The Indian Petrochemical Corporation Limited (IPCL) is a wholly Government of India undertaking which was incorporated in March 1969. It is located at Vadodara in Gujarat. Before its incorporation it was a part of ONGC under union government which then had a petrochemical division for Gujarat complex to come up near the Koyali refinery near Baroda. The work was handed over to IPCL which was created as a company under The Companies Act, 1956 with the ultimate objective of creating a very sound base for the manufacture of major petrochemicals of international standard in the country. The company was entrusted with the responsibility of manufacturing and distributing various synthetic organic chemicals, plastics fibre and fibre intermediaries from petroleum feed stocks to meet the demands of these products in accordance with the plan targets.

Looking to its versatile manufacturing of products, it was an important milestone not only in the development of the petrochemicals industry in the country but also in the field of Indian technology and engineering. It is one of the largest integrated petrochemicals complexes under one roof and management in the world. What is remarkable is the
simultaneous commissioning of all the fourteen individual production units in a fleet which includes engineering and construction companies and foreign equipment manufacturers and a host of public as well as private research organisations. The first plant of IPCL called GAP was commissioned in 1973 and the product line was made up of Aromatic. In that particular time period the investment in the company was Rs.400 crores. As the response in the initial stages from private sectors was lukewarm for setting up down stream units, the company had to embark on the task of setting up of down stream units. At that point of time Indian petrochemicals were new to the foreign based companies. The primary task then was the absorption of technology in Indian industries.

3.1 Products manufactured

IPCL produces and markets around 41 different products on the basis of usage. These products can be divided into three main categories viz:

* Polymers
* Fibres and fibre intermediaries
* Chemicals and chemical intermediaries

Polymers: This can be further subdivided into rubbers

- Poly Vinyl Chloride (PVC)
- Synthetic Butadiene Rubber (SBR)
- Poly Butadiene Rubber (PBR)
Plastics
- Low Density Polyethylene (LDPE)
- High Density Polyethylene (HDPE)

Fibres and fibre intermediaries
- Acrylic Fibres (AF)
- Ethylene Glycol (EG)

Chemicals and chemical intermediaries
- Linear Alkyl Benzene (LAB)
- Dimethyl Tetrathalate (DMT)
- Caprolactum
- Acrylonitile (AN)
- Xylene

As mentioned earlier each of these products is used for a number of purposes. It would be of interest to note that in the initial stages of product introduction, IPCL had to go to the end users and create awareness. The advantages of these products were emphasized. Seminars, symposiums and workshops were organised to propagate the advantages to the 'end-users' of the product. As a matter of fact in order to develop the market for down stream products, PP, LDPE, PBR and Acrylic Rubber were imported and sold. Various other measures like providing technical assistance to manufacturers were made to facilitate product development and to increase the coverage of its distribution at various centres.
The share of major products of IPCL in country’s total sales is as under:

TABLE 3.1

<table>
<thead>
<tr>
<th>Product</th>
<th>1986</th>
<th>1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDPE</td>
<td>71%</td>
<td>83%</td>
</tr>
<tr>
<td>AF</td>
<td>100%</td>
<td>-</td>
</tr>
<tr>
<td>LAB</td>
<td>100%</td>
<td>30%</td>
</tr>
<tr>
<td>DMT</td>
<td>33%</td>
<td>31%</td>
</tr>
<tr>
<td>PP</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>PBR</td>
<td>100%</td>
<td>-</td>
</tr>
<tr>
<td>PG</td>
<td>55%</td>
<td>51%</td>
</tr>
<tr>
<td>Xylene</td>
<td>100%</td>
<td>63%</td>
</tr>
<tr>
<td>PVC</td>
<td>39%</td>
<td>39%</td>
</tr>
</tbody>
</table>

This table gives an idea about significant contribution of IPCL in the industry. The major competitors of IPCL are NOCIL, Bombay; Union Carbide India Ltd., Bombay; Chemplast, Mettur; IOC, Baroda. A look at the following table would convince us of the dominant market position that IPCL enjoys.
### TABLE 3.2
Comparison of IPCL with MOCIL and UCIL

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equity</strong></td>
<td>1860</td>
<td>1860</td>
<td>240</td>
<td>240</td>
<td>326</td>
<td>326</td>
</tr>
<tr>
<td><strong>Debt</strong></td>
<td>637</td>
<td>397</td>
<td>910</td>
<td>620</td>
<td>270</td>
<td>180</td>
</tr>
<tr>
<td><strong>Reserves</strong></td>
<td>1943</td>
<td>2261</td>
<td>310</td>
<td>470</td>
<td>360</td>
<td>360</td>
</tr>
<tr>
<td><strong>Current Assets</strong></td>
<td>2853</td>
<td>2157</td>
<td>850</td>
<td>890</td>
<td>740</td>
<td>800</td>
</tr>
<tr>
<td><strong>Current Liabilities</strong></td>
<td>367</td>
<td>686</td>
<td>240</td>
<td>270</td>
<td>260</td>
<td>270</td>
</tr>
<tr>
<td><strong>Gross Block</strong></td>
<td>4663</td>
<td>5080</td>
<td>2520</td>
<td>1560</td>
<td>1040</td>
<td>810</td>
</tr>
<tr>
<td><strong>Net Sales</strong></td>
<td>4807</td>
<td>5969</td>
<td>2084</td>
<td>2263</td>
<td>1905</td>
<td>2013</td>
</tr>
<tr>
<td><strong>PBD DT</strong></td>
<td>836</td>
<td>1192</td>
<td>401</td>
<td>430</td>
<td>251</td>
<td>152</td>
</tr>
<tr>
<td><strong>Depreciation</strong></td>
<td>370</td>
<td>517</td>
<td>119</td>
<td>113</td>
<td>50</td>
<td>56</td>
</tr>
<tr>
<td><strong>Interest</strong></td>
<td>103</td>
<td>65</td>
<td>132</td>
<td>114</td>
<td>47</td>
<td>31</td>
</tr>
<tr>
<td><strong>Taxes</strong></td>
<td>32</td>
<td>106</td>
<td>10</td>
<td>40</td>
<td>71</td>
<td>64</td>
</tr>
<tr>
<td><strong>PAT</strong></td>
<td>311</td>
<td>504</td>
<td>140</td>
<td>191</td>
<td>82</td>
<td>1</td>
</tr>
<tr>
<td><strong>PBT/Sales</strong></td>
<td>9.7</td>
<td>11.3</td>
<td>7.2</td>
<td>10.2</td>
<td>6.8</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>PBT/AUCE</strong></td>
<td>10.4</td>
<td>15.1</td>
<td>20.1</td>
<td>23.1</td>
<td>21.0</td>
<td>11.1</td>
</tr>
<tr>
<td><strong>PAT/A.V.Equity</strong></td>
<td>8.5</td>
<td>12.7</td>
<td>27.9</td>
<td>30.4</td>
<td>12.0</td>
<td>0</td>
</tr>
</tbody>
</table>
The petrochemical industry is highly capital intensive and IPCL being the part of that industry, is no exception to it. The investment in net fixed assets has grown considerably from Rs.222 crores in 1987 to Rs.350 crores in 1989. Given the magnitude of such investments, proper utilization becomes important. Hence maximum capacity utilization needs to be achieved. Manufacturing costs form more than 75% of the total cost of sales as can be seen below:

- Raw material 42%
- Energy 25%
- Depreciation 8%
- Labour 7%
- Others 20%

Energy consumed in manufacture of petrochemicals forms a substantial part of input cost. Once all the plants come into operation, the emphasis shifts to conservation of energy which is handled through maintenance of specific equipment. To minimize leakages, close monitoring of efficiency, process control, optimisation etc. is to be done.

The total sales of IPCL was 10357.4 million in 1988-89. The net sales have been growing at an average rate of 16% per annum in the last ten years.

The organisational structure of IPCL could be
categorised as functional. The chairman cum managing director and the board of directors are overall incharge of the organization. There are functional directors on the board. Each of the project sites has an executive director. As of today though IPCL is a multi-product company it is a single location company. However on completion of its projects, it would become a multi-location company.

3.2 The present situation

IPCL is likely to go through an active competition in near future, as other private sector manufacturers have already penetrated in the field.

Effect of government policy: Government's policy exerts influence on IPCL in number of ways eg. fixation and allocation of raw material prices, imports (of petroleum products) and also policy formation in relation to other public sector companies.

Energy: It is calculated that 23% of the manufacturing expenses comprises of energy consumption energy. Its main forms are fuel oil and electricity. At present the power supply is taken care of by GSEB (Gujarat State Electricity Board) but there is a great need of uninterrupted and sufficient amount of power supply. It should be noted that IPCL is located on the highway within the industrial estate area. The power installation in Gujarat does not supply enough power to meet the demand. Therefore IPCL has faced
uncertainty about availability of power.

**Raw material:** Raw material is mainly derived from ONGC and various other refineries. The availability, however, is sometimes inadequate and irregular. To maintain regular flow of raw material, IPCL has to keep its own inventory stock.

**Human resources:** IPCL uses totally capital intensive and sophisticated technology. In order to handle these fully automatic plants, it requires highly qualified and skilled manpower. It has been observed by the IPCL authorities that it is difficult for them to employ such skilled people. Such skilled personnel have a very high market value and then they tend to leave the company for better jobs. IPCL consumes further time in recruitment and training of the new candidates.

**Product obsolescence:** The products manufactured by IPCL find a constant threat due to—

- The threat of IPCL products becoming obsolete
- The imported technology used by IPCL can be easily developed and used by other competitors hence there is a danger that the products made with indigenous technology can be substituted.

**Technology:** The technological progress in the field of petrochemicals is making strides. Hence the threat of obsolescence is very high in this industry. Therefore, it is very difficult for IPCL to bring the latest technology in a
short period of time. This problem requires an efficient research and development wing in order to keep up its pace with the latest technology.

IPCL was incorporated two decades ago and it has expanded tremendously in terms of production capacities and financial as well as working resulting into a giant organisation.

The turnover has increased over the years from Rs.346 million in 1979-80 to Rs.1036 million in 1988-89. It can be noted that the debt-equity ratio has been brought down considerably till 1988-89 when it has come down to 0.48:1 against an industry standard of 2:1. This company was started in 1969 with the authorised capital of Rs.700 crores and paid up capital of Rs.150 crores. This remained stable till 1976-77 and thereafter whatever surplus funds that were generated were ploughed back.

IPCL is a fully government owned company. If we compare one of its kind in private sector, i.e. National Organic Chemical Industry (NOCIL), Table 3.2 clearly shows that the return on investment is much higher for IPCL than what it is for NOCIL. The IPCL's overall return on investment is 6.50% whereas NOCIL's is left much behind to 1.30%. There is a high return on equity amounting to 8.32% as compared with 4.48% earned by NOCIL. One aspect can not be denied that IPCL is much bigger a complex as compared to
NOCIL, though NOCIL has a good management reputation.

In order to evaluate IPCL's performance on the basis of its assets profits and sales, its growth rate and return over investment and other financial indicators are all quite impressive. IPCL is playing an important role in employment generation. At present 8430 people are directly employed, and nearly 5 to 7 lakh people are indirectly employed in the down stream industries and in the field of distribution. This is the nature of all petrochemical industries that provide down stream products which are used in every field of human life such as clothing, transport communication, education, construction, entertainment etc.

The success of the IPCL's Vadodara complex has led it to take the responsibility of executing Maharashtra Gas Cracker Complex (MGCC). The gigantic project got the government approval in August 1984. The scheduled date of mechanical completion was August 1989. This project is located in Nagothane district in Raigad in Maharashtra state. The site is located around 120 kms away from Bombay on Bombay-Goa road alternatively known as National Highway No.17. Its feed stock is 450,000 TPA of Ethane/Propane to be supplied by the Oil and Natural Gas Commission, and 51,000 TPA of propane/proplene stream to be supplied by Bharat Petroleum Corporation Limited, Bombay. It will be producing all the basic petrochemicals as well as polymers that are produced by IPCL. The product pattern consists of
the following items—Ethylene 300,000 TPA (400,000 TPA ultimate capacity), Propylene 30,000 TPA from gas cracker, 36,000 TPA from Propane/Proplene stream. Low density Polyethylene 80,000 TPA, linear low density Polyethylene/High density Polyethylene 135,000 TPA, Ethylene oxide 5,000 TPA, Ethylene glycol 50,000 TPA, Polyproplene 60,000 TPA, Acetyene black 1,740 TPA, Butene 15,000 TPA, wire and cable compounds (phase 1) 12,500 TPA. The total approved investment cost is Rs.1390 crores and foreign exchange Rs.350 crores. The sources of finance are internal resources and borrowing from World Bank (loan worth 210 million US dollars). The Licensers of the technology are Stone and Webster, USA Engineering Corporation; CdF Chemie, France; Union Carbide Corporation, USA; Technimont/Himout, Italy; BP Chemicals Ltd, UK; and Institut Francarisc du Petrole, France. Infrastructurally it covers 938 hectares (acquired by Maharashtra Industrial Development Corporation) 15 million gallons of water per day (to be supplied by MIDC). Total electricity requirement is of 64 MW (captive power plant based on gas turbine combined cycle with back up supply of 15 MW by Maharashtra State Electricity Board).

Future of IPCL is quite bright as it is further expanding and multiplying with the introduction of Gandhar Petrochemical Complex. As stated before IPCL came into being in 1969. The first phase of its operation commenced in 1973-74 with an aromatic complex at Baroda. The second
phase of operation commenced in 1978-79 with a Naphtha cracker and associated downstream units at Baroda. The third phase involves setting up of a Rs.1390 crore gas cracker complex at Nagothane in Maharashtra which is now almost completed. The Gandhar Petrochemical Complex forms a major component of IPCL's fourth phase growth. Oil and gas have been recently discovered in the Gandhar region of Gujarat. The reserve is estimated at 190 million tonnes of oil and oil equivalent gas out of which about 73 million tonnes is recoverable. The total production of associated and free gas is expected to reach 6 million std. cubic meters per day (MMSCMD) and this can be easily enhanced to 10 MMSCMD. This discovery is the basis for setting up an integrated gas cracker petrochemical complex in the Gandhar area of Gujarat. The implementation of this project will be by IPCL. The investment will be Rs.2290 crores from which Rs.570 crores will be in the form of foreign exchange. The location will be in Vagra Taluka in Bharuch District in Gujarat. The raw material consumed will be 8 MMSCMD rich gas from Gandhar fields after LPG separation. The products manufactured will be Ethane/Propane (450,000 TPA), ethylene (300,000 TPA), Propylene (20,000 TPA), Butadiene (10,000 TPA), Ethylene-di-chloride (240,000 TPA), Vinyl chloride (150,000 TPA), PVC (150,000 TPA), ED/MEG (120,000 TPA), Alpha olefins (100,000 TPA), Alcohol Ethoxylates (100,000 TPA), Primary Alcohols (100,000 TPA), Chlorine (105,000 TPA)
Caustic Soda (120,000 TPA) including an integrated offsites plant for all the utilities requirement (steam, DM water, cooling water, nitrogen, oxygen, instrument air etc). It also includes a captive gas based power plant of 75 MW capacity. The petrochemicals products have been identified as a 'Thrust Area' in the seventh and eighth plan periods. The products from the Gandhar complex will serve material needs of our growing population, reduce pressure on natural materials and also introduce new alternative materials in the economy.

These developments have largely been due to the concerted efforts of R&D Wings of IPCL. IPCL has developed 12 products—primarily solvent and industrial chemicals which were not thought of when project feasibility studies were drawn up. These 12 products account for about 40,000 tonnes in the total sales of nearly 350,000 tonnes. To keep up the momentum in this respect, over Rs.27 crore are being invested in a research and development centre for developing the knowhow in the field of catalysts, organic chemistry, material science, chemical and chemical engineering, chemical physics and analytical spectroscopy. As a result of collaborative efforts between IPCL, Engineers India Ltd. and National Chemical Laboratory, an acrylate plant having the capacity of 10,000 metric tonnes per annum was set up at IPCL which is an entirely indigenous venture.

Although IPCL has experienced demand outstripping
supplies in some major products like LOPE polyproplene, LAB, acrylic fibre etc, it has not chosen to serve the consumption centres located nearby. Instead of this IPCL has chosen the hard option of developing under-developed areas and promoting small scale sector keeping in view the national objective of balanced regional development. IPCL's marketing effort even in the face of nascent markets for many of its products has led its sales exceeding its plant capacities.

3.3 Equity Capital

The company approached the capital market in October 1986 by offering 14% interest bearing bonds to the public for a total value of Rs.40 crores. The issue was over subscribed by 1.4 times with a total subscription of Rs.96.03 crores. The entire over subscription has been retained with the approval of CCI.

IPCL is very much dependent on internal generation of resources for its working capital requirements and capacity expansion. There seems to be a consistent reduction in inventory to sales ratio. This probably is because of the success of their efforts at market development.

The years 1979-1982 have been deficit years while the years 1982-1987 have been those of surplus. In 1978-79 the DMT plant was commissioned. In the first few years the plant operated below break even point resulting in low
surplus generation but causing high incremental sales/output. As stated by some of the management officials in IPCL, higher capacity utilization has contributed to increased earnings. The decline in the growth of sales during 1982-83 was caused probably by the recession in the international petrochemical market.

IPCL's future policy seems to go in for aggressive debt policy to maintain growth at about 12% and also extensively invest in new projects.

During the seventh five year plan the company had targeted to mobilise up to Rs.400 crores. Even in eighth plan this stress is likely to continue. These debts involve interest outflows even prior to the project commissioning. In the critical years, with the plant not operating at full capacity on one hand and high depreciation charges on the other hand, the effect is likely to be felt in the form of poor profitability.

Another interesting aspect seems to be the proposal of IPCL to step up the dividend from 15-20% in the long run.

Its profit after tax has gone up from Rs.8 crores to over Rs.31 crores during the same period. It is also interesting to observe that the company has succeeded in ploughing part of its profits back to the working capital as may be seen from the fact that its reserves and surplus have shot up from Rs.194 crores to over Rs.402 crores between 1983-84 and 1988-89 while current liabilities have increased
from Rs.36 crores to Rs.397 crores in the same period. Current assets have increased sharply from Rs.205 crores to Rs.642 crores in the period under review. As stated before during 1979-80 the IPCL's profit after taxes was Rs.5.69 crores which recorded a tremendous growth in 1981-82 to Rs.55.33 crores. This amount has fallen to Rs.31.13 crores in 1983-84 but later it has not only stabilized its position but also shown a remarkable increase in its profits to Rs.89.56 crores in 1988-89.

IPCL's gross sales and other income inclusive of taxes increased from 175 crores in 1979-80 to 1056 crores in 1988-89. It has on the whole shown a remarkable growth over last 10 years.

It is also interesting to note that IPCL has performed better than NOCIL, a petrochemical company in the private sector. The IPCL's overall return on investment at 6.50 percent in 1983-84 compared favourably with that of 1.30 percent in respect of NOCIL. It earned a return on equity equal to 8.40 percent as compared with 4.48 percent by NOCIL. It should however be noted that the IPCL produces a wider range of products compared to NOCIL. Nevertheless, it must be considered that NOCIL has one of the best management expertise in the private sector and IPCL has been successful in competing with NOCIL in number of production areas which is creditable for a public sector unit.
3.4 Workers Participation in Management

According to the Central Government guidelines all public enterprises should have a forum for workers participation in management at the plant level in order to settle issues. In this view IPCL has a system for encouraging workers to participate in management. There is one plant level committee for the entire Baroda complex. This is an apex body comprising six representatives each from the management and the unions. There being three unions each one is allowed to nominate two members to the committee, one of which should preferably be general secretary of the union. The representatives from the management side are G.M. Operations, G.M. Engineering Services, G.M. Technical Services, G.M. Corporate Chief Manager Personnel and Industrial Relations. The plant level committee is expected to meet at least once in a month and discuss work-related issues regarding production productivity, safety, house-keeping, energy conservation etc. which have not been resolved at the area level committees. There are six area committees (one for 2-3 plants) in the Baroda complex reporting to D.G.M. For the operation of these services too, there are two members appointed each from the management and the unions. Each area committee is expected to meet once in a month to discuss the major works related and other issues concerning the plant in that area. Issues likely to affect other
plants are supposed to go to the plant level committee.

The system is well framed but not well implemented. Many a times the area committee does not meet for 3-4 months or even more, and the workers' representatives on the committee are not informed sufficiently in advance about the meeting. As a result, very often, junior employees and new employees who do not know much about the procedures are forced to sit in the area committee meetings. They do not understand what is being discussed and the decisions taken are usually lop-sided. The management representatives in the area committee are reluctant to take decision even on minor issues pleading lack of adequate authority and are content with passing the issues higher up.

Till recently no suggestion scheme or carry forward scheme in the organisation is in effective operation to encourage the workers to come up with their own ideas.

Thus, there remains much to be done in order to encourage and implement workers participation in management in its true spirit.

3.5 Training and Development

The focus of IPCL's training and development programme is on improving the work culture by developing insights and skills of interpersonal relations and working in groups and inculcating a professional approach among the employees. The corporate plan is to expose every employee in a training
programme at least once in three years. In addition to this, the company is carrying out organisational development (OD) exercises and special studies in close association with leading management training institutes of the country besides developing and undertaking programmes for senior, middle and junior level management personnel.

The company has commissioned a computerised simulator for providing training with the assistance of United Nations Development Programme (UNDP). This has a facility for programming the operations, conditions and emergencies encountered in plants and personnel are being trained to operate this simulator.

However, the non-supervisory staff did not have a very high opinion about the training programmes. They felt that many of these programmes were organized for name sake. There were employees who had not undergone any training for more than three years. Thus, it appears that while organizational policies on training and development are well-conceived, the implementation has been poor leading to distrust on part of the non-supervisory staff.

3.6 Product Development

IPCL has a clear focus on product development, keeping in mind the various needs of the consumers. There are separate product development groups for plasticulture, fibres, polymers and chemicals. The corporation has
invested over Rs.27 crores in a research and development centre for developing state of art and knowhow in various fields. The centre is engaged in various programmes for development of indigenous technologies. In 1985 the company earned the ICMA award for technology absorption.

The company has identified three priority areas for product development and application. They are — agriculture, industry and exports which reflects the concern of the corporation for national priorities. In association with the national committee on the use of plastics in agriculture, IPCL has set up a plasticulture development centre at Baroda for the implementation and monitoring of benefits from the use of plastics in agriculture. It is observed that IPCL products are in high demand and are sold themselves without any commercial effort to find new users for them. It shows that IPCL is a corporation which has a high sense of responsibility.

3.7 Product Attributes

This factor includes product quality, price and the level of satisfaction of the customers.

The quality of the product is of a very high order. The production process and the quality control are geared to produce products to meet the minutest quality requirements. Plastics come in grades, any product not matching the highest grade specifications is branded at an appropriate
lower grade and sold accordingly. The customers too perceive that some IPCL products are of high quality comparable with imported products.

In terms of price, however, the imports are cheaper, if taken without duties. After including duties imports have become prohibitively expensive. The company does price its products to earn high margins exploiting the import duties situation and the demand-supply (domestic supply) gap. However, in this regard all firms in the industry price their products identically, probably following IPCL. However, IPCL prices could have been still higher, e.g. equal to prices of imported items.

3.8 Service Attributes

These include after sales services, delivery terms, credits and handling complaints and grievances.

IPCL has five regional offices (Bombay, Calcutta, New Delhi, Bangalore, Baroda) and three sales centres (Ahmedabad, Ludhiana, Madras) for providing assistance to customers. The company has the procedure to handle complaints and grievances and attend to after sales services. The nearest office of IPCL sends technical officers to the customers' premises after receiving the complaint. The problems are sorted out there itself, if possible, otherwise the sold product is even taken back. The only dissatisfaction is that the office is very far off
for many customers who find it difficult to make use of these services. But this is a practical limitation. On the whole in after-sales-service and complaint handling, IPCL is doing very well.

The delivery of the product is definitely poor. Customers have quota which is assigned by the company on certain norms which is fixed at the time of commencement of production (by the customer), depending upon his plant capacity and his average utilization of capacity over the past months. This policy itself is questionable because many new units which come up later discover their quota to be lower than their break even requirement. However, in a shortage situation some allocation problem is likely to exist. What is worse is that the company on being unable to meet even the arbitrarily assigned quota, gives only a fraction of it (say 0.6% to 0.7%). Further, the delivery is erratic. Customers have to go on inquiring whether the product has arrived or not. This is a grave problem for outstation customers who lose their city customers because of the time lag and sometimes the great difficulty is experienced in even getting through a telephone call from far-off places. Advance intimation about the percentage of quota going to be released and the time of delivery (which are possible through proper planning system on the part of IPCL) would greatly help customers but it is so far absent.

The company gives no credit, though the IPCL customer
has to give extensive credit to his customers for a period ranging from 30 to 90 days. Hence, working capital management becomes a problem. Moreover, IPCL itself takes 60 days to pay for the purchases.

Thus on delivery and credit there is a great scope for improvement, while on after-sales-service and the handling of grievances and complaints it has shown commendable performance.