The performance of co-operative organisations, among other things, are linked with the success of the proper planning and implementation of individual projects. This is perhaps the most neglected area. In the developing countries like ours, projects are neither properly formulated nor implemented which result in wastage of resources. One of the Regional Seminars has categorically pointed out that in India, these instances galore where co-operative processing units have been established without proper planning. The result has been under-utilisation of installed capacity and consequent adverse effect on the economic viability of the projects.\(^1\)

The term project can be defined as "the compilation of data which will enable an appraisal to be made of the economic advantages and disadvantages attendant upon the allocation of country's resources to the production of specific goods and services."\(^2\) As such, project means the specifications and accomplishments, within a given period, of related set of activities that will result in

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a measurable change in any system's capacity to improve the status of the community directly or indirectly. A project aims at specific goals and purposes. It is a time bound activity. It also requires co-operation and co-ordination with other projects to achieve the goals of a plan. A project may be small or big; limited or comprehensive in nature and scope; and may be set up with purely indigenous resources or with the help of bilateral/multilateral technical assistance.

Projects usually do not emerge themselves. The motivation and decision to set up a project mostly emerges within an organisation at various levels. The impetus to set up a project can come from the political parties, pressure groups, or can emerge from the researches, evaluations and studies conducted by the universities/training institutions/Government departments. Besides, project formulation involves a step by step investigation and development of the project idea. One stage of the exercise culminates to the other. In that way, project formulation has the in-built mechanism to ensure that it is developed in an orderly way through investigation and analysis to prevent future losses by undertaking an unsound project.

A well-conceived and documented project arouses the interest of decision-makers in its execution and facilitates the task of assigning priorities in the
allocation of resources. A good project has a number of features, namely, the goals and objectives are well-defined; the area of operation is clearly demarcated; the nature of the investment to be made is specified; the period for the completion of project is determined; the costs and benefits are projected; the amount of credit required is specified; the organisational requirements are outlined; the agencies responsible for rendering support services are identified and named; and allocation of responsibilities among different functionaries is also made in advance.

PROJECT FORMULATION

We shall now take up the dynamics of project formulation and implementation with a case study of "Hafed Granular Fertilizer Unit, Taraori", which is one of the 14 units installed by the federation. This unit has specifically been chosen for the following reasons:

(i) Fertilizers in a developing economy like ours, constitute a key input and act as a barometer for agricultural advancement.

(ii) This is the first such project which was installed by the federation after its inception.

+ At present, there are 19 Co-operative Granular Fertilizer units in the country.
(iii) Since the investment made in this project is the second highest out of 14 projects, the efficiency of project would have enhanced the effectiveness of the organisation as a whole.

(iv) This unit, as compared to other units of Hafed, generates employment to maximum number of personnel.

Besides, the stresses and strains experienced in the remaining projects would also be discussed at relevant portions.

Keeping in view the inherent advantages of co-operative organisations over the private trade, the National Co-operative Development Corporation (NCDC) prepared a Model Scheme for the establishment of Granular Fertilizer Units in the country.

The Model Scheme envisaged that the establishment of granular fertilizer units would provide a convenient means for applying balanced fertilizers to increase the productivity. It emphasised that co-operatives which were essentially functioning as the major agencies for distribution of fertilizers in the country at the door steps of the farmers, would be in a better position to

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+ For details, refer Chapter on "Distribution Management".


undertake the establishment of such units. The corporation came forward, giving 70 per cent financial assistance for installation of the units while the remaining 30 per cent funds were to be met by the State Government and the concerned Co-operative organisation.

The federation did not appreciate the utility of the setting up of these units in the first instance. This is clear from the fact that it turned a deaf ear to the various communications of the corporation on the subject. This shows that there was no active involvement of the management in policy-making and decision-making process. In other words, the required element of leadership and willingness on the part of the Board of Directors/Chief Executive were completely missing. Probably, the management was not ready to undertake the responsibility to launch an altogether new project as it was not sure about its being advantageous. The records indicate that in the beginning, the federation made lame excuses to put off the project proposal. It informed the National Co-operative Development Corporation that they had not yet been able to assess the utility of mixed fertilizers. Besides, as a large number of mixtures would have to be prepared and distributed according to the needs of different regions.


and pattern of crops, it would create a lot of difficulties in distribution. It was also intimated that they had already entered into agreement with IFFCO and Fertilizer Corporation of India for the supply of mixed fertilizers, and as such, the latter would be catering to its requirements. Accordingly, the matter was deemed to be closed so far as the federation was concerned.

But exactly after six months, at the instance of the State Government, the federation half-heartedly and without any well-thought-out plan showed its willingness to undertake this project. The foregoing discussion clearly reveals that the project in hand was never identified from the point of internal and external constraints of the organization, i.e., there was no assessment to examine the capabilities and limitations of the Hafed. Similarly, no evaluation was made to ensure whether the project objectives were in line with the specific priorities of the federation and those of the State Government. In fact, the Model Scheme, as prepared by the National Co-operative Development Corporation, was the only guiding force for the federation to initiate formulation of the project.

We shall now examine whether the policy-makers, planners, decision-makers, and the administrators were

able to diagnose formulation of the project keeping in view the following parameters:

(A) Technical Analysis (Input Analysis, and Demand & Supply Analysis),
(B) Financial and Economic Analysis, and
(C) Cost Benefit Analysis.

(A.a) INPUT ANALYSIS

It deals with identifying, quantifying, and evaluating the human and material resources required (project location, raw material, manpower, plant and machinery) and the sources from which these are to be obtained in an integrated manner throughout the life cycle of the project.†

(1) PROJECT LOCATION & INFRASTRUCTURE

The site for the project which has a great bearing on the success of any project was wisely selected by the federation. A small piece of land was already in its possession and it wanted to acquire another 2/3 acres of land which was readily available at reasonable prices. There was an all-round demand for fertilizers in the surrounding areas because it was predominantly an irrigated

† Generally, the first phase of the project (pre-investment) hardly consumes any resources. It is the second phase (construction) which involves the maximum. The resources (non-recurring) during this phase are consumed in providing the basic edifice of the project. The third phase (implementation) do involve consumption of resources on a recurring basis.
area and yielded maximum output of the foodgrains in the State. The site was also located on the main C. T. road and railway station. As such, it had a ready access to the transportation system as well. Besides, the manpower (skilled and unskilled) was readily available from the adjacent areas in abundance. Lastly, the crucial factor, i.e., uninterrupted supply of power from the State Electricity Board was also available at the proposed site.

(ii) RAW-MATERIAL

The raw-material consisting of nitrogenous, potassic, and phosphatic fertilizers - a pre-requisite for the survival and growth of a project - for the granulation of fertilizers was handy with the federation on account of the liberalised policy of the Government and the supply position of the basic fertilizers. The federation was already carrying on the work of supply and distribution of fertilizers. As such, there was no possibility of experiencing any difficulty in procuring the basic fertilizers and that too at pool prices. Besides, there would not be any problem in transportation of raw material as also of the finished products from the railway station to the factory and vice-versa because the project was proposed to be located just near the railway station.
(iii) **PROJECT ORGANISATION AND MANPOWER REQUIREMENTS**

The proposed project, being small and first in the series of the 14 projects, was thought to be managed by the existing organisation itself. As such, Hafed did not feel the necessity to set up or design the framework of a separate organisation for its execution and control.

The manpower forecasting in terms of types and levels of personnel was not made. The sole source for guidance in this regard was the model scheme. The project was to generate employment for 100 persons (including 12 supervisory and technical staff) for three shifts daily. More specifically, the services of a Mechanical/Chemical Engineer was required who was to be appointed as Production Manager. Similarly, a Chemist was needed to look after the laboratory and formulation of the fertilizers. Besides, three mechanics, three electricians and six operators were required for shift duties daily. It was felt that all the manpower requirements would be met without any difficulty and delay.

(iv) **PLANT AND MACHINERY**

Since the selection of proper plant and machinery requires strategic planning, the federation just accepted the requirements for plant and machinery as suggested in the Model Scheme even without taking into consideration the suitability and serviceability of the machinery required.
The entire plant, machinery, and equipment was indigenously available in the country from five firms. Some of them even undertook erection work on turn-key basis.

The tentative cost of the plant and machinery, however, was never ascertained by the federation from the main suppliers. Instead, it based its cost as given in the Model Scheme. Similarly, for the auxiliary equipment, as also for Laboratory, civil works, etc., the tentative cost, as given in the scheme was copied verbatim without making enquiries about the prevailing prices from the market.

(A,b) **DEMAND AND SUPPLY ANALYSIS**

Balanced fertilizers had already proved greater utility than the fertilizers composed of individual nutrients. It was in that context that the proposed project was to produce different grades of fertilizer mixtures. Since the federation was already acting as the sole agency since 1966 for the supply and distribution of


& N.P.K. consists of various grades such as 15:15:15, 15:15:7, etc.

* For details, refer Chapter on "Distribution Management".
fertilizers in the state and had a good sales network. Its confidence level was very high as far as facing problems of marketing of its products were concerned. Moreover, the federation was not to incur much expenses on the sales promotion of its products because the farmers had already a direct contact with the primary societies extending even to the remotest areas.

(B) FINANCIAL AND ECONOMIC ANALYSIS

Financial analysis of a project is one of the important tools in the process of scientific management, investment policy, and decision-making. It is on this basis that the likely profit and loss can be arrived at and the project implementing body can take final decision for the selection and implementation of the project.

The federation did not spend any money with regard to advance expenditure (in the form of surveys, feasibility reports, techno-economic surveys, consultancy, etc.) because a lot of expenditure had already been incurred by the National Co-operative Development Corporation for this purpose. On the other hand, without making necessary enquiries from the market about capital requirements, the

+ This comprised Co-operative Marketing Societies, Agricultural Primary Credit Societies and Private trade.

£ This included Cost of land, buildings, civil works, plant and machinery, ancillary and miscellaneous assets, invisible expenses, and escalation provision.
federation just assessed its requirements to the tune of Rs. 21 lakhs on the basis of the Model Scheme stipulation. The break-up of the anticipated expenditure is given in Table No. 8.1.

Table No. 8.1

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Land (8 acres)</td>
<td>50,000</td>
</tr>
<tr>
<td>2. Factory building, office building, godowns, etc.</td>
<td>5,00,000</td>
</tr>
<tr>
<td>3. Plant, machinery, equipment, electric L/T lines, switchgear, etc.</td>
<td>14,00,000</td>
</tr>
<tr>
<td>4. Laboratory</td>
<td>30,000</td>
</tr>
<tr>
<td>5. Furnace oil installation</td>
<td>25,000</td>
</tr>
<tr>
<td>6. Miscellaneous including machine foundations, maintenance, workshop, etc.</td>
<td>20,000</td>
</tr>
<tr>
<td>7. Sanitary arrangements, water supply, and other unforeseen expenses</td>
<td>75,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>21,00,000</strong></td>
</tr>
</tbody>
</table>

**SOURCE**: Data collected from official records of Hafed.

Similarly, the Model Scheme earmarked the projected
funds* in the following manner:

1. Share capital contribution
   Rs. 8.25 lakhs* [to be given]
2. Long-term loans
   Rs. 10.00 lakhs* [by National Development Corporation]
3. Own resources
   Rs. 2.75 lakhs [Co-operative Development Corporation]

The economic feasibility on the cost of production $^2$ of one tonne of 15:15:15 N.P.K was also worked out. One tonne of mixture was to contain 150 Kgs. of N, 150 Kgs. of P$_2$O$_5$, and 15 Kgs. of K. The cost of raw material was worked out as Rs.750 per tonne. To this was added production cost at the rate of Rs.22* per tonne. By adding profit at the rate of 10 per cent (Rs.77 per tonne) plus Rs.80 per tonne as distribution margin of the retailers/wholesalers, the estimated cost of fertilizers was worked out as Rs.930 per tonne. The then prevailing rate for this kind of fertilizer was Rs.1000 per tonne. As such, it was expected that the federation would be earning a net profit of Rs.2.31 lakhs on the sales of 30,000 MT fertilizers per annum. Besides, as the demand would increase to 50,000 tonnes (optimum capacity of the project),

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* This included equity, debt, and own sources of Hafed.

$^2$ This covered cost of raw material, energy, labour, maintenance, managerial, depreciation, sales and publicity, and interest on borrowings.

* The break-up of it is as follows:
  electricity charges Re.1, furnace oil Rs.2, salary and wages Rs.4, interest Rs.3, depreciation Rs.4.50, repayment of loan Rs.5.50, and other costs Rs.2.
it would yield a profit of Rs. 3.85 lakhs per year.

(C) COST BENEFIT ANALYSIS

The records do not indicate the incidence of any cost benefit analysis about the proposed project to show, whether (i) it was being set up in consonance with the general policy of the country, (ii) meets the priority needs of the people, (iii) it was properly linked with the objectives and goals of co-operative planning and development, and (iv) it fitted into overall economic and social development of the country. It was, however, assumed that with the establishment of the fertilizer plant, the farmers would get supplies of balanced fertilizers to meet the requirements of a large variety of crops grown on different types of soil. Availability of right type of fertilizers at the right time and at the right place, ultimately proved to be a key factor in the ushering of Green Revolution and attaining self-sufficiency in fertilizers.

PROJECT IMPLEMENTATION

Proper implementation of the project is a prerequisite for its survival and growth. To quote the Planning Commission: "The success of the Plans will rest very largely on the efficiency with which it is implemented".

8. Government of India, Third Five Year Plan (Draft), Delhi, Planning Commission, p. 58.
The purpose of any successful project implementation is to ensure that the project activities are completed within the schedule, and within the budgeted provisions, leading to desired quantum of benefits flowing therefrom. Project implementation steps are repetitive and each manager has to adopt procedures according to his own requirement depending on the nature of the project and the organisational structure. The implementation of the project shall be examined under the following seven heads:

1. Initiating the project.
2. Specifying and scheduling the work.
3. Clarifying authority, responsibility, and relationships.
4. Obtaining resources.
5. Establishing the control system
6. Directing and controlling.
7. Terminating the project.

1. **INITIATING THE PROJECT**

Project initiation is the first step which is similar in many ways to the preparatory phase of project formulation. It involves obtaining approval of the proposed strategies, project plan, relevant budgets and selection of the Project Manager/other major functionaries.

The proposal for setting up the fertilizer unit by the federation was accepted in principle by the State Government on February 2, 1970, pending final clearance.

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+ See, chart No. 17.
The National Co-operative Development Corporation on receipt of the interim clearance from the Government desired that the proposal along with the project report, economic feasibility and financial position of Hafed may be furnished. It was also enquired whether the State would immediately make adequate budget provision for the financial assistance within the current financial year (1969-70) or not. Besides, it was made very clear that it would not be possible for the corporation to entertain the project proposal in the next financial year (1970-71). The State Government, however, in the meantime, conveyed its final approval for the establishment of the project on June 9, 1970. Surprisingly, the formal sanction was conveyed to the corporation after a lapse of about one year, i.e., on February 25, 1971.

By this time, the assistance earmarked by the National Co-operative Development Corporation for the year 1969-70 had already lapsed and as such, the corporation refused to entertain this unit during the year 1970-71. In the meanwhile, some relaxations were made by the corporation for assisting the new fertilizer units within

the current year (1970-71) itself, and the federation showed its anxiety to go ahead with the project. Accordingly, the project was finally cleared by the National Co-operative Development Corporation on February 9, 1971, but, with certain reservations. For example, the corporation enquired from the federation about the sources for raising additional money for the unit which were not mentioned in the project report. It also wanted to know the reasons for purchase of machinery of much higher capacity as compared to the estimated capacity of the unit. The federation argued that the sources for raising additional money would be through contribution towards share capital by the marketing societies or loans from the State Co-operative Bank by furnishing State Government guarantee. As regards the machinery, it clarified that the federation intends to purchase 7.5 tonne capacity plant, but, would be producing only 5 tonne of fertilizers as it was the most economical quantity of production. It also justified the purchase of machinery on the ground that the production can be stepped up to 7.5 tonne depending upon the sales in future. Thus,

15. Hafed, Proceedings of the meeting of Board of Directors, held on December 7, 1970.
without prejudicing the prerogatives of the approving authority, Hafed was able to overcome the doubts, fears, and misconceptions of the officials of the corporation.

Steps were also taken for the recruitment of project manager/allied staff as also for purchase of machinery/construction of civil works. Surprisingly, only four applicants responded for the post of Project Manager due to defective contents of the advertisement itself. There was no mention about the essential qualifications required for the post, viz., knowledge of organization's environment surrounding the project, experience in subject matter of the project, experience in practice of management, adaptability to changes in the environment of the project, and knowledge as to how to make good rapport with the allied departments to undertake negotiations for resources. That is why, none of the candidates was adjudged to be up to the mark. Instead of re-advertising the post, it was decided to borrow the services of an engineer on deputation from the State Government.18

In the meanwhile, a Consulting Architect was also engaged to facilitate construction of civil works. The

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+ The advertisement was issued on February 12, 1971. It appeared in the leading newspapers on February 14, 1971, and the last date for receipt of applications was February 23, 1971.

appointment of the incumbent was made in consultation with the National Co-operative Development Corporation. The Board approved his appointment on the terms of 2½ per cent of the cost of civil works. He was also to be paid Rs.200 for each inspection day in addition to free return journey air-fare.

2. **SPECIFYING AND SCHEDULING THE WORK**

After the project was finally approved by the National Co-operative Development Corporation, steps were taken to define the various activities, the persons who were to manage them, and the likely duration by which the whole work was to be completed according to the project proposal, in an unusual informal manner. The Project Manager and the Consulting Architect were appointed within no time. Tenders for the supply of plant and machinery were finalised without any delay. It, however, took some time in finalisation of the contract for the construction of factory premises, godowns, offices and other buildings. The deal was finally settled with M/s. Uppal Engineering Company at an estimated cost of Rs.18.23 lakhs after negotiations. According to the agreement,

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the work was to be executed by June 30, 1972, and to commission the plant by September, 1972. The suppliers were accordingly informed that they could start erection work and installation of the machinery in February, 1972. Keeping the foregoing background in view, the construction schedule for the civil works was prepared as per Table No.8.2.22

Though this schedule was prepared in consultation with the contractor, the supplier, the consulting architect and other officers of the federation, the records nowhere indicate as to which activity was most important and was to precede the other. Thus, the detailed activity specifications consisting of preparation of the project activities, determining their inter-relationship, etc., were not prepared by drawing a sketch of the network of activities, using Gantt Chart with broken lines, connecting related activities, or writing down the activity numbers of all activities that must be accomplished, etc.

3. CLARIFYING AUTHORITY, RESPONSIBILITY AND RELATIONSHIPS

The federation did not face any problem in settling the various questions relating to authority and responsibility among the various functionaries, e.g., (a) who has the authority to change the project schedule, (b) who has the authority to decide substitutes of project

Table No. 8.2

CONSTRUCTION SCHEDULE OF THE PROJECT

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Particulars</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Marking lay out</td>
<td>21.2.72 to 25.2.72</td>
</tr>
<tr>
<td>2.</td>
<td>Volumetric units complete in all respects</td>
<td>upto 25.3.1972</td>
</tr>
<tr>
<td>3.</td>
<td>Furnace foundation</td>
<td>25.2.72 to 25.3.72</td>
</tr>
<tr>
<td>4.</td>
<td>Granulator structure</td>
<td>25.2.72 to 25.3.72</td>
</tr>
<tr>
<td>5.</td>
<td>Dust collector</td>
<td>25.2.72 to 25.3.72</td>
</tr>
<tr>
<td>6.</td>
<td>Screen unit and chain mill</td>
<td>25.2.72 to 25.3.72</td>
</tr>
<tr>
<td>7.</td>
<td>Drier and cooler pedestal</td>
<td>25.2.72 to 10.3.72</td>
</tr>
<tr>
<td>8.</td>
<td>Floor drilling</td>
<td>10.3.72 to 31.3.72</td>
</tr>
<tr>
<td>9.</td>
<td>Electrical trenches</td>
<td>25.3.72 to 10.4.72</td>
</tr>
<tr>
<td>10.</td>
<td>Floor base coarse concrete</td>
<td>25.3.72 to 7.4.72</td>
</tr>
<tr>
<td>11.</td>
<td>Folder plate roof</td>
<td>25.3.72 to 10.5.72</td>
</tr>
<tr>
<td>12.</td>
<td>Miscellaneous finish</td>
<td>10.5.72 to 25.5.72</td>
</tr>
<tr>
<td>13.</td>
<td>Machinery erection &amp; electrical</td>
<td>25.5.72 to 15.7.72</td>
</tr>
</tbody>
</table>

RAW MATERIAL GODOWN

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Description</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Roofing up to first expansion joint</td>
<td>21.2.72 to 10.4.72</td>
</tr>
<tr>
<td>2.</td>
<td>Roofing up to second expansion joint</td>
<td>10.5.72 to 10.6.72</td>
</tr>
<tr>
<td>3.</td>
<td>Flooring complete</td>
<td>10.4.72 to 20.6.72</td>
</tr>
</tbody>
</table>

FINISH MATERIAL GODOWN

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Description</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Folder plate</td>
<td>10.6.72 to 10.8.72</td>
</tr>
<tr>
<td>2.</td>
<td>Floor finishing complete</td>
<td>20.7.72 to 20.8.72</td>
</tr>
</tbody>
</table>

SOURCE: Data collected from official records of Hafed.
resources. (c) who can terminate the project prematurely, (d) who has authority over contingency funds, (e) who can change the project objectives, (f) who is responsible for obtaining resources, (g) what reports are required and who is responsible for making these, etc. In fact, all these issues were to be decided by the Chief Executive in consultation with the officers at the headquarters and the Project Manager in the field. The reason for this was quite simple. Unlike the complicated project, it was quite a simple one, localised geographically, and finances coming mostly from within the organisation, etc. However, the study reveals that there were no specific formal instructions stating the authority and relationship of various personnel. On the other hand, it was based on an informal arrangement. This was one of the reasons that it became difficult to fix pin-pointed responsibility for any negligence on the part of a particular official/officer. The proposed checklist showing the authority and responsibility relationship of the various functionaries is suggested to the federation as a guideline. This may be modified from time to time in the light of the experience gained.

4. **RESOURCES**

The resources are discussed under three sub-headings: Personnel, Supplies, and Finances.

+ For details, see Annexure No.XXXIII
(a) PERSONNEL

As already mentioned, the Project Manager was taken on deputation from the State Government. One Production Manager was also appointed to look after the installation of the machinery. Though the suppliers of the equipment gave the tentative requirement of 24 officials (skilled and unskilled workers) for the various operations of the plant, the Project Manager at the head office sent requisition for 9 officials to the Administration Division in view of the magnitude of the work in the initial stage who were appointed sometime in middle of 1972.

(b) SUPPLIES

As regards supplies, only two out of the five firms responded to the tenders. After negotiations, M/s. Pertiplant quoted for horizontal type at Rs.14.75 lakhs while M/s. Phosphate Company quoted Rs.14.91 lakhs for vertical type of the plant. Since the vertical type of the plant was not working satisfactorily in other organisations, Hafed decided for the horizontal type. The machinery was to be supplied within 9-12 months subject to negotiations for an early delivery.

As the Project Manager failed to stick to the schedule

+ The advertisement for purchase of machinery issued on February 3, 1971 was published on February 7, 1971 stating the last date for receipt of tenders as February 18, 1971.
for obtaining supplies and equipment vis-a-vis the completion of civil works with the help of Gantt Charts, the first instalment of machinery was received with in May, 1971, i.e., immediately after placing the order. The whole supply was completed in the next month itself.23

On personal discussions with a number of employees, it was found that the machinery remained idle in the open. Moreso, due to non-completion of erection work in time, the machinery could not be installed. Thus, the Project Manager failed to monitor and control the various administrative processes to ensure that resources are made available only in time which would have saved the federation from interest liability due to early investment of capital as well as release of balance dues according to clause 4.2 of the contract, as follows:

1. 25 per cent against order
2. 65 per cent progressively as advance against receipt of material and equipment at site at mutually agreed/estimated value.
3. 5 per cent after erection of the plant.
4. 5 per cent after plant is commissioned and handed over to the federation.

23. Telegram No. FTP-Sls-25, June 12, 1971, from the suppliers:

"All material delivered at Taraori site. Check up the material with your factory people and release the payment at the earliest".
The payment was released to the suppliers on different dates after receipt of material at site as per Table No.8.3.

Table No.8.3

<table>
<thead>
<tr>
<th>Date</th>
<th>Amount (Rs.)</th>
<th>Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>29.3.1971</td>
<td>3,68,750</td>
<td>Advance money</td>
</tr>
<tr>
<td>22.8.1971</td>
<td>4,26,536</td>
<td>against bills</td>
</tr>
<tr>
<td>22.8.1971</td>
<td>1,68,272</td>
<td>-do-</td>
</tr>
<tr>
<td>20.9.1971</td>
<td>22,750</td>
<td>-do-</td>
</tr>
<tr>
<td>21.2.1972</td>
<td>1,87,174</td>
<td>-do-</td>
</tr>
<tr>
<td>7.4.1972</td>
<td>76,128</td>
<td>-do-</td>
</tr>
<tr>
<td>29.5.1972</td>
<td>46,429</td>
<td>-do-</td>
</tr>
</tbody>
</table>

SOURCE: Data compiled from official records of Hafed.

Thus, a sum of Rs.12.96 lakhs was released to the suppliers out of a total of Rs.14.75 lakhs. The balance amount due to the firm was Rs.1.79 lakhs, half of which was to be paid at the time of erection of the plant and the rest after handing over the plant to the federation.

The federation's interest liability at the rate of 9 per cent on the balance sum of Rs.1.79 lakhs became clear from a letter sent by the suppliers where it was pertinently indicated that had the federation completed the civil works in time, they would have been in a position to undertake erection and commissioning of the plant.
without any delay. Besides, after inspecting the machinery by their engineers, the firm informed that the equipment lying idle for the last two years would have to be thoroughly cleaned before putting into service. It was estimated that this would involve an extra expenditure of Rs. 5,500. The federation had no other alternative, but, to submit.

(c) FINANCES

According to the Model Scheme, the National Co-operative Development Corporation was to provide loan assistance of Rs. 18.25 lakhs and the balance of Rs. 2.75 lakhs was to be raised by the federation itself. The corporation had already made clear that any increase in the block cost of the project over and above Rs. 21 lakhs would have to be met by the federation from its own resources. The financial assistance was to be released by the corporation to the State Government in the manner as shown in Table No. 8.4.


The first instalment of Rs.4.50 lakhs was released the day the project was finally approved by the corporation. The corporation showed willingness to release the second instalment also provided process for purchase of plant and machinery is finalised expeditiously. As explained earlier, the federation had already initiated steps for placing orders with the suppliers and had finalised the deal by April, 1971. As such, it did not face any difficulty in procuring the rest of National Co-operative Development Corporation funds which were to flow through the State Government.

28. National Co-operative Development Corporation
In the meantime, the National Co-operative Development Corporation - being the sponsoring organisation for the establishment of these units - started receiving representations from the other State federations, which had set up such units, to enhance the corporation's contribution as they were facing hardships in raising adequate working capital, procuring raw-material, recruiting skilled personnel, etc. As a result, the corporation appointed a Study Team\(^{29}\) to undertake the techno-economic study of fertilizer units. The Team, in its report, recommended to revise the project scheme basing the investment at an estimated cost of Rs. 49.43 lakhs for 7.5 tonne per hour capacity (Rs. 34.43 lakhs as block investment and Rs. 15 lakhs as margin money for working capital). Though the corporation accepted the recommendations with regard to block cost, it agreed to allow additional financial assistance of Rs. 7 lakhs as margin money. This additional assistance was, however, 

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29. The Study Team (appointed on January 14, 1971) headed by Dr. K.N. Syngal, Specialist (Soils and Fertilizers) of the Ministry of Agriculture felt that in view of the escalation in prices all round, the total capital cost on block investment would be Rs. 34.43 lakhs (comprising Rs. 14.70 lakhs on plant and machinery, Rs. 15.80 lakhs on civil works, Rs. 0.80 lakh on pre-operative expenses, and Rs. 3.13 lakhs as interest on capital). Besides, calculating margin money at 20-25 per cent for raising finances from the Bank for working capital, a sum of Rs. 15 lakhs would be required (Para 5.18).
to be provided on the condition that the concerned federation would also raise an equal amount from its constituents or from its own resources towards the working capital.  

Like other State federations, Hafed also faced difficulties to complete the project within the estimated cost of Rs.21 lakhs. Accordingly, a proposal was placed before the Board for revision of the estimates from Rs.21 lakhs to Rs.48.20 lakhs. So the federation approached the corporation for additional financial assistance of Rs.27 lakhs. But, this request was turned down reiterating that additional funds would have to be met by the federation itself.

By the time, the project could be completed, the total cost estimated was Rs.55 lakhs. The federation, time and again, requested the corporation for financial assistance, but, to no avail. The National Co-operative Development Corporation

31. Hafed, Proceedings of the meeting of Board of Directors, held on November 18, 1971.
33. Hafed Letters No.
   (i) Accts/CA-III/4145, March 12, 1974; and
   (ii) Accts/CA-III/5868, August 24, 1974.
Development Corporation agreed to release the assistance as already agreed upon. As such, because of the faulty project planning, monitoring and evaluation, the federation had to spend Rs. 37 lakhs on its own. It also failed to adjudge the economic feasibility of the unit at the time of the formulation of the project itself. Besides, it did not try to analyse the economic environment as to whether costs were constant, increasing or decreasing and as such, what remedial measures were necessary. The rates envisaged in the proposal were those prevailing in 1966–67. The federation could have at least contended with the estimated costs after working out another cost estimate at the prevailing rates in 1971.

5 & 6. ESTABLISHING MONITORING AND CONTROL SYSTEM

The next two stages in the implementation process deal with establishing and implementing the control system so that the management at different levels is not only able to control the project from three parameters: time, cost, and performance (quantity and quality), but, also take corrective measures.

In the federation, management failed to design its control system, specifying who reports what to whom, and when. No indicators were selected by the respective managers to compare what actually took place with what was expected. In fact, due to lack of managerial planning, there was utter confusion as far as the overall expectations from the project staff were concerned. This may perhaps
be the reason that most of the work was performed by oral instructions, ad hoc meetings of the project team, or the information remained unused in the files.

There were no visible signs of effective motivational efforts from Project Manager for the staff to perform the desired tasks efficiently and effectively. One of the reasons was that he had no control over the staff engaged in construction work. In fact, they were the employees of the contractor and as such, whenever the activity manager or the Project Manager instructed them to refrain from doing certain things or to complete a particular activity in the stipulated time, they just turned deaf ear to the instructions. The result was that due to poor workmanship and lack of motivation, one of the roofs collapsed on May 18, 1972, resulting in considerable delay in the commissioning of the plant.

+ In case of Hafed Cattle Feed Project as well, due to poor workmanship, one crack appeared in the basement slab of the production block which obstructed the progress of the project construction.

& In this accident, one workman expired on the spot and four were injured.
This all happened despite continued and persistent instructions and the contractor failed to come up to the

task.

+ Some of the instructions given to the contractor as written in the Site Order Book are as under:

14.11.1971 After several instructions given to work misty, he is not following the orders. Work should be followed as:
(a) curing be done in proper way,
(b) shingler be used in proper size, (c) cement will not spread over lead concrete surface, and (d) all types of proportions of cement concrete should be mixed in mixer. If the instructions will not follow, in future, then the contractor will be responsible for whole work.

2.12.1971 After several instructions, cement concrete was not mixed in proper way. If any damage to the structure, the contractor will be responsible for whole work.

3.12.1971 Curing not done in cement concrete in finished material godown. It is a serious irregularity for not setting the cement concrete. Contractor should investigate these things immediately.

4.12.1971 After repeated instructions, contractor is not using well burned bricks of good quality. If he fails to provide good quality bricks, he will be responsible for this work.

8.12.1971 The quality of concrete coarse sand found of very poor strength. If it is done, no payment will be made and will have to be relaid.

11.12.1971 Time schedule is not being maintained.

28.12.1971 It pained me to point out that the curing on main factory building columns at higher elevation is practically nil.

20.3.1972 Machinery foundation - no progress.

12.4.1972 Progress is practically nil.

26.4.1972 Curing not being done in proper way in folded plate roof. Put more men for curing of roof so that curing be done.

28.4.1972 Machinery foundation work is going very very slow. Speed up. Roof of main factory is also not being done as per schedule.

11.5.1972 Curing should not suffer at any cost for want of men. Shutterings should not be removed in one instance. It should be removed from one bay to another bay.

17.5.1972 After giving several instructions, work is not going smoothly.
expectations of Project Manager. A perusal of these instructions would reveal lack of interest and inadequacy of expertise of the contractor in project construction work. Besides, the Project Manager also failed to point out the lapses to the Chief Executive/Senior officers of the federation so that timely action could have been taken against the contractor by rescinding the contract and the federation could have been saved from heavy loss in terms of money as well as the benefits which could have accrued after the commissioning of the project.

The Project Manager, however, maintained good rapport with the Consulting Architect. The latter had been visiting the site quite often. Immediately after the collapse of the roof, the architect visited the site. The samples of the broken roof were sent to the I.I.T. Delhi, for experimentation to give their expert advice. Prof. B.M. Ahuja, Head of Civil Engineering Department who also visited the site, wrote to the architect, saying: "Principle cause seems to be the poor shutterings ... I could see very wide variations in quality of concrete from place to place. If not anything else, it showed poor quality control. The failure was typical failure through crushing of concrete rather than through insufficiency of steel".35

35. D.O. Letter from Prof. Ahuja to Mr. Moorthy (No.111/CE/CH/727391, June 17, 1972).
In order to push up the civil works, the federation rescinded the existing contract on August 30, 1972. The contractor went to the Court for stay orders to remove the debris of collapsed roof and wanted full payment. But, this plea was rejected by the Court. He again contested for preparation of inventory measurements and objected to the arbitration clause by giving a separate application in the Court. The federation, in turn, appropriated all the material brought by the contractor against the losses and went for arbitration as per the agreement and also claimed damages.

This resulted delay in handing over the site to the new contractor. It took about four months to hold negotiations with the new contractor and complete the whole process. Finally, the contract was signed with M/s. S.B. Mehta and Company on December 16, 1972, who agreed to take up the balance work on the same terms and conditions of the previous contractor. He was asked to complete the work within a time limit of nine months and twenty days to be reckoned with effect from December 30, 1972 plus a grace of two months for setting right the defective work. Thus, the project was to be completed by December 20, 1973.

+ At present, the case is pending in the High Court of Punjab and Haryana, at Chandigarh, against the decision of the Arbitrator.
In the process, the federation had to bear an extra expenditure of Rs.26,000 for dismantling and clearing the debris.

As mentioned elsewhere, the members of the State Legislature have been taking keen interest in the development of co-operative organisations. In the present case too, one of the members raised the question relating to collapse of the roof of the plant and the Minister concerned blamed the contractor for suspension of the construction work. He assured the House that the factory would go into production by early October, 1973.

The new contractor, like his predecessor, failed to accelerate the progress of work as per the schedule. The federation in a communication, pointed out that though a period of nearly 5½ months had elapsed, progress at the site was far from satisfactory. It asked the contractor to ensure completion of work within the contractual period. Due to non-completion of civil works in time, the federation had to approach time and again their

+ At one stage, even the new contractor taking the benefit of the case pending in the Court demanded Rs.1,000 per day as compensation for the period, the construction work was stayed. But, later on, he did not insist for the same when he came to know that the federation was willing to allot the work to some other contractor.

£ Shri Shiv Ram Verma, Member of Legislative Assembly, Starred Question No.374 (1973).

suppliers of plant and machinery regretting delay in the erection and commissioning of the project. The final clearance was given to the suppliers to start fittings of the machinery after October 21, 1973 when the factory building was expected to be ready for installation of the machinery. 37

In spite of repeated reminders, the contractor failed to push up the construction work. Instead, he asked for extension up to March, 1974, which was allowed. Even up to this period, most of the construction work remained incomplete. 38 The plant was finally ready for commissioning sometimes in early July, 1974 (more than two years after the project implementation schedule). It was put to performance trial by the suppliers for the first time on July 9, 1974, for a period of four days. But, the results indicated that the plant could not operate on its optimum capacity of 7.5 tonnes. Besides, the finished products manufactured proved to be of sub-standard quality as confirmed by the laboratory results. Accordingly, the balance payment due to the suppliers was withheld and they were asked to depute their representatives to set right the plant. 39 The suppliers in turn partly blamed the

Project Manager for his non-co-operation and interference in the running of the plant and party due to frequent disruption in power. However, later, their representatives visited the plant to ensure that the federation could get the expected results from the project.

7. TERMINATING THE PROJECT

This is the last stage of the project. Here a summary report has to be prepared showing the stresses and strains right from the formulation to implementation stage of the project to serve as a guideline for future projects. Inspite of the fact that there was financial crisis in the implementation of the project due to steep increase in the block cost, the project was not terminated pre-maturely. Instead, it was terminated late because there were delays in reaching the project objectives. The Project Manager, however, did not prepare any final report which could influence future actions. However, later, the project was converted into a regular activity/programme of the federation.

EVALUATION OF THE PROJECT

We shall now analyse whether Hafed Granular Plant came up on sound and well-established procedures of project formulation and implementation or not. Careful

evaluation is the backbone of any project. Evaluation of results achieved is required in order to derive full benefits from the experience. Evaluation becomes futile unless it is carried out in a systematic and co-ordinated fashion with clearly defined objectives and consistent procedures. The Draft Plan (1978-83)\textsuperscript{+} states that lack of system approach, and poor monitoring, evaluation and feedback systems are the major problems in the implementation and evaluation of the projects.\textsuperscript{41} A.P. Barnabas also contends that "to be most effective, evaluation must not be made merely of physical achievements, but also of the cost of such achievements."\textsuperscript{42}

On examining the results of Hafed Fertilizers, it was found that during the years 1974-75, 1975-76, and 1976-77, the unit manufactured 7772 MT, 11355 MT, and 9948 MT of fertilizers. The grade-wise and year-wise production/sale of fertilizers may be perused from Table No.8.5.

\textsuperscript{+} This plan was abandoned with the change in ruling party at the Centre in 1980.

\textsuperscript{41} Government of India, \textit{Draft Five Year Plan (1978-83)}, Delhi, Planning Commission, p.123.

From the production figures, it was revealed that the performance was dismal inasmuch as that the capacity utilisation of the plant was to the tune of 26 per cent, 38 per cent and 33 per cent respectively.

The main reasons for under-utilisation of the capacity in respect of Hafed Fertilizers were ascertained on the basis of the official records, and personal interviews/discussions with a number of employees/officers. These defects can be examined under the following headings:

(a) Defective power planning and co-ordination
with State Electricity Board,
(b) Lack of Personnel Planning,
(c) Lack of well-designed Financial Planning,
(d) Ineffective Materials Management System,
(e) Technical defects,
(f) Lack of strategic policy decisions,
(g) Lack of adapting the centrally sponsored projects,
(h) Lack of cumulative experience to guide the future projects,
(i) Delay in the timely completion of the project, and
(j) Lack of a Model proforma for projects.

(a) There was shortage of power, low voltage and that too accompanied with regular fluctuations in power supply.

Table No. 8.6 depicts year-wise total working days vis-a-vis actual working hours:

<table>
<thead>
<tr>
<th>Year</th>
<th>total days</th>
<th>total working days</th>
<th>actual working hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974-75</td>
<td>365</td>
<td>218</td>
<td>1442</td>
</tr>
<tr>
<td>1975-76</td>
<td>366</td>
<td>218</td>
<td>1735</td>
</tr>
<tr>
<td>1976-77</td>
<td>365</td>
<td>225</td>
<td>2312</td>
</tr>
</tbody>
</table>

SOURCE: Data compiled from official records of Hafed.
An analysis of the production in the calendar year of 1976 shows that the plant was run for 236 days in 300 shifts involving 2400 hours. The actual operational hours were, however, found to be only 1725 and the plant remained idle for 675 hours. The lion's share for this idleness was due to irregular power supply; low voltage claimed 213 hours. This shows lack of co-ordination with the State Electricity Board both at the vertical and horizontal level. It is suggested that State Government must ensure regular supply of power to such units as fertilizers falls in the category of the core industry for agricultural production.

(b) The study indicates that due to lack of manpower planning and personnel policy, a large number of staff (regular and daily-wagers) were deployed without linking it with the production/maintenance/operational activities. Table No. 6.7 gives the details of the regular and daily-workers vis-a-vis the establishment and administrative expenses incurred in the various years.

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>213.50</td>
</tr>
<tr>
<td>80.15</td>
</tr>
<tr>
<td>9.15</td>
</tr>
<tr>
<td>96.25</td>
</tr>
<tr>
<td>17.30</td>
</tr>
<tr>
<td>11.50</td>
</tr>
<tr>
<td>76.05</td>
</tr>
<tr>
<td>143.20</td>
</tr>
<tr>
<td>48.15</td>
</tr>
<tr>
<td>675.25</td>
</tr>
</tbody>
</table>
Table No. 6.7

INCREASE IN EXPENDITURE ON ESTABLISHMENT AND OVERHEADS DUE TO SURPLUS MANPOWER

<table>
<thead>
<tr>
<th>Particulars</th>
<th>As on July, 1974</th>
<th>1974-75</th>
<th>1975-76</th>
<th>1976-77</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERSONNEL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Regular</td>
<td>24</td>
<td>36</td>
<td>41</td>
<td>42</td>
</tr>
<tr>
<td>(b) Daily-wagers</td>
<td>44</td>
<td>49</td>
<td>49</td>
<td>31</td>
</tr>
<tr>
<td>EXPENSES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Establishment expenses (Rs. in lakhs)</td>
<td>1.73+</td>
<td>0.98</td>
<td>1.91</td>
<td></td>
</tr>
<tr>
<td>(b) Office overhead expenses (Rs. in lakhs)</td>
<td>0.09</td>
<td>0.35</td>
<td>0.94</td>
<td></td>
</tr>
</tbody>
</table>

* Expenses on account of daily staff engaged for production have been wrongly included in this figure. This should have been included in manufacturing expenses.

**SOURCE:** Data compiled from official records of Hafed.

The data indicates that the regular staff doubled in the three-year period whereas the production increased marginally, i.e., by 25 per cent. Naturally, the establishment of personnel increased the over-head expenses which raised the cost of production resulting ultimately in losses to the unit.

The federation also failed to select competent personnel. The appointment of the Project Manager is a glaring example.
The study shows that if the response in the first advertisement was poor, the post could have been re-advertised. The first Project Manager, a Civil Engineer, was taken on deputation from the State Government. He had never supervised the construction of such a complicated project except the construction of roads and buildings. He had no stakes and motivation for hard work because he was not an employee of the federation and the latter could not revert him back to his parent department. In other words, he was not wholeheartedly willing to discharge his responsibilities which is fundamental for progress. Subsequently, the other Project Managers too followed into his footsteps. This was the reason for low morale of the project staff and poor management. It was stated by a number of persons working on the project that:

"They are thrown into the fields to operate the projects without proper briefing about the project and its rationale. Besides, the supervisors at the head-office never guide them about their role in the project".

This also reflects that the persons appointed at the time of project formulation and implementation did not continue till the termination of the project.

In the present age of specialisation and sophistication, the dynamics of project formulation and implementation can
be characterised in two words "Hard Work". As such, a good deal of information must be reviewed, structured, and manipulated. A great deal of thinking must be done by intelligent, experienced, and practical people to yield its potential benefits. This would be possible only if we have innovation, initiative, and willingness on the part of the Project Managers and their team which goes a long way towards improving performance. This calls for a sound manpower and personnel policy. After all, supermen are not likely to be available. The emphasis should, therefore, be placed on finding available individuals who have a reasonable mixture of qualifications rather than on searching the ideal candidate. It would facilitate recruitment of right type of staff at the right time which would result in better overall cost productivity, efficiency, and effectiveness in the project. It is also suggested that the persons may be appointed for the whole duration of the project and mid-term transfers should be avoided. In addition, project staff must be briefed properly and recurrent guidance provided to keep them rightly informed about the progress of the project.

(c) It was observed that the unit had been running into losses not only due to under-utilisation of capacity, but also because of the lack of well-designed financial
planning, thereby leading to escalation in project cost as also the inadequacy of raising margin money for working capital purposes. The year-wise profit/loss incurred by the plant is given below:

Table No.8.8
PROFIT & LOSS STATEMENT OF THE PROJECT
(Rs. in lakhs)

<table>
<thead>
<tr>
<th>Year</th>
<th>Profit</th>
<th>Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974-75</td>
<td>--</td>
<td>1.740</td>
</tr>
<tr>
<td>1975-76</td>
<td>--</td>
<td>0.140</td>
</tr>
<tr>
<td>1976-77</td>
<td>--</td>
<td>6.730</td>
</tr>
</tbody>
</table>

SOURCE: Data compiled from official records of Hafed.

This phenomenon of recurring losses (whether on one shift or two shifts basis) by the Fertilizer Units in the country was also observed by the Techno-Economic study conducted by the National Co-operative Development Corporation.

+ The Study Team undertook in-depth study of five units based on the actuals of raw material cost in 1968-69 to 1970-71 and the corresponding value of the factory finished product. All the units showed losses on one shift basis (ranging between Rs.4 to Rs.26 per tonne). Three of them continued to operate on loss even on two shifts (ranging between Rs.3 to Rs.6 per tonne) while the other two showed profit (ranging between Rs.6 to Rs.16 per tonne). On three shifts basis, all the units earned profits (ranging between Re.1 to Rs.33 per tonne). This way, the net loss on one shift basis was worked out as Rs.27 lakhs per annum, on processing 15,000 tonnes of fertilizers. The profits on two and three shifts basis were to give a return of Rs.0.60 lakh and Rs.5.95 lakhs per annum.
The case-study reveals that the actual project cost as compared to estimated one increased by more than 2½ times. The same trend was also observed in respect of many other fertilizer units set up in the different States. The federation based its feasibility study, by and large, on the Model Scheme (which was no substitute for a feasibility report but just a blueprint describing the broad estimates of capital investment) which was formulated on the prevailing prices of 1966-67. In other words, Hafed did not make any concerted efforts to have a survey of the market with regard to the estimated cost of machinery, civil works, land, and other ancillary services. It was because of the steep increase in the prices all round that the project cost increased substantially.

It is a recorded fact that due to lack of managerial planning, none of the projects in Hafed could be commissioned within the estimated project cost. This would be clear from the fact that for Bakeries, Pesticides, Cattle Feed, Dal Mill (Hissar), and Dal Mill (Ambala), the actual cost of the project increased by 65, 60, 38, 

* For details, see Annexure No.XXXIV.
100, and 20 per cent respectively.†

Even the Committee on Public Undertakings has pointed out that the expenditure on construction of projects had exceeded original estimates sometimes by as much as 70 to 80 per cent due to inadequate construction planning.‡

Besides, the federation initiated the project just by taking care of the element of block cost required and ignoring the urgency of raising margin money required for working capital purposes. That is why, when the project was nearing completion, it had no funds for purchase of raw material. As a result of poor financial planning, the project was loaded not only with instalments of loan repayment, but also on interest thereon without any return.

It is suggested that the projects may be prepared with sufficient degree of precision at the current prices giving sufficient margin to cover the impact of escalation in the

<table>
<thead>
<tr>
<th></th>
<th>Estimated Cost</th>
<th>Actual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hafed Bakeries</td>
<td>10.44</td>
<td>16.50</td>
</tr>
<tr>
<td>2. Hafed Pesticides</td>
<td>2.65</td>
<td>4.22</td>
</tr>
<tr>
<td>3. Hafed Feeds</td>
<td>43.10</td>
<td>59.50</td>
</tr>
<tr>
<td>4. Hafed Dal Mill, Hissar</td>
<td>5.46</td>
<td>11.00</td>
</tr>
<tr>
<td>5. Hafed Dal Mill, Ambala</td>
<td>5.00</td>
<td>6.00</td>
</tr>
</tbody>
</table>

+ The estimated block cost and the actual cost of the various units was as under 1

prices as also making sufficient provision for margin money. This would help in minimising the overhead expenses and would have a direct impact on the profit/loss account of the on-going project.

(d) The study shows that frequent interruptions in supply of materials management impeded the smooth progress of the project. During the implementation of the project, the machinery remained idle for more than two years. Civil works were also not completed within the stipulated period. Thus, absence of one resource inflated the cost of the project and delayed the timely completion of the various activities. On further examining the performance of the unit, it was found that due to defective strategy planning, the production was stopped for 96.25 hours out of a total of 675 hours for want of raw material in the year 1976. The unit had also to be stopped for want of stores/packing material for 28.80 hours. Similarly, 76.05 hours were wasted during the peak months of October-December on account of non-availability of contract labour at proper time. Therefore, effective steps should be taken to ensure that all the inputs and auxiliary services are made available at the right time and in an integrated manner. In this regard, the Project Manager must take the following steps:

(i) Preparation of a time table for obtaining resources in consultation with concerned administrative units.
(ii) Monitoring progress according to this time table to ensure that the administrative steps are completed in time.

(iii) Taking corrective action as and when necessary.

Another reason for under-utilisation of installed capacity by Hafed Fertilizers was due to accumulation of fertilizer stocks as a result of slow rate of its disposal. For instance, a perusal of Table No. 8.9 reveals that during the co-operative years 1974-75, 1975-76, and 1976-77, the average holdings of inventory was 1834, 4202, and 4257 metric tonnes as against the average monthly sale of only 279, 845, and 900 metric tonnes respectively.

Assuming that Hafed should have stock of finished products for three months during peak season for sales, i.e., during October to December, the production schedule should have been planned on the principle of the EOQ (Economic Order Quantity) in such a manner that there was no piling up of finished products resulting into heavy interest liability on the working capital.

Since the efficient and economical use of materials is prerequisite for the profitable operations of an organisation, inventory management — a product of industrialisation — plays a significant role on profitability.

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</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>—</td>
<td>—</td>
<td>970</td>
<td>20</td>
<td>2037</td>
<td>1037</td>
<td>151</td>
<td>3137</td>
<td>695</td>
<td>22</td>
<td>2849</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>February</td>
<td>—</td>
<td>—</td>
<td>137</td>
<td>10</td>
<td>2164</td>
<td>561</td>
<td>—</td>
<td>3693</td>
<td>892</td>
<td>110</td>
<td>3631</td>
<td></td>
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<td></td>
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<tr>
<td>March</td>
<td>—</td>
<td>—</td>
<td>632</td>
<td>71</td>
<td>2723</td>
<td>1172</td>
<td>—</td>
<td>4865</td>
<td>940</td>
<td>123</td>
<td>4448</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>April</td>
<td>—</td>
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<td>1005</td>
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**Source:** Data compiled from official records of Hafed
It helps to keep down capital investment on inventories which otherwise constitutes one of the largest items in the current assets of an organisation and occupies a pre-dominent place in the requirement of working capital. It has been found that in U.S.A. the adoption of even one scientific inventory technique, has been responsible for reduction in "total inventory investment by 20 to 30 per cent - without sacrificing customer service". In the Indian context as well, the Committee on Public Undertakings, in its Report on Materials Management (1968), has observed as follows:

"if the inventories of industrial running concerns could be reduced to six month's production - which would by no means be difficult - it would mean release of capital to the extent of Rs.104 crores ..."

As such, the federation may set up a Materials Management Cell, prepare a manual, and train the personnel in the art of material management. This would: (i) ensure adequate supply of material and avoid costly interruptions in operations, (ii) enable management to make cost and consumption comparisons between operations and periods, (iii) permit optimum utilisation of available stocks, (iv) facilitate cost accounting by providing a means for

allocating material costs to products, departments or other operating accounts, and (v) serve as a means for the location and disposition of inactive and obsolete items of stores.

(e) The losses were also attributed to high cost of production and costly raw material. The unit did not devise any predesigned formula for consumption of raw material. Rather, it was being mixed in various ratios on guess work. Moreover, due to shortage of raw material in the beginning, old stocks lying with the federation were used as raw material without analyzing/testing their nutrient contents as per the prescribed proportion. As a result, the finished product contained more nutrients than required which led to increase in cost. Thus, it lead to wastage of costly raw material as well as increase in cost of production.

As such, there is a great scope for cutting drastically the cost of production. The State Government, on its own, may come forward to arrange cheaper raw material at pool prices so that such units may not fall prey to the clutches of private manufacturers for the supply of raw material at exhorbitant prices.

(f) Though during the period under review, there was considerable increase in sale of phosphatic and potassic fertilizers manufactured by IF CO and other manufacturing concerns in the State, due to increase in this consumption,
the sales of Hafed Fertilizers did not show any positive trend because of unrealistic sales policy, lack of incentive scheme, lack of sales campaign, etc. Inspite of the fact that Hafed started an incentive scheme by issuing one prize coupon for sale of each bag of fertilizer, the sales could not be pushed up. The federation also allowed off-season rebate for sale of fertilizers, but, to no avail.

In order to ensure promotion of sales of fertilizers, area-wise dealers may be appointed. They may be asked to lift specific quantity of fertilizers in a specific time and a suitable penalty may be imposed for their failure to do so. It may allow off season rebate to such dealers when the fertilizers are not in much demand. Rebate may be given to those dealers who make purchases on cash-and-carry basis and to those who make bulk purchases over a specified ceiling. In addition, a fair margin for developing efficient distribution services may also be given to them.

(g) Though it was specifically stated by the National Co-operative Development Corporation that the Model Scheme designed for setting up of fertilizer units may not suit all the areas equally and that the co-operatives may prepare the scheme according to the ecological conditions, the irony is that the structure designed by the corporation
for the formulation and implementation of the projects instead of adapting, was adopted as such without any alteration. As such, lack of well conceived project retarded the implementation of the project in terms of capital cost, delay in commissioning, and recurring losses in the years ahead. This results in wastage of human and material resources. J.M. Kitchlu, while outlining the phases of life cycle of a project, also observes:

"The need for carrying out detailed planning is being increasingly recognised, but there are still cases where projects are being approved without essential steps regarding all stages of preparation and scrutiny being undertaken in the pre-construction stage. This has resulted in the formulation of incompletely conceived plans and estimates and thus has led to unsound decisions on project size, scope, location, and product mix".46

It is suggested that in future, projects may be formulated keeping in view the local needs of the area and efforts made to adapt the Scheme.

(h) The federation did not prepare any documents in relation to problems experienced right from project formulation.

to implementation. Had this cumulative experience been passed on to the other Project Managers, who were made responsible to organise and install thirteen other processing units, many of their difficulties would have vanished there and then. It was observed that in almost all these units, the same problems were repeated, e.g., the cost of projects increased and delays occurred in their implementation. Similarly, the Network techniques were neither adopted nor any use of management techniques and Charts/Graphs, etc., was made to monitor the progress or re-scheduling the project according to the exigencies of time.

It is suggested that a comprehensive report after the completion of each and every project must be prepared giving its entire history, including the mistakes made and risks taken, corrective measures adopted, and lessons drawn. More specifically, the report must include the following aspects:

(a) Aspects of formulation procedures,
(b) Practical advice on how to establish projects and to avoid pitfalls,
(c) Problems of internal and external resources, and
(d) Successful scheduling and controlling the project, including the lessons learnt.

In this connection, Frank A. Wilson rightly observes
that "disappointing and inefficient project performance is a fact of life ... Ex-post facto evaluation of existing projects can be the means by which we can systematically seek to analyse the potential for improving project management. Evaluation studies give the opportunity for developing a greater understanding of the way projects are managed and implemented."47

(1) The study shows that there was an unduly long delay in the construction phase of the project due to poor workmanship in laying the re-inforcement, using concrete mix of inadequate strength against specifications, bad shutterings, carelessness in opening shutterings, improper curing, etc., and inadequate construction planning (without using advanced techniques of PERT/CPM). The delay was as much as of about 2½ years. It happened not only in the present case, but also in respect of other projects of the federation resulting in delayed

47. Frank A. Wilson, "Planning for Project Management" Journal of Administrative Overseas, July 1979 (V18, No.3)
realisation of the benefits expected from them. The Techno-Economic Study has also felt that some of the fertilizer units took only fifteen months from the date of sanction of the project while some others took as much as three years.  

1. Hafed Feeds could not be completed in time due to acute shortage of raw material, steel, cement, sheets, and due to power cut imposed in all the industries. Besides, the suppliers could not supply the equipment in time. Above all, due to development of crack in the construction phase, the plant was not completed as scheduled. The total delay involved was to the tune of two years.

2. Hafed Pesticides which was to be completed in August 1973 was actually commissioned in October 1974. There was delay in calling tenders for supply of machinery and award of civil contract.

3. Hafed Bakeries was delayed by seven months as the machinery could not be supplied by the firm in time.

4. Hafed Dal Mills at Hissar and Ambala were also delayed by seven and eight months respectively for similar reasons.

The main reasons for the delay were frequent changes in site selection and acquisition, labour problems, delay in calling tenders, and award of contracts. In one case, financial problems held up the progress of work while in another, the foundation work was delayed because of rocky strata. See, National Co-operative Development Corporation, Co-operative Granular Fertilizer Units: Report of the Techno Economic Study Team, Delhi, 1973, p.104.
The programming of projects can be speeded up if adequate care is taken initially to plan the project in sufficient detail, to define its scope (and to adhere to it) and to lay down realistic schedules of implementation.

(j) The federation has not designed any proforma to get first hand information regarding the suitability of the intended project. A project report is always a lengthy document. At times, it becomes difficult to seek advice of the experts at short notices with regard to the technicalities involved in the project before its actual formulation/implementation. Looking at the gravity of the problem, a 'Model Project Proforma' is proposed. A model proforma can be described as a "shorthand representation" of the detailed project report indicating the salient aims, location, investment, social evaluation, and profitability of the project without any delay and difficulty. The proposed proforma can be divided into five main headings:

(a) Project digest;
(b) Description, purpose, and benefits of the project;
(c) Estimated cost of project;
(d) Financing of project; and
(e) Manpower, materials and other requirements of the project.

Thus, Hafed Fertilizers, has not come up to the expectations as envisaged under the Project Report.

+ These steps have been explained in detail in Annexure No.XXXV.