technical staff in FCI which is quite high should be reduced. Suitable norms for employment of supervisory staff (technical as well as non-technical personnel) must be laid down as a guide to the management. Organizational manuals must be prepared for entire FCI, unit-projectwise.

5. Team spirit must be encouraged.
To avoid duplication of efforts, effective and better coordination between training, industrial engineering and industrial relations divisions is necessary. This in turn would require strengthening of the organization at the top level.

I therefore, recommend that:-

(1) The offices of the chief training and manpower advisor and chief industrial engineer be brought from Sindri and Trombay respectively to the head quarters office at New Delhi.

(2) A central manpower consultancy bureau, which should periodically examine the organizational set-up, manpower requirements etc., must be set-up. In addition, each unit-division should have an organisational and methods cell for a continuous study of the organization.

(3) For a concentrated training effort merger of training, personnel and industrial engineering departments is recommended.

(4) Training of senior supervisors and managers must be imparted at the Institute of Management Development, Nangal. The research and evaluation section of the Institute must be strengthened.

(a) In the short run, training at the supervisory level may be taken care of by the units themselves.

(b) As a long term measure, it is recommended that various public and private sector units making fertilizers must join hands under the aegis of the
Ministry of Petroleum and Chemicals (Government of India), and be brought together in order to provide common training facilities for managers and senior supervisors. Besides helping in planning the future expansion of public-sector undertakings as a whole, this would also solve the problem of securing supervisory and managerial personnel of high quality as well as facilitate inter-company transfers within public undertakings.

FCI need not assume responsibility for training senior supervisors and managers in general management at the unit level and the existing facilities at the Management Institutes and universities in India could be availed. Alternatively outside courses could be integrated with in-company training. For this, supervisory and management development in FCI must be open, frequent, directed towards self-examination and well led.

4 Necessity of manpower planning to check overmanning for future projects — FCI has reached a stage where the problem of manpower planning and management performance has become central to its financial health and sustained contribution towards the industrialization of the country. Overmanning is an acute problem because FCI has recruited the staff not strictly related to the requirements at different stages. There has been a tendency to employ the staff required for full rated production in the initial stages itself. Excessive manning has led to low productivity and high cost of production of fertilizers. Unhealthy competition between the heads of the departments in FCI to have men more and more/under them has resulted in proliferation of staff which indicates failure of top management to fix norms of work or relate it to actual needs. Manpower planning in FCI is almost absent. Neither did the project report indicate
nor was any work study or job evaluation done to assess manpower requirements accurately for the various categories of staff. The industrial engineering division has not contributed any thing on manpower planning in spite of its existence for the last five years.

There is need for close watch on recruitment of staff from the very beginning so that overmanning does not become manifest in the new units. In view of FCI experiences in the past total staff strength for new projects has been assumed at 1000 technical and non-technical employees. Since the surplus staff till March, 1967 was 753, which is not very high, FCI every year can redeploy 50-55 technical and 20-25 non-technical personnel in each new project. The loss in middle management and supervisory positions due to flight of personnel has been taken as 10% of the total manpower strength of the projects envisaged outside FCI. The Corporation has to take care of 'quality' to train a large number of supervisors and managers in a short time in view of normal wastage and new project requirements of its own.

I therefore, recommend as follows:-

(1) Staff strength for various stages of a project should be carefully assessed in the beginning and intimated to the general managers,

(2) the number of personnel employed should be kept slightly below the assessed number,
(3) The top management must keep a continuous watch and periodically examine the staff strength of each project with reference to the estimated requirements, and

(4) Future manpower requirements of FCI should be met either by training new apprentices or by deployment of surplus staff as per the proposed expansion plan given in Table 12 (Chapter Two). Training of surplus staff for specific deployment in each new project should be carefully planned. Management must make sure that staff being trained does not get frustrated and must guarantee the deployment of such staff.

(5) In order to get qualified supervisors and ensure adequate control sectional heads must be consulted about their yearly needs and in this connection —

(a) The number of apprentices to be introduced at different levels must be decided.

(b) A reserve of trainees must be kept in order to fill up posts when they fall vacant.

(c) The present ratio of G/A, C/T, and I/A of 1 : 2 : 6 should continue till the standards are improved.

(6) Present training facilities must be fully stretched. Till 1971 FCI should take 100-120 graduate apprentices, 100 supervisory trainees and 500-600 trade apprentices every year for training.

(7) FCI should concentrate on grooming its own apprentices for its own requirements rather than concentrating on training apprentices of the projects outside FCI. However, it may be taken up on a casual basis rather than
making a permanent activity of FCI.

5 Productivity will largely depend on quality of supervisors and managers trained.

I recommend that —

(1) Management should constantly lay stress on increasing the production on the least cost.

(2) Official inspection machinery must be strengthened. The industrial engineering cells in units and divisions must assume the responsibility.

(3) Supervisors must be trained to think progress­ively and objectively.

II TRAINING AT PLANT LEVEL

A EVALUATION OF TRAINING

1 The major problem is evaluation of training success.— The common sense evaluation which dominates FCI lacks precision. This type of evaluation should be substituted by systematic evaluation. If importance of management problems justify formalising the approach, then evaluation problems also justify formalising the evaluation.

For supervisory and management development programmes I would recommend that — F.C.I. should —

(1) Give up commonsense evaluation and go in for periodic evaluation,

(2) attempt experimental evaluation,
(3) employ professional psychologists in all the units for such evaluation,

(4) evaluation of programmes as far as possible should reflect —

i) final results, i.e., reduced costs, higher production, reduction in accident rates etc.,

ii) intermediate results, i.e., improved planning, higher morale, etc.,

iii) practices deemed to influence results, e.g., regular coaching of subordinates, and

(5) pooling of evaluation results (particularly negative results) which will stimulate more and better evaluation.

2 Evaluation of programmes for meeting needs —

The future success of FCI will largely depend not only on running a series of courses for its managers and supervisors but simultaneously on evaluating these programmes. These evaluated results would help top/in regulating training programmes to adequately meet FCI's changing needs of manpower requirements and meet competition at home and abroad. The paradox of idle capacity in FCI, whose products are in acute shortage, leads to one major conclusion: the work of the supervisors and managers has got to be looked into as they have not been able to adapt to its changing needs. FCI's task of producing about half of the country's total output of fertilizers by 1971-72 poses the problem of manning its units-projects with competent managers, supervisors and workers.
I therefore, recommend —

(1) Evaluation of training programmes should be carried on simultaneously with training so that the trainer can play the role of evaluator as well.

(2) Criteria selected for evaluation should indicate the extent to which objectives were reached. However, criteria which measure the total effect of a series of training programmes having different objectives is more reasonable to be used, since it may not always be possible to measure achievements directly at the level of objectives.

B TRAINING PROGRAMMES FOR NEW ENTRANTS

Training for supervisors (new entrants) is given in the form of various categories. They include graduate engineer apprentices, diploma holders in engineering and science graduates. Graduate engineers are given two years training and then posted as junior engineers. Diploma holders or science graduates are also given two years training and posted as apprentice supervisors (chargeman trainees).

Attitudes of these trainees are observed during this period and decisions are taken as to whether they are best suited for production, maintenance, design, etc. Each individual trainee's career is then guided in the direction in which he shows maximum aptitude. In evaluating apprentices performance periodical interviews and tests have their importance, but these can never be substitutes for a daily casual and personal check by the supervisor.
I therefore, recommend —

(1) Special assignments should be designed to challenge latent individual potentialities and encouragement should be given wherever due.

(2) Routine jobs to apprentices must be avoided as they lower their morale and make them feel that their time is wasted in the present assignment.

1 Content of apprentices programmes — In apprentices training the content is divided into three major portions. The first consists of general background, knowledge of FCI, the second deals with specific theoretical and technical knowledge pertaining to the job, and the third is concerned with actual skill and experience. While the former can be handled through lectures, assignments and counselling, the latter cannot be effectively done without the active and positive cooperation of plant management.

FCI has organised trade apprentice's training schemes for workers in which matriculates with I.T.I. certificates are taken. In three years of training, they get opportunity to study the theory and practice relating to their particular trade. On successful completion of training they are absorbed as operators/technicians. In the case of artisans there is also provision for running apprentices training for those who come under National Apprenticeship Act, and there is no commitment by FCI for absorbing them.Vacational trainees are also being trained from engineering
colleges for a period of 3 months without any commitment for absorption.

The other employees feel trainees as a class. The whole apprentices training programme could be affected adversely if such an atmosphere persists.

In the course of interview of the supervisors and managers, 90 % opined that apprentices (particularly G/A, G/T) do not get right type of practical training in the plants. It was felt that many times graduate apprentices were really not doing well, and in the plants they are considered inferior in performance to even the non-graduates. This itself is indicative of the drawbacks of the FCI approach to and method of apprentices' training.

I recommend that —

(1) For the first and second part of apprentices training the entire responsibility should be handled by the training department, but for the third one, it has to be left to the managers on the shop floor.

(2) For the overall development of the personality of the apprentices, various social activities, sports and healthy hostel life must be provided.

(3) As for the quality, content and duration of the existing apprentices' training programmes, it is strongly recommended that greater stress be laid on 'on-the-job' training.

(4) Apprentice supervisors and graduate engineers
must work by their hands during the period of training. The full responsibility of the job should be entrusted to the apprentices and the nature of the job for which responsibility is given must be of the type apprentices are expected to occupy as soon as training is over. In this connection, the following suggestions should be considered by the FCI management:

(a) Responsible persons from the managerial rank should, by rotation, be made responsible for the training of the apprentices in the plant and section.

(b) In order to provide proper facilities for specialised training in the plant, it does not seem to be enough to let the trainees work along with the operators and technicians and have the operation processes casually explained to them. Maximum benefit can be derived only when managers in the plants take coaching classes at regular intervals.

(c) While arranging for the training of the apprentices in a plant, one must keep in view the sequence of the process. Trainees should be given the opportunity of learning the performance of the plant methodically.

(d) Copies of the operation manual should be made available to the trainees so that they can acquaint themselves with the sequence of operation of the plants and equipment and the working difficulties that arise in day-to-day operation.
(e) Plant managers must assist the training officer in ensuring the attendance of the trainees in a particular plant and section. Surprise check on the attendance and performance of each of the trainees should be regularly made by the training personnel.

(f) Difficulties experienced by the trainees should be discussed once every three months in a meeting consisting of plant personnel and the training personnel. Such a committee may be termed the Training Progressive Committee.

(g) Plant officers of the concerned plant should also exercise their control over the trainees and obviate any difficulty experienced by the trainees during the course of their training. Personal contact of the apprentices with the concerned plant manager and plant engineer should foster confidence and a feeling that the management is taking proper care of their training.

(h) In order to assess the effectiveness of training of the apprentices it is recommended that one or two months before the completion of the intensive training programmes in the plants the trainees should be given full responsibility of the job they have been trained for. Also they should be subjected to theoretical examination for the assessment of their knowledge and attitude.

(i) A system of trained personnel performance inventory should be introduced, and confidential reports relating to their work, behaviour and attitude should be
obtained from the plant authorities every three months for a period of two years at least. Thus overall performance of the trained personnel could be assessed and scrutinized on the basis of these reports.

(j) Trained personnel who have already been fixed in the plant and sections should be called by the training personnel after every three months for free and frank discussions where they can ventilate their feelings about their work, difficulties experienced in the performance of their duty, and the facilities they receive or would like to receive.

(k) The follow-up and control of apprentices during in-plant training must be tightened. For this, frequent visits to the plant by training officers is a must. Writing of work report diaries during in-plant training is also of vital importance. Training officers must see that the diaries are written regularly and submitted to the plant authorities.

(l) Apprentices should not be given unnecessarily any preferential treatment.

(m) Apprentice training in FCIL is now confined only to Sindri and Nangal, must be extended to other units and divisions.

C PART-TIME COURSES FOR EXISTING EMPLOYEES

Among the courses for existing employees, pre-basic, basic and advance part-time courses are organized at these three different levels. These courses teach subjects from
elementary science to diploma standards in engineering and technology. Part-time courses are not serving much useful purpose, and many supervisors are taking these courses only to get advance increments or certificates. At the moment part-time courses are mainly for the technical staff. The present method of admission to part-time courses appears to be unsatisfactory.

I recommend, that:

(1) In all these courses, human relations and general management should be introduced so that the supervisors who undergo these courses will prove to be more effective on their jobs.

(2) The procedures for taking the tests of part-time courses at various stages should be strict enough in the interest of quality. Periodical tests should be introduced.

(3) A written admission test supplemented by the interviews for preliminary screening would certainly improve the quality of training.

(4) In order to evaluate the success of such part-time courses they should be assessed by taking statistics of those who have undergone these courses in the past and compare their performance in their jobs with those of their counterparts having the same basic qualifications but who had not undergone this training.

(5) Courses for non-technical staff should be organised on subjects like drafting, office procedures,
accounting, general knowledge, stores, purchase, marketing, etc. Non-technical staff should also be told that their promotion to senior supervisory positions and managerial ranks will depend on their passing such a course. For lower staff on the non-technical side, secretarial and stenography courses should be organised.

D SUPERVISORY TRAINING

The emphasis put by management on training for existing supervisory staff to meet FCI needs is not adequate. Prototype supervisory courses need not be run indefinitely. What management in these programmes intends to accomplish has to be defined and understood by persons who participate in such training programmes. Further, how supervisory training squares with actual FCI procedures must be considered. Just to say that supervisory training is beneficial is neither scientific nor very effective, and this approach has prevented a realistic check on effective evaluation of these programmes in FCI.

I therefore, recommend —

(1) Job analysis on corporation basis should be taken up to indicate what supervisors need to know and what skills they must have.

(2) A survey of training needs on a continuing basis must be taken, and job requirements must be compared with actual qualifications of existing supervisors and trainees. Such surveys should seek the opinions of present supervisors.
as to what training they think they need both in their present jobs and as preparation for promotion. Essential skills, knowledge and information should also be identified by such surveys. The training survey must be carried out from time to time and should forecast future manpower requirements. Re-training should also be anticipated to meet technological and related changes in jobs.

(3) Management must have a goal of performance rather than of knowledge and personality. Changes in performance should be measured and evaluated from time to time by the management.

(4) Supervisors should be trained only on the subjects which fall within their job responsibilities — generally in the areas of administration, human relations, technical expertise, orientation on the job and training trainers. Refresher courses or seminars must be arranged for supervisors to keep pace with new developments in the science and technology of the fertilizer industry. T,W,I. courses for trainer's training operating at Sindri only, should be conducted at all the units of FCI.

(5) Duration of a particular supervisory course must always depend on the course content otherwise effectiveness of such programmes is reduced. Courses generally being run for one week duration have to be strengthened and if necessary increased to 10 days or two weeks.

(6) Supervisors admitted to such programmes must
be completely free from job responsibilities and devote their full time to training.

(7) Line managers must assume direct responsibility in supervisory training and the training department of FCI should train the trainers.

(8) In selection of candidates for supervisory courses the individual's strength and potential for growth must be taken into account. Supervisors for advanced courses and retraining must be thoroughly screened.

(9) Lecture method, cases, conferences, on-the-job training and audio-visual aids should be used for training the supervisors.

(10) Mutual exchange between training staff and plant supervisors will be of much use and must be implemented as early as possible.

(11) To cover various categories of supervisors the courses should be extended to as many supervisory ranks as possible, and it is only then that the real benefit of supervisory training will accrue and results could be checked.

(12) Where it is found that the supervisory group cannot follow English, such courses should be conducted either in Hindi or a regional language which the supervisory group can follow.

(13) Lecture notes about the courses to be discussed must be given in advance to the participants so that they can come prepared.
(14) In every supervisory training course at least two sessions must be organised by the plant managers so that plant problems can be discussed.

(15) Inter-unit supervisory training programmes must be made more frequent and be considered as an integrated activity.

(16) Due regard to the experienced supervisors must be given by the training staff and confidence about training must be created among rank and file realizing that supervisors of 'tomorrow' will come from this group.

(17) Supervisory training policy must be reconsidered and supervisor who want full time training should be allowed to go for such training without it being incumbent on their part to resign.

(18) Competent training officers for supervisory development courses must be hired in all the units and given high status within the organization.

(19) Appreciation courses for managers about supervisory programmes must be conducted. This will enable managers to assess the effectiveness of supervisors in their day-to-day work.

(20) Evaluation of supervisory programmes by participants themselves when used without adequate methodological precautions will not provide valid information as to the results of the training. In this context, the step by step evaluation of supervisory and management programmes in FCI
as recommended earlier in Chart IX (Chapter Five) would be more effective. Besides, by the use of observational methods, it should be possible to measure changes in behaviour over-time as a result of supervisory training. In this connection management should consider —

(a) Questionnaires measuring functions can be used to measure changes in the perception of work role as a result of supervisory training.

(b) Data from studies can be used to draw up criteria for supervisory behaviour e.g., in terms of time spent in different functions.

(c) Detailed analysis of the supervisory training system will make it possible to estimate how much behaviour is expected to change after course.

(21) Of the following four alternatives suggested for evaluation of supervisory programmes alternative (iii) is recommended for FCI —

(i) Supervisors and managers, before and after training, should be tested to see what they have learned. However, the supervisor who does brilliantly on the test will not necessarily apply what he has learned during training.

(ii) Another method is to find out from the supervisor and his subordinates about changes in his behaviour again using a before and after questionnaire. This will have more value since it will show something happening on the job, but it still will not show actual operating results.
(iii) Under the result approach, which is recommended in the FCI set-up, before and after training will measure the factors in which improvement is desired. Before any training is started, it can be discussed with the line manager in charge of that department as to how it will be evaluated. When the training is over, results could be checked and thus management could justify the cost incurred on training.

(iv) Evaluation without a preliminary hypothesis and without any preconceived ideas of what happens to the trainees as a result of a training course could also be used. In this, non-directive interviews which leave the trainee free to express himself about his own problems rather than about the interviewers may be used (a) during the month before the training, (b) during the month following the training, and (c) a year after the training.

In this interview FCI may have two objectives:

(i) To determine the persistence of the changes noted immediately after the training, and

(ii) to validate, by means of deeper discussions of the subjects, the interpretations made as a result of the first two interviews. Each interview should be tape-recorded and later typed out in full so as to know what did happen.

(22) An evaluation committee consisting of the training officer and plant personnel must be formed to assess and record the comparative attitude and performance of supervisory trainees before joining the training courses and after completion of the training courses. This would
on the training programmes and their evaluation procedure in fertilizer factories in industrially advanced countries.

III. CUMULATIVE EFFECT OF SUPERVISORY AND MANAGEMENT DEVELOPMENT PROGRAMME

A. Three different levels of evaluation in FCI which differ in terms of the kind of criteria chosen may be adopted for evaluating supervisory and management training programmes —

(1) Criteria relating to changes in the trainee himself - His knowledge, his aptitudes and his attitudes. Assessment of individual performance as a result of training is bit difficult.

(2) Criteria concerning performance on the job — This category includes not only criteria relating to the productivity of the FCI, the quality of products, absenteeism, etc., but also those which reflect the way the workers are supervised, the morale, etc.

(3) Criteria relating to the ultimate goals of the FCI, for example, turnover, profits, general increase in productivity, is recommended.

B. EFFECTS ON ACCIDENTS AND INDUSTRIAL RELATIONS

I have assumed that a reduction in accident rates occurred in FCI during 1966 was mainly due to the cumulative effect of various safety training programmes and the safety consciousness generated among the employees of FCI, besides
the socio-psychological activity of management of giving dearness allowance at the enhanced rates.

As regards variations in production, as reflected in the results of operations of the production units of FCI in terms of cost, profits, etc., it could also be attributed mainly to unhappy industrial relations, besides the technical factors. In FCI, for the last five years, in one or the other unit, there has been a strike on a regular basis. Though many times, managers and supervisors have been in a position to keep the factory running (which itself is an indicator of the technical competence of supervisory and managerial elite and to some extent is suggestive that the factory could be managed with relatively less strength). Management has hardly done anything to improve upon the bad industrial relations within FCI. No specialised course has so far been arranged on labour-management relations for any category of managers, supervisors or workers. The Industrial Relations Adviser to FCI, who has been in that position for the last five years, has possibly never indicated any need for such courses. He has simply prevented and not cured.

I therefore, recommend that:

(1) Safety training programmes should be run on a regular basis in all the units-divisions of FCI. There should be complete coordination between safety and training departments for running these courses.

(2) Better industrial relations are so vital for
FCI's growth and higher productivity that they must be attended to on a priority basis. Towards this objective, training, personnel, public relations and work study divisions in particular must work together.

(3) Courses on labour-management relations, collective-bargaining and industrial relations etc. must be organised for all categories of employees in FCI.

(4) The industrial relations advisors should try to be more active in preaching the gospel of healthy industrial-relations all the time among rank and file through periodic talks in the workers training programmes rather than waiting for strikes to occur.

(5) Specific courses on handling the disputes and a knowledge about disputes act must be given to supervisors and managers.

C TRAINING COSTS

In training costs, salaries account is the major head. Sindri's salary account, is little less than double that of Nangal training centre's salary account, but paradoxically, Nangal spends almost four times more on welfare expenses as compared to Sindri. This only proves that so much expense on welfare of training staff is extravagant. The high salary account at Sindri is indicative of surplus training personnel at Sindri. In view of our earlier analysis, Nangal training centre's past performance has been fairly comparable with that of Sindri even with less staff. An expenditure of ₹ 22.5 lakhs
in a particular year indicates the importance FCI attaches
to the training of apprentices. It is interesting to note
that indirect expenditure on apprentices in FCI is more than
double the direct expenditure. The declining indirect
expenses on apprentices training indicate economic conscious-
ness and efficiency of management in FCI. However, the cost
per apprentice per month for graduate engineers has gone up
almost four times more in 1966-67 than in 1964-65, and in
the case of trade apprentices, it has doubled during the
said period. Thus, we may say that apprentice training is
a costly proposition, and if the apprentices are still being
complained about then it is a reflection on trainees and
trainers.

FCI spends only 2.3 % of the total training revenue
expenses on supervisory and management training. By looking
at the expense accounts of Nangal and Sindri for development
programmes we can say that Nangal's expenses have gone up
while Sindri's have fallen. The decline in Sindri's account
partly indicates the decline in the activity of such programmes
and also that such programmes are managed from within. On
the contrary, the increase in Nangal's account indicates the
increased number of such programmes there.

Sindri spends three times more on trainer's training
than Nangal does. Sindri frequently sends its training
officers to various training institutes in India outside the
FCI to acquaint them with the latest developments in the
field of training, while Nangal is silent on this activity.
In the interview held with training officers of Nangal training centre, it was revealed that the major share of this head of expense is being consumed by the chief training officer who attends special training courses, conferences, etc., frequently at various places in the country, but hardly ever deputes his own training officers to any such programmes. The chief training officer at Nangal does not believe as much in the development of his juniors as he believes in his own development.

Supervisory development training courses and management development programmes at Nangal have been cheaper as compared to those at Sindri. The costs of supervisory programmes there are more than double those of Nangal and the same is the case with management development programmes. This is mainly because Nangal runs these courses mostly on a part-time basis while Sindri organizes such programmes on a full-time basis. However, production records of these places disclose that Nangal’s production of fertilizers all along has been close to the targets fixed despite a comparatively smaller working force, while Sindri’s production figures as compared to targets reveal that efficiency at Sindri has been less even with a larger working force.

I therefore, recommend that:

(1) Evaluation of costs, though difficult, is a must if the supervisory and management training programmes are to be effective. Training costs in PCI are heavy and due to attention to the auditing of these programmes must be given.
(2) The accomplishments through the training programmes should be balanced against the costs of these programmes on a regular basis.

(3) Sindri training centre has a very high salary account which is not consistent with its performance. Sindri therefore, should transfer its existing training personnel to other training centres of FCI.

(4) Apprentices training has been costly in FCI and since it has not lived to the desired expectations of the management, these training programmes need reorientation and adequate control through regular evaluation. A cheap apprentice training is not advocated. What is needed is effective training.

(5) The attitude of chief training officer, Nangal, who does not believe in the development of his juniors, is dangerous and should be changed. Top management must ensure that more trainer's training is given to all the training officers in FCI in order to improve the quality of training being imparted at present.

(6) Sindri should try to be more cost-conscious in its supervisory and management development programmes.

FCI's net has to be very wide to get the desired result. Fortunately, FCI has reached the stage where everybody believes passionately in training at least for the other man. Everybody will say, "Train the Supervisors", Supervisors will say, "Why are you bothering us? Better train the
managers? Managers will say, "You train one step higher". If FCI's management wants to focus the training as a total perspective, they have to consider all of them in small doses because one type of training affects the results of the other types. If FCI does not have good workers or craftsmen trainees in 5 years time then they are going to face a terrible shortage of good supervisors and managers because the good trained personnel of today will be the supervisors of tomorrow. FCI cannot train good craftsmen today if supervisors are not the type they want. So FCI has to introduce the supervisory training before the craftsman can be properly trained. A management training programme will depend upon the stability and competence of FCI supervisors. Managers cannot have seminars and job rotations, nor can they be shifted to gain wide experience if it is not sure that supervisors on the job are capable of taking care of the day-to-day routine aspects of the work. So, management must depend on good supervisors and good supervisory training for management development. Otherwise, certain aspects of management development cannot be taken up. The same thing goes for management development. The problem is to spread the net to cover as large a number as possible of unskilled, semiskilled and skilled workers. In FCI there is no unskilled job, but there are unskilled workers. Each job can be done in a better way, and the training approach has to be such that the people should be asked to do in a better way what they are doing today and they should be trained to do a better
Achievement of goals depends on many things but particularly whether or not FCI management realizes that evaluation as such is the backbone of the learning and change process. It, therefore, ultimately rests on the extent to which the managers, supervisors and workers who provide the input material are also able to share in the findings. Therefore, in order to profit from training it is felt that FCI's training net has to be very wide to cover as many employees as possible.

In order to know why supervisory and management development programmes have had disappointing results in the past and how more rewards can be reaped from such programmes on a continuous basis is essential if managerial and supervisory talent is to play a significant role in FCI. So far in FCI, a lack of awareness of the process of change and of the concomitant improvement mainly accounts for the failure of development programmes. Besides, in FCI there is a missing link between supervisory and management training on the one hand and organization change on the other and that without integrating training with organization through evaluation, training will be of little help in attainment of objectives. Managerial education is auxiliary to management development; its contributions in FCI at times have to be sensed without being seen.

The written training policies must be taken out by
management and they should clarify the intentions as regards to the training and development programmes, the range of authority and responsibility of the chief training and manpower advisor, the development programmes to be offered, and should validate the relationship of the training organisation to staff and operating units. I feel that much uncertainty regarding the purpose of the training and who will be trained and by whom could be avoided if these matters are clearly determined in a training policy directive. Orientation of participants prior to the initiation of a new programme would be desirable because individuals selected for development are motivated to attend training sessions. Attention to the structuring of development programmes should be paid and the methods to be employed with fast changing technology. For performance appraisal and audit of personnel resources it is necessary for FCI to take a stock of its present and potential supervisory and management talent in all units - projects (department-wise) on a regular basis.

With the expansion envisaged the FCI will need to produce large number of supervisors and managers who could meet the challenges ahead. 'Management by objectives', therefore, is emphasized in FCI set-up. The management would have to consider in advance the officers who may in the next four years be eligible for higher positions and should start the training programmes in the not too distant future. This should be a continuous process. The key to
successful operation of development programmes is top management awareness and full support, managers and supervisors effective participation and support.

If the findings of the study provide an integration of significant problems of evaluation of supervisory and management training programmes of FCI and their solutions and if they also in some small way encourage or facilitate long term research directed towards the evaluation of supervisory and management training programmes, the intent of the author is accomplished.