CHAPTER VII

TECHNICAL ASSISTANCE

The need of providing technical assistance to small-scale industries was recognised in the First Five Year Plan Report. It was emphasized that "the advance of technical education is the material factor in the progress of small industries". In 1954, the Ministry of Commerce and Industry requested the International Planning Team to investigate the feasibility of an Institute of Technology for meeting the needs of research, basic technical assistance, and training for small industry. The Team, during its tour of industrial units and artisans' workshops found that in management and production age old methods were being used. It recommended

the establishment of four institutes of technology to "act as service agencies to impart simply and quickly to the small industrialist for his immediate use, modern advances in science and technology". Following this recommendation, the Central Government established four Regional Small Industries Service Institutes at Bombay, Calcutta, Delhi and Madras to serve as the main centres for industrial extension service to provide technical assistance and guidance to small entrepreneurs. The number of these Institutes later increased to 25. State Governments also set up agencies to provide technical assistance.

In Punjab technical assistance was provided under the following programmes: Modernization, Industrial Research, Technical Training, Technical Consultancy, Testing Facility and Common Facility Service.

MODERNIZATION PROGRAMME

The importance of technological development was recognised in the Industrial Policy Resolution (1956) of the Government of India. The Resolution stated that the State should concentrate on measures for improving the competitive strength of the small industrial sector. For this it was essential that the technique of production should be constantly
improved and modernized.

In compliance with the spirit of the Resolution, the Small-Scale Industries Board set up an expert committee to examine the degree of obsolescence in capital equipment of small-scale industries on a selective basis. This committee selected certain industries for modernization of their manufacturing processes. Survey teams were set up to formulate modernization plans for the selected industries on annual and long-term basis. The Committee worked out the nature of assistance and incentives to be given to such small enterprises as were willing to take up modernization. In March 1967, the Loknathan Committee recommended that the Small Industries Development Organisation should be equipped with specialists in different industries for providing high level technical advice.

The Small-Scale Industries Board at its 25th meeting held on 8-9 August 1967 recommended that a study team should be set up to examine in detail various problems created by obsolescence of machinery in the small-scale sector and to suggest suitable measures to modernise it. Consequently, a Study Team was constituted by the Government.\(^2\)

The Team found that the machinery and equipment in a large

\(^2\)Chairman of the Team was G.B.Nawalkar.
section of small industrial sector had inevitably become obsolete. The degree of obsolescence varied from industry to industry and place to place. It was found that the use of old machines resulted in wastage of raw-materials and increase in the cost of production. Therefore, the replacement of obsolete machines and introduction of modern ones had become absolutely necessary in order to keep pace with the growing quality consciousness at home and abroad. The Team suggested that the programme of modernization should be undertaken in a phased manner by selecting a few industries every year and a provision of funds for its implementation should be made. The Team recommended that special incentives and tax reliefs, financial assistance and technical guidance should be given to small entrepreneurs as in the modernization programme of the Government of Japan.

In 1969, a delegation visited Japan and recommended speedy modernization of not only equipment and machinery but also of management. The delegation recommended that a modernisation law, somewhat on the pattern of the Japanese law, should be enacted to suit the conditions prevailing in India. It also suggested that units selected for modernization should be given machinery on monthly instalments, special depreciation rebate on new machinery and special loans and tax concessions on Japanese lines.
On the recommendations of the Loknathan and Nawalkar Committees, the modernization programme was adopted by the Government of India in 1973. Modernization Cell was created in the office of the Development Commissioner, Small-Scale Industries. The programme was to be implemented through State Level Standing Committees. In Punjab, separate Modernization Divisions were created in the Small Industries Service Institute, Ludhiana; and the Department of Industries, Punjab. The State Level Committee was set up under the chairmanship of the Commissioner of Industries. The Director, SISI (Ludhiana) was the Member-Secretary; other members were from the Department of Industries, the Punjab State Small Industries Corporation Ltd., the Punjab Financial Corporation, the National Productivity Council, lead banks, research institutes and associations of industries. The programme was implemented both by the SISI and the Department of Industries, Punjab.

Small Industries Service Institute (SISI)

The eligibility criteria for registration of a unit with the SISI were as follows: (i) the unit was already exporting directly or indirectly; (ii) a product manufactured by the unit had export potential; (iii) the unit was an ancillary to a large or medium-scale unit; (iv) the unit catered to Defence; (v) the degree of obsolescence of
machinery and equipment used by the unit was high; (vi) the unit offered opportunities for increasing labour productivity; (vii) the unit had scope for improvement of quality. The registration fee under the programme was Rs.500. The selected units were eligible for certain benefits such as supply of machinery and equipment (both indigenous and imported) on priority basis; concessional credit facilities; raw-materials (both imported and indigenous) on priority; techno-managerial assistance; training assistance. Table 7.1 shows the activities conducted by the Institute under the programme. We may

**TABLE 7.1**

**Achievements under the Modernization Programme**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Open-House Discussion</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2. Seminar</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3 Status-reports</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4 In-plant studies</td>
<td>33</td>
<td>11</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>5 Model Industry Study Report</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6 Modernisation Courses</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>7 Industry Clinic</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>8 Industry Workshop</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Records maintained by the Small Industries Service Institute, Ludhiana.
note that the SISI conducted a few courses to assist small entrepreneurs to modernize their units. A workshop-cum-clinic on the sewing machine industry was organized to explore the possibilities of standardization of sewing machines. A workshop and a special training course in electroplating were organised and twenty entrepreneurs participated in these. A clinic on plastic industry was also conducted. However, the number of units registered with the Institute decreased with the passage of time as indicated by the in-plant studies. This suggests that the entrepreneurs were enthusiastic about the programme in the beginning but later did not find it useful. The officer-in-charge of the programme stated that the SISI had no provision to give incentives to the units registered under the programme. The Institute recommended entrepreneurs to the Department of Industries for being provided with machinery and raw-materials on a priority basis, to the Punjab Financial Corporation and banks for concessional finance.

**Department of Industries**

It was stated by the Punjab Government that "small-scale industry is ignorant about the latest production and management techniques, concept of unit cost and utility of adherence to certain standards and specifications. The small-scale industry is, therefore, facing innumerable problems,"
which have to be tackled on a war-footing for their survival. The need for modernization of industries in the small-scale sector has, therefore, been felt since long. The Punjab Government adopted the modernization programme during the Fifth Plan period broadly on the guidelines issued by the Development Commissioner, Small-Scale Industries. The programme was adopted in a phased manner. Every year ten different groups of industries were to be selected, consisting of one hundred units in all, till at least 5 per cent of the total registered units were covered under the programme.

The registration fee was only Rs. 100. The Punjab Industrial Consultancy Organisation conducted the diagnostic study of the unit, and submitted the report to the Director of Industries; the Technical Committee consisting of officials of the Department of Industries, the Punjab Industrial Consultancy Organisation and the District Industries Centre now visited the unit. On the recommendation of the Committee the unit was selected. The selected units were

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3 Director of Industries, Scheme of Modernization of Small-Scale Industries (Mimeographed, n.d.), p.i.

4 The Punjab Industrial Consultancy Organisation was abolished in May 1981 due to lack of business.
provided with the following incentives:

(i) full cost of diagnostic study of the unit (the Department of Industries paid Rs.3000 per diagnostic study to the Punjab Industrial Consultancy Organisation);

(ii) a subsidy of 15 per cent upto a maximum of Rs.40,000 on purchase of machinery and equipment as recommended in the diagnostic study;

(iii) subsidised training - 50 per cent of the cost of training upto a maximum of Rs.1,000 per unit;

(iv) financing at concessional rates by the Punjab Financial Corporation.

Table 7.2 shows the number of beneficiaries under the programme. We may note that during 1978-80, 232 units of Punjab (of which 61 belonged to Ludhiana District) were selected for the programme but none of them was given any cash incentives by 1978-79. During the year 1979-80, 14 units were given the cash incentive amounting to Rs.260,000. Of these, one unit belonged to Ludhiana and secured the cash incentive amounting to Rs.40,000. Upto December 1980, 343 units in Punjab were covered under the Programme and diagnostic studies
### TABLE 7.2

**Number of Beneficiaries under the Modernisation Programme**

(Amount in Rupees)

<table>
<thead>
<tr>
<th>Year</th>
<th>Units Selected</th>
<th>Cash Incentive Provided</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Punjab</td>
<td>Ludhiana District</td>
<td>Punjab</td>
</tr>
<tr>
<td></td>
<td>No. of units</td>
<td>Amount</td>
<td>No. of units</td>
</tr>
<tr>
<td>1977-78</td>
<td>66</td>
<td>18</td>
<td>-</td>
</tr>
<tr>
<td>1978-79</td>
<td>66</td>
<td>20</td>
<td>-</td>
</tr>
<tr>
<td>1979-80</td>
<td>100</td>
<td>23</td>
<td>14</td>
</tr>
</tbody>
</table>

**Source:** Records of the Director of Industries, Punjab.

and in-plant visits... of 243 industrial units had been completed. Of these, 61 units belonged to Ludhiana District. In our sample, one unit was registered for the programme. Only one unit was sponsored for training to the State Institute of Extension Training, Hyderabad. This unit belonged to Ludhiana District. The data show that the programme did not make much impact as the number of units registered was very small. The reasons for non-adoption of the programme were as follows.

**Lack of Information** We found that 81 entrepreneurs were ignorant about the programme. There was need for publicity. The Department of Industries did make some effort to give it publicity by organising meetings of entrepreneurs with
officials. One such meeting was held at Ludhiana in December 1980; however, the response of the entrepreneurs was poor.

Lack of Funds
Fifty nine of the entrepreneurs told us that they would like to install new machinery but did not have the necessary funds. Under the programme, there was a provision for subsidy equal to 15 per cent of the cost of machinery, which was to be paid after the entrepreneur had secured a loan from a financial institution for the purchase of machinery. Table 7.2 shows that of 61 units selected for modernization in Ludhiana District, only one had been provided with subsidy amounting to Rs.40,000. This indicates that obtaining a subsidy, tied as it was to the loan, was very difficult.

Delay
The diagnostic study of the unit took six months to one year and the enthusiasm of entrepreneurs was dampened in such a long time. One unit in our sample had remained registered for over a year and the study had yet to be made.

INDUSTRIAL RESEARCH
The need of industrial research was realised early; it was in 1942 that the Council of Scientific and Industrial Research was established as an autonomous body for the promotion, guidance and coordination of scientific and

5Punjab Financial Corporation advanced loan at a concessional rate; the procedure, however, was forbidding.
industrial research. The Council was also responsible for
the establishment and maintenance of laboratories for the
scientific study of problems affecting particular industries
and trade, and utilization of research results for develop­
ment of industries in the country. The agencies located in
Ludhiana District for undertaking industrial research at the
time of our study were: the Mechanical Engineering Research
and Development Organization - an Extension Centre of the
Central Mechanical Engineering Research Institute, Durgapur;
and the Central Food Technological Research Institute Experi­
ment Station - an extension centre of the Central Food Tech­
nological Research Institute, Mysore.

Mechanical Engineering Research &
Development Organisation (MERADO)

The Extension Centre was set up in 1965 in Ludhiana
for conducting research and development primarily in the
field of mechanical engineering. It was to serve industries in
the development and improvement of products through improve­
ment of designs of machines, development of new designs,
substitution of imported materials and optimisation of the
use of materials.

Achievements

The Centre made an important contribution to the
hosiery industry. In September 1976, a survey was made to
study the requirement of machinery for knitting hosiery and the possibility of its indigenous development. It was found that the modern knitting and auxiliary machines, which were not yet made indigenously, were needed to stay in the competitive export market. The entrepreneurs were, however, reluctant to import the machines because of their prohibitive costs, inadequate training facility and after sales service. Indigenous production of machines could deal with these problems. Design and development activity in the field of knitting and sewing machinery was undertaken and a handknitting machine was fabricated. The design was adopted by a small-scale hosiery machinery manufacturer for commercial use. Thus, the Centre assisted in the development of machinery and thereby in the growth of hosiery industry, so important in the District.

A few other research projects were taken up by the Centre. Some of these were: development of screw cutting gear box for lathes, development of the centrifugal irrigation pump, design and development of a groundnut digger, development of diesel engines, standardization of an

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interlock knitting machine, design and development of a circular and handsaw sharpening machine, standardization of sinker body knitting machine, development of a gill box for wool silver, design of a cold rolling machine for sinker strips, design of a taper measuring instrument, standardization of a valve-type hydraulic pump, design of furnace heating chambers for hockey sticks and balls, design of a squeezing roller for wool washing machine, design of shaver components, design and development of slitting-cutter manufacturing machine, development of hand-run continuous knap-sack sprayer, investigation of the causes of the failure of foundation bolts, design and development of wool carding machine, design and development of pencil sharpening machine, design of 3-speed hub for bicycles and design of B.B.cup gauges. Of these, the design and development of seven machines had been sponsored by manufacturers in the large-scale sector.\(^7\)

Thus we find that the research undertaken by the MERADO was of an applied nature. The MERADO undertook designing and development of industrial machines, machine tools, farm machines, special purpose machines and the standardization of existing machines. The research led to inventions

\(^7\)Central Mechanical Engineering Research Institute, Ten Years of MERADO: Special Issue of MERADO News(Poona: D.G.& Co., Industrial Printers, 1976), pp.13-16.
which could have been patented and commercialised. However, only one of the patents had been released to a firm in the small-scale sector.

Central Food Technological Research Institute Experiment Station (CFTRI)

A regional research station of the Central Food Technological Research Institute, Mysore, was set up at Simla in March 1963 'to cater to the technical needs of the food industry' in the States of Punjab, Haryana, Himachal Pradesh, and Jammu and Kashmir. In 1965 it was re-christened as 'Experiment Station'. In 1969 it was shifted to Ludhiana. There was much scope for agro-based industries in Punjab due to its developed agriculture; Ludhiana was also the seat of the Punjab Agricultural University. The Punjab Government provided Rs. 25 lakhs for the building of the Experiment Station. The objectives of the Experiment Station were as follows:

(i) to identify research and development problem;
(ii) to undertake investigational research for providing answers to technical problems faced by the food industry;
(iii) to make available the technical know-how of the processes and products developed at the Central Food Technological Research Institute, Mysore, to the industrialists for quick utilization of the Institute's research.
Achievements

The Experiment Station undertook research and development activities as follows:

(i) At the request of the Government of Punjab, assistance was given in designing an improved grain storage bin for the use of middle class farmers and its structural details and costs were worked out.

(ii) In collaboration with the Food Corporation of India, demonstrations for storing food grain in bins and plastic silos using minifume tablets and other techniques were given at the grain mandis (markets) of Ludhiana, Khanna, Jagraon and Moga.

(iii) Demonstration of pest-proofing of gunny bags was given at the yard of a co-operative marketing unit at Kaital.

(iv) A survey of production and marketable surplus agricultural raw-materials of Punjab was taken up and problems associated with their effective utilisation were also studied.

(v) A survey of indigenous papad and wadian industry was taken up to study the problems associated with their manufacturing, packaging, storing, marketing and exporting. It was suggested that there was an urgent need for the designing and development of a
papad rolling machine and an automatic dispenser for papad and wadian doughs.

(vi) Studies were undertaken for determining the optimum stage of maturity of mustard leaf. Its processing conditions and the development of recipes for the canned curry were also defined.

(vii) The feasibility of making of clarified juice and squash from locally cultivated Black Prince and Kandhar varieties of grapes was examined.

(viii) Twenty four varieties of tomatoes under performance studies at the Punjab Agricultural University were assessed for their canning and juice making qualities.

(ix) Eleven varieties of peas developed by the Punjab Agricultural University were assessed for canning and dehydration on the basis of colour, texture, uniformity, taste, flavour and absence of defects.

(x) The mixed sweet pickle of cauliflower, turnip and carrot, which was a popular food item in Punjab, suffered from defects like loss of texture, discoloration and fungal spoilage during storage. A preservation technique was developed.

(xi) Studies made at the Experiment Station showed that the main reason for the spoilage in carrot jam was inadequate time given for processing. It was suggested
that a minimum of three stage processing, the third being given after a lapse of 4 to 6 days was better and prevented the spoilage.

(xii) Three varieties of pears for being grown in the Punjab region were assessed for their physio-chemical characteristics and suitability for conversion into processed products. It was found that (stone pear) was quite suitable for the manufacture of clarified juice and preservation.

(xiii) Five varieties of peaches grown in the plains of Punjab were tested for the preparation of various products.

(xiv) Preservation of fresh cauliflowers, carrots, turnips and peas in non-air tight containers was tried by using various concentrations of salt, citric acid, and acetic acid.

(xv) Surveys Surveys of the orange and pickle industry were taken up. Research and development problems faced by the preservation industry of Punjab were also studied. A study on the quality of different varieties of chillies grown in Punjab was also taken-up.

We note that the research was of an applied nature. The responses of the entrepreneurs indicated that
they were not much benefitted by these Extension Centres. They did not have an industrial extension service to disseminate the results. Ninety six of our sample entrepreneurs were unaware of the existence of the MERADO and the CFTRI. The remaining 21 thought that the Extension Centres were of utility to large-scale industry only. They were not in a position to pay the royalties needed for sponsoring research projects.

TECHNICAL TRAINING

Technical training was provided by the SISI, the Ludhiana Productivity Council, the MERADO, the Wool Dyeing and Finishing Centre and the Central Tool Room. The SISI provided training in electroplating, hosiery (knitting and embroidery) and blue print reading. In 1979-80, two stipendiary technical training courses in machine work and electroplating were organised for six months and three months respectively. Fifteen skilled workers attended each of the training courses. In our sample none of the entrepreneurs had attended a technical course organised by the SISI. Most of the entrepreneurs had long experience of working in their particular fields, and were of the view that technical training imparted by the institute was theoretical and sketchy.
The main object of the Productivity Council was to stimulate productivity consciousness with a view to maximising the utilisation of available resources of men, machines, materials and power. To this end, seminars and training programmes were organised by the Council. It was set up in 1960. In the two years 1979 and 1980, 12 seminars and training courses were organised by it. In our sample, two entrepreneurs attended one seminar each. They stated that these added to their knowledge. Eighty one of the entrepreneurs were not aware of the existence of the Productivity Council. The remaining 34 entrepreneurs maintained that they had no time to attend the seminars or training courses.

The MERADO was to arrange for training of engineers and other personnel in collaboration with industries and other educational institutions. It organised one training course every year from 1974 onwards. The courses were mainly related to the equipment in testing laboratories. In our sample no entrepreneur attended the course. None of the entrepreneurs was aware of these courses.

Wool Dyeing and Finishing Centre (Knitwear Facility)

This centre was set up with the object of upgrading technical knowhow in the hosiery knit-wear industry. During the past decade there had been a growth of knitting technology as an alternative to weaving. From being restricted to the production of underwear garments and sportswear, knitting now emerged to meet ever-increasing demands of fashion conscious consumers. However, in spite of trend towards automation and complexity of design, knitting technology continued to be relatively labour-intensive. The industry at Ludhiana mostly manufactured sweaters. The production capacity of sweater knitting was committed to a large extent to the Rupee Currency Area markets. Entry into the General Currency Area market required somewhat higher standards of quality and greater attention to recent fashions. The facilities available to the industry were insufficient for these purposes. The Knitwear Facility was set up to fill this gap. It had the objective of imparting training to hosiery manufacturers in operations concerned with dyeing, moth proofing, shrink-resisting and garment finishing. 10

It was set up at the Focal Point, Ludhiana in 1978 with the technical assistance of the United Nations Development Programme. The cost of the project was estimated at Rs.3.10 crores of which United Nations Development Programme assistance was to be of Rs.1.20 crores in the form of imported equipment, experts and training of personnel. The land, building, indigenous machinery and other local requirements were to be met by the State Government, with Central assistance. The Facility was being managed by the Punjab State Hosiery and Knitwear Development Corporation Ltd.; therefore it was known as the Knitwear Facility.

Short-term training courses were being organised by the Centre. In our sample, no entrepreneur attended these courses. They stated that they did not have time to go to the Focal Point which was about 10 km. from the city.

Central Tool Room

Another step in the direction of technological development was the inauguration of the Central Tool Room on 14 November 1980. The main objective was to impart basic and advanced training to entrepreneurs and workers of engineering and allied industries and short term courses for designers and makers of dies, jigs, fixtures and special tools were to be organised according to the needs of the industry.
The Tool Room was set up by the Government of India with the technical co-operation of the Government of the Federal Republic of Germany under the Indo-German Technical Co-operation Programme. The Punjab Government provided land and building for the project.

A short term course on Engineering Measurement commenced on 14 November 1980 with its inauguration. No entrepreneur in our sample had attended the course.

Two research and development centres—one each for bicycles and sewing machines, were proposed to be set up in Ludhiana District. Training courses on designing and manufacturing processes would be run at these centres.

We note that attendance in training courses was very small. The responses of the entrepreneurs indicated that many of them were not aware of these courses. Further, they perceived that these courses had limited utility.

**TECHNICAL CONSULTANCY SERVICES**

The agencies to advise small entrepreneurs solve their technical problems and improve the production process were: the Small Industries Service Institute, the MERADO, the CFTRI, Industrial Development-cum-Service Centres, Quality Marking Centres, the Wool Dyeing and Finishing Centre.
and the Central Tool Room. All these agencies provided consultancy free of costs.

One of the functions of the extension service of the SISI was to advise small units on improved technical processes and the use of modern machinery and equipment. The service was provided at the premises of the unit or the Institute. In 1978-79, the number of consultancy services provided by the Institute was 7259; of these 2428 were provided at the premises of the unit, 3142 at the Institute and 1689 through correspondence. In 1979-80 of the total of 6605 services, 2122 were provided at the premises of the unit, 2620 at the Institute and 1863 through correspondence.

In our sample, four units sought technical advice. A soap manufacturer who sought assistance for manufacturing soap similar to that of a multinational corporation was not satisfied. Two entrepreneurs manufacturing cycle parts and another doing electroplating were, however, satisfied.

The Mechanical Engineering Research and Development Organisation was to provide consultancy to the Government and to industry for preparation of specifications and standards for products and materials. The centre had provided technical advice to 309 units during the 12 years of its existence. In our sample, none of the units sought advice from the Centre. The Central Food Technological
Research Institute Experiment Station was to render technical advice to existing food industries for increasing production and improving the quality of products. It attended to about 100 technical enquiries regarding preservation of food products and making of squashes every year. The staff of both the Extension Centres was qualified in their technical fields.

**Industrial Development-cum-Service Centres**

One of the objectives of these Centres was to give technical guidance to entrepreneurs regarding the setting up of industries without making heavy initial investment and to assist manufacturers in producing quality products. The first of these Centres for engineering goods was set up in the First Five Year Plan period. It was known as the Government Finishing and Testing Plant for Engineering. The Government Finishing Plant for textiles was set up in the early sixties. In 1969 they were renamed as Industrial Development cum Service Centres. The Industrial Development Centre (Plastic Moulds) was set up in 1978.

The Industrial Development Centre for Engineering was to provide technical advice and demonstrate the use

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of modern technical processes such as the finishing and heat-treatment and for the removal of defects in machines. The Centre, however, did not provide any technical consultancy services. The Industrial Development Centre, Textile Goods was to advise the entrepreneurs by demonstrating the actual working of chemical and mechanical operations on scientific lines in processing of textile goods. It was also to help them introduce modern methods and modern machinery of finishing in the processing of textiles. This Centre helped the industry in reducing the PH value and the scouring loss of cotton material. In the Industrial Development Centre (Plastic Moulds), by June 1980, 105 units had been given guidance at their premises, 135 at the Centre and 25 through correspondence. There was no unit of plastic industry in our sample.

In our sample, no entrepreneur went to these Centres for technical advice.

Quality Marking Centres (QMCs)

These Centres were to render technical guidance for the manufacture of quality goods, provide testing facilities and the seal of quality. Their field staff was expected to

12 In 1971 cotton vest goods which were being supplied to the Defence, and cotton socks to the Director General of Supplies and Disposals were rejected because the PH value of cotton vests and the scouring loss of socks were higher than the required.

to visit the member units, help entrepreneurs solve their technical problems and guide them to produce quality products. Table 7.3 shows the number of units which were given technical advice by the Quality Marking Centres for textiles and engineering. In our sample no entrepreneur sought technical advice.

### Table 7.3

**Number of Units Given Technical Advice by the Quality Marking Centre for Textiles and Engineering Goods**

<table>
<thead>
<tr>
<th>Year</th>
<th>QMC Textiles</th>
<th>QMC Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of units</td>
<td>No. of units</td>
</tr>
<tr>
<td>1973-74</td>
<td>289</td>
<td>N.A.</td>
</tr>
<tr>
<td>1974-75</td>
<td>208</td>
<td>2244</td>
</tr>
<tr>
<td>1975-76</td>
<td>132</td>
<td>2625</td>
</tr>
<tr>
<td>1976-77</td>
<td>230</td>
<td>1204</td>
</tr>
<tr>
<td>1977-78</td>
<td>38</td>
<td>1480</td>
</tr>
<tr>
<td>1978-79</td>
<td>55</td>
<td>751</td>
</tr>
<tr>
<td>1979-80</td>
<td>442</td>
<td>2141</td>
</tr>
</tbody>
</table>

*Source: Records maintained by the respective Quality Marking Centres*

In Quality Marking Centre, Electronics, 730 units were given technical guidance. There was no electronic unit in our sample.

The Wool Dyeing and Finishing Centre provided technical guidance by demonstrating advanced methods of winding, dyeing and moth proofing of yarn for the manufacture of hosiery knitwear products and for treating it for shrink resistance.  

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The Centre was equipped with highly qualified staff. The Central Tool Room also provided technical advice on planning of production, standardisation of components, construction material and preparation of designs. In our sample no unit sought technical advice from these Centres.

The proposed Research and Development Centres for bicycles and sewing machines would also provide technical guidance on quality control and standardisation and on new production technology for manufacturing bicycles and sewing machines through demonstration and training.

There were many Government agencies to provide technical advice to entrepreneurs in different fields of industry. The staff in the SISI was qualified in various technical fields. The MERADO, the CFTRI, the QMC, Electronics, the Knitwear Facility and the Central Tool Room had highly qualified technical staff. However, the Industrial Development Centres and the Quality Marking Centres for textiles and engineering were manned by the staff who were not highly qualified. In July 1980 the IDC, Textiles, had a staff of 20 out of which 13 were technical personnel. Of the latter, six were diploma holders, five certificate holders and two had no technical qualifications. The Centre was headed by an officer who was only a diploma-holder. The Industrial Development Centre, Plastic Moulds, was put under the charge of a mechanical engineer; some specialists in the
Small Industries Service Institute were of the view that a chemical engineer would have been more suitable.

Regarding the Small Industries Service Institute, the International Perspective Plan Team had referred to the great difficulty in securing and retaining adequate numbers of suitably qualified personnel, particularly those with industrial experience. Serious deficiencies in performance resulted both from lack of technicians in certain fields and from inability of many of the technicians to render advice of the level required to make a real contribution to productivity. The Working Group had also pointed out that the technical advisory service being rendered by the Small Industries Service Institutes and its Extension Centres had become outmoded and that the technical expertise available with the Organisation was quite inadequate to deal with the emerging problems and the changing need pattern of the small-scale sector. The Group had pointed out that over the years the cadre of technical experts had weakened on account of frequent loss of experienced and qualified experts due to lack of prospects. 15

The responses of the entrepreneurs indicated that they often did not go to these agencies for technical advice. Forty two of the entrepreneurs stated that they had no technical problem. Thirty nine maintained that the staff in these agencies had only passed the necessary examinations but had insufficient practical training and experience. Thirty four stated that they did not know whom to consult in these agencies.

The entrepreneurs said that the field staff of the Quality Marking Centres often did not visit the units for giving them technical advice and that they maintained false figures of units which had been given technical guidance. This fact was corroborated by an officer who headed a Quality Marking Centre once. The field staff maintained that they had the problem of conveyance.

**TESTING FACILITIES**

The importance of providing testing facilities was emphasized as early as 1954 at the second meeting of the All India Small-Scale Industries Board. At the State level also it was noted that small-scale industries differed in respect of quality, accuracy and performance of their products on account of the fact that they could not afford to install modern equipment for the testing of raw-materials,
and semi-finished and finished products. In order to fill this gap, the Government of Punjab embarked upon an ambitious plan of Quality Marking which involved regular checks for quality of raw-materials and components, manufacturing operations, and final assembly of the end product according to the design and specifications. In Ludhiana District the testing facilities were provided by the Small Industries Service Institute, the Mechanical Engineering Research and Development Organisation, Industrial Development Centres, Quality Marking Centres and the Punjab Test House.

The Small Industries Service Institute provided testing facilities in chemical and metallurgical analysis, and the testing of stationery items like pens, nibs, adhesives, duplicating and writing ink according to specification of the Indian Standards Institution. During 1979-80, the Institute made 240 tests benefitting 265 units. In our sample, no one availed of the facility.

One of the objectives of setting up of the Mechanical Engineering Research and Development Organisations was to provide the facility (primarily to the mechanical engineering industry) for testing of products and materials in order to achieve higher standards of quality and to help industries to develop their own testing and inspection system.
The facility was provided to small entrepreneurs at a concession of 33 per cent. Table 7.4 shows the number of units and those in Ludhiana District, large, medium and small which were benefitted by the Centre. We note that during the period 1968-1979 only 216 small entrepreneurs availed of the testing facilities.

**TABLE 7.4**

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of units</th>
<th>Units in Ludhiana District</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Large &amp; Medium</td>
<td>Small-Scale</td>
</tr>
<tr>
<td>1967-68</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1968-69</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>1969-70</td>
<td>5</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>1970-71</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>1971-72</td>
<td>24</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>1972-73</td>
<td>32</td>
<td>4</td>
<td>18</td>
</tr>
<tr>
<td>1973-74</td>
<td>45</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td>1974-75</td>
<td>40</td>
<td>4</td>
<td>19</td>
</tr>
<tr>
<td>1975-76</td>
<td>75</td>
<td>7</td>
<td>36</td>
</tr>
<tr>
<td>1976-77</td>
<td>72</td>
<td>6</td>
<td>37</td>
</tr>
<tr>
<td>1977-78</td>
<td>75</td>
<td>5</td>
<td>42</td>
</tr>
<tr>
<td>1978-79</td>
<td>75</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td>448</td>
<td>41</td>
<td>216</td>
</tr>
</tbody>
</table>

**SOURCE:** Records of the Mechanical Engineering Research and Development Organisation, Ludhiana.
In our sample no entrepreneur availed of the facility.

The Industrial Development Centre, Engineering provided testing facilities for the chemical analysis of ferrous and non-ferrous metals. During the three years 1978-81, 1295, 1243 and 759 tests were made in that order. The main reason for the fall in the number was that after the setting up of the Punjab Test House the Centre was to undertake tests only for units located in Ludhiana or Faridkot Districts.

The Quality Marking Centre, Textiles provided testing facilities to the textile and hosiery industry to find out the content of wool in the yarn, the nature of fibres and the grade of wool. The Quality Marking Centre, Engineering, provided facilities to the engineering goods industry for dimension test, load test, expansion and tensile test. Table 7.5 shows the number of tests performed by these two Centres. We note that the number of tests performed by the Quality Marking Centre for Textiles was high up to the year 1977-78. The number declined in 1978-79 and 1979-80, being about half in each year of that of the previous year. On the other hand the number of tests performed by the Quality Marking Centre for Engineering increased manifold in the same period. This indicates that entrepreneurs were increasingly realising the importance of quality control.
Number of Tests Performed by the Quality Marking Centres for Textiles and Engineering Goods

<table>
<thead>
<tr>
<th>Year</th>
<th>QMC, Textiles</th>
<th>QMC, Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of units</td>
<td>No. of tests</td>
</tr>
<tr>
<td>1973-74</td>
<td>18,187</td>
<td>204</td>
</tr>
<tr>
<td>1974-75</td>
<td>19,556</td>
<td>232</td>
</tr>
<tr>
<td>1975-76</td>
<td>16,589</td>
<td>313</td>
</tr>
<tr>
<td>1976-77</td>
<td>25,221</td>
<td>1,703</td>
</tr>
<tr>
<td>1977-78</td>
<td>20,914</td>
<td>853</td>
</tr>
<tr>
<td>1978-79</td>
<td>10,958</td>
<td>11,336</td>
</tr>
<tr>
<td>1979-80</td>
<td>4,188</td>
<td>15,490</td>
</tr>
</tbody>
</table>

SOURCE: Records maintained by the respective Centres

The fall in the case of textiles was perhaps due to setting up of another agency in the form of the Punjab Test House. In our sample, three entrepreneurs availed of the facility for testing of engineering goods.

The Quality Marking Centre for Electronics was for precision and sophisticated electronic items. It was equipped with modern machinery and laboratories.
The Punjab Test House was set up at Ludhiana in 1979 with the objective of providing testing facilities under one roof for different types of industry—mechanical, electrical, chemical and textile engineering. The project involved an expenditure of Rs.2.6 million. Its building was under construction at the Focal Point. Hence, it was temporarily housed in the Industrial Development Centre, Plastic Moulds. It had a textile laboratory which was well equipped with modern machinery. Tests were performed for finding the composition of fibres, breaking strength of yarn, grade of wool, count of yarn, PH value, scouring loss and shrinkage percentage of the textile. By June 1980, 3369 tests had been performed. Of these 2255 were for export, 487 for supply to the Directorate General of Supplies and Disposals and 80 for units outside the State. In our sample, one entrepreneur availed of the facility for getting the material tested for export purposes. In July 1980, chemical analysis of metals and soaps and testing the strength of dyes was also started.

There were export inspection agencies for providing test facilities for textile and engineering goods meant for export. In our sample, two hosiery units had their own laboratories to test materials according to the specifications
of the wool mark. Research and Development Centres for bicycles and sewing machines were also proposed to be set up.

We have noted that there were seven agencies in Ludhiana District to provide testing facilities—three for chemical analysis of metals, two for testing of textiles and two for testing of engineering goods. The number of entrepreneurs who availed of the testing facilities was small. There was duplication of work and lack of coordination. The Punjab Test House was competing with the Quality Marking Centre, Textiles and the Industrial Development Centre, Engineering.

The entrepreneurs rarely availed of the facilities since their customers were not quality conscious. Also, a majority of the entrepreneurs manufactured parts, they produced according to the assemblers' specification which often did not require testing.

Government agencies might play a significant role in making entrepreneurs quality conscious. This could be done through demonstrations and persuasion by the extension staff of the Quality Marking Centres or the District Industries Centre. The Small-Scale Industries Board and the Working Group on Marketing Assistance had recommended that mobile testing facilities should be provided to tiny units.
in rural and backward areas free of cost.16

COMMON FACILITY SERVICE

Certain support type or jobbing services to industry were provided by the Government of India and Punjab and the United Nations Organisation.

One of the objectives of the extension service of the Small Industries Service Institute was to provide the common facility service through its tool room, workshop and laboratories. Services were provided in electroplating heat-treatment, punching and grinding. The preparation of design and drawings for machines and machine parts, equipment, dies, jigs, tools and fixtures was also one of the functions. During 1979-80, the Institute undertook 741 tooling jobs which benefitted 579 units. Besides, 127 blueprints and 74 drawings were also provided. However, none of the sample units availed of the facilities; for tool room facilities, they went either to private jobbers or to State Government agencies. They did not understand the importance of drawings and blueprints of components of machinery.

The State Government recognised in the First Five Year Plan that owing to financial difficulties entrepreneurs could not install costly testing and processing machines essential for the manufacture of quality products. This was particularly so because it was uneconomical for a small-scale entrepreneur to run a machine shop for servicing his own machines due to lack of enough work and it might be difficult to organize job work for others. Besides, the machines would require the services of qualified and experienced technical persons. Hence the Punjab Government set up a chain of Industrial Development Centres to provide common facility services and technical assistance to the small-scale sector. The main objective was to assist new entrepreneurs in setting up industries without making heavy initial investment on special types of machinery. These Centres were to be run on a 'no profit' basis. However, they began to suffer losses. The charges for processing of materials were so fixed as to cover the direct cost of materials, electric power, water, fuel, labour and overhead charges. They were to exclude all experimental costs, depreciation of machinery and equipment, salaries of admini-
strative and supervisory staff, and contingencies. The services were, thus, to be made available to entrepreneurs at nominal charges. (Information regarding the annual expenditure and income of the Industrial Development-cum-Service Centre, Textiles, is given in Appendix II).

The Industrial Development-cum-Service Centre for Engineering provided common facility service to the engineering industry in heat-treatment, electroplating, anodising, enamelling, forging, chemical analysis of ferrous and non-ferrous metals, stress relieving and sand blasting. Table 7.6 shows that the number of units constituting its clientele declined steadily from 1975 to 1981.

**TABLE 7.6**

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of units benefitted</th>
<th>Processing charges received (Rupees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975-76</td>
<td>5872</td>
<td>504,945.36</td>
</tr>
<tr>
<td>1976-77</td>
<td>5613</td>
<td>611,048.05</td>
</tr>
<tr>
<td>1977-78</td>
<td>5580</td>
<td>801,995.00</td>
</tr>
<tr>
<td>1978-79</td>
<td>5554</td>
<td>945,192.27</td>
</tr>
<tr>
<td>1979-80</td>
<td>4104</td>
<td>867,315.75</td>
</tr>
<tr>
<td>1980-81</td>
<td>3271</td>
<td>883,051.60</td>
</tr>
</tbody>
</table>

SOURCE: Records maintained by the Centre.
Of the surveyed units, 17 of the 64 engineering units availed of the facilities provided by the Centre for heat-treatment, electroplating, enamelling and forging.

The Industrial Development-cum-Service Centre for textiles served the small-scale textile industry in dyeing, bleaching and finishing of textile products by doing job work on semi-commercial lines. Table 7.7 gives figures of the cloth bleached, dyed and finished at the Centre and its earnings. We note that there was a steady decline in the amount of cloth bleached and dyed apparently due to the setting up of private job agencies. However, the amount of cloth finished increased considerably. The

<table>
<thead>
<tr>
<th>Year</th>
<th>Cloth bleached (Kg.)</th>
<th>Cloth dyed (Kg.)</th>
<th>Cloth finished (Kg.)</th>
<th>Processing charges received</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976-77</td>
<td>32,664.000</td>
<td>39,406.000</td>
<td>116,199.000</td>
<td>314,140.00</td>
</tr>
<tr>
<td>1977-78</td>
<td>22,734.000</td>
<td>22,124.000</td>
<td>70,332.000</td>
<td>234,310.58</td>
</tr>
<tr>
<td>1978-79</td>
<td>24,503.130</td>
<td>11,436.495</td>
<td>68,279.000</td>
<td>165,633.93</td>
</tr>
<tr>
<td>1979-80</td>
<td>15,670.980</td>
<td>8,058.630</td>
<td>96,320.000</td>
<td>215,217.79</td>
</tr>
<tr>
<td>1980-81</td>
<td>7,069.630</td>
<td>6,261.200</td>
<td>623,143.000</td>
<td>210,682.29</td>
</tr>
</tbody>
</table>

processing charges earned by the Centre decreased up to 1978-79. There was some increase in 1979-80 but in 1980-81 the revenue earned again declined. This suggests that entrepreneurs increasing availed of these facilities provided by private agencies.

In our sample, one entrepreneur availed of the facility for dyeing.

The IDC for Plastic Moulds was set up to develop plastic industry in the State. By July 1980, the building of the Centre was complete and the machinery had been purchased. The Centre would provide facilities for manufacturing dies, moulds and proto-type models for plastic goods.

The Knitwear Facility had the objective of providing to the hosiery industry the services of super-washing, winding, dyeing, moth proofing of the yarn and treating it for shrink resistance by advanced methods. In our sample, no entrepreneur availed of the facility.

Another step in the direction of providing common facility service was the inauguration of the Central Tool Room at Ludhiana. There had been a spectacular growth of engineering industry in Ludhiana District during the past
three decades. However, there was the handicap of the non-availability of low priced tooling facilities. The growth and development of industry depended vitally on the availability of various special tools, jigs, fixtures and the continuous renovation of technology. These required special purpose machines which were not within the reach of small-scale units. The Tool Room had the necessary machines and served the industry of Punjab and other States such as Haryana, Himachal Pradesh and Jammu and Kashmir. The main objective was "to increase the efficiency of small enterprises in light engineering and allied fields by providing support in the areas of design and production of tools, jigs and fixtures. The enterprises were to be assisted and helped in particular to improve the quality of their products and expand the production programme". 18

We have noted that there were six common facility service Centres in Ludhiana District - three for the engineering goods industry, two for hosiery and textiles, one for plastics and one for drawings and blue prints. Some of these had been set up as early as the First Plan period when private agencies for doing job work were not available 18

and performed very useful service. In course of time, however, private agencies had come up and the Governmental ones were required to compete with these. Also, there was some duplication of services among Governmental agencies themselves. The entrepreneurs stated that the charges of the Governmental agencies were generally higher than those of private ones—sometimes as much as by half. Engineering job work was being done by the SISI and also the newly set up Central Tool Room. The charges of the latter were much higher than those of the former. Thus for grinding if these were Rs.30 at the SISI, the Tool Room charged Rs.700; for punching these were Rs.200 and Rs.2,200 respectively. The Central Tool Room had sophisticated machinery and the quality of its work was better; however it was beyond the reach of the small entrepreneur due to its high charges.

Another problem related to delay. The entrepreneurs stated that Governmental agencies generally took longer; there were more holidays. The officials of these agencies, however, pointed out that the preferences for private job work was due mainly to the desire to evade duty. In Governmental agencies, checking by the excise staff could not be avoided; this took some additional time also. The problem of payment in cash in these agencies was also stated to be a problem.

A majority of the entrepreneurs stated that the persons employed in the Centres had the attitudes of
government officials. They were not concerned whether clients went to them or not, for they had nothing to gain or lose. On the other hand, the technical personnel of the Centre stated that they were not well-paid and were not given any incentives. Apparently, there was not much use of the Government's providing the common service facility if it was available privately. The Working Group for Small Scale Industries also made the same recommendation in 1959.

Conclusion

Technical assistance was provided under the modernization programme and through industrial research, technical training, technical consultancy service, testing facility and common facility service.

The modernization programme was started by the Small Industries Service Institute and the Department of Industries. Incentives in the form of subsidies and loans at concessional rates were provided by the State Government. However, the programme had little impact. During 1978-1980, 232 entrepreneurs in Punjab were registered under the programme. Of these, 61 belonged to Ludhiana District. In our

sample, one entrepreneur was registered. The main problem related to finance besides lack of information and delay. Industrial research was undertaken by the Mechanical Engineering Research and Development Organization and the Central Food Technological Research Institute Experiment Station. The research was of an applied nature but there was lack of extension work. Many entrepreneurs were not aware of the existence of these Centres.

Entrepreneurs did not attend technical courses because many of them did not know about these courses. Further, they perceived that these courses were of no practical utility. In our sample only two entrepreneurs went to attend the seminar organised by the Productivity Council. Entrepreneurs were not benefitted by technical consultancy also. Forty two entrepreneurs had no technical problem, 39 maintained that the staff in these agencies did not have practical experience, 34 stated that they did not know whom to consult in these agencies. The entrepreneurs maintained that Quality Marking Centres made false claims about its advisory services.

There were seven agencies to provide testing facilities. There was duplication of services and a lack of coordination among them. Entrepreneurs did not give much importance to quality control measures. In our sample, only
four entrepreneurs availed of the testing facilities. Common facility services were provided by six Government agencies; the entrepreneurs, however, often preferred private agencies. Only services for engineering in the Industrial Development Centre were availed of by the entrepreneurs. The quality of work in Government agencies was better but entrepreneurs had to go to private agencies due to higher charges, problem of cash payment and delay.