Decline in industrial competitiveness is not only confined to steel. Europe's Chemical Industry for example (see Table I) is apparently very impressive, and seems to be the biggest in the capitalist world. If we go by 1980 sales figures, which had touched $235 billion, it would tower above USA's $161 billion, and Japan's $75 billion.¹

But currently European Chemical Industry is suffering from overcapacity, low demand and has not gained much from the present oil glut. Secondly, like steel it is energy intensive, that too in a continent deficient both in oil, the main source of energy,² and oil derived naptha for its feedstocks. Thirdly, the apparent comparative cost

¹ America's market on the other hand is an unified, but geographically scattered one, typical bulk plastic, for example, has 17 producers in Europe, in contrast to seven in United States. See for details, The Economist, vol. 280, no. 7197, 8-14 August 1987, p. 17.

² The Economist, vol. 283, no. 7240, 5-11 June 1982, p. 88. Naptha provides 93 per cent of industry's feedstocks. Because of increasing oil prices, variable costs (composed mostly of feedstocks and energy) have climbed from 50% of the European Chemical Industry's total costs in 1972 to 75-80 per cent in 1982.
### TABLE I

**PRODUCTION OF SELECTED BASIC CHEMICALS, 1977**

<table>
<thead>
<tr>
<th>Country</th>
<th>Sulphuric acid $\text{H}_2\text{SO}_4$ (100%)</th>
<th>Caustic soda $\text{NaOH}$ (100%)</th>
<th>Sodium carbonate $\text{Na}_2\text{CO}_3$ (100%)</th>
<th>Calcium carbide $\text{CaC}_2$</th>
<th>Chlorine $\text{Cl}_2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUR</td>
<td>19,166</td>
<td>-</td>
<td>-</td>
<td>731</td>
<td>6,691</td>
</tr>
<tr>
<td>FRG</td>
<td>4,678</td>
<td>3,081</td>
<td>1,351</td>
<td>530</td>
<td>2,808</td>
</tr>
<tr>
<td>France</td>
<td>4,501</td>
<td>1,313</td>
<td>1,365</td>
<td>98</td>
<td>1,233</td>
</tr>
<tr>
<td>Italy</td>
<td>2,983</td>
<td>1,130</td>
<td>673</td>
<td>48</td>
<td>1,020</td>
</tr>
<tr>
<td>Netherlands</td>
<td>1,572</td>
<td>-</td>
<td>276</td>
<td>26$^a$</td>
<td>585$^a$</td>
</tr>
<tr>
<td>Belgium</td>
<td>2,011</td>
<td>570$^a$</td>
<td>350$^a$</td>
<td>29$^a$</td>
<td>-</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>UK</td>
<td>3,405</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,034</td>
</tr>
<tr>
<td>Ireland</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Denmark</td>
<td>16</td>
<td>13</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Greece (non EEC in 1977)</td>
<td>1,098</td>
<td>32$^b$</td>
<td>-</td>
<td>-</td>
<td>32$^a$</td>
</tr>
</tbody>
</table>

$^a$: 1975; $^b$: 1976

advantage enjoyed by European producers is being increasingly eroded by low wage, resource rich countries.³

To counter this trend, major West European chemical companies like West Germany's Hoechst, BASF and Bayer are switching over to more sophisticated chemical products -- pharmaceuticals and farm products, such as fertilizers and pesticides, and also laying stress on chemistry related products such as photo-equipment. Such a strategy was a dire necessity, for a perusal of Annual Reports of these companies, clearly shows that because of a sluggish demand for petrochemicals,⁴ their margin of profit has been sharply pared. For example, in 1981, Hoechst's profit was 23 per cent below 1980s (1981 profit - $508 million) on turnover of $15 billion. The other German firms did not fare well either, for according to the Economist, "Bayer's profits were 10 per cent short of 1980s at DM 1.4 billion ($610 million) on turnover 17 per cent above 1980s at DM 33.8 billion ($14.7 billion). And BASF managed only a 1.5 per cent increase in 1981 profits to DM 1.3 billion ($561 million) despite a 14 per cent rise in turnover to DM 31.8 billion

---


To know why there has been a slump in the demand for petrochemicals, one should first enquire whether the same factors, which had helped in its post-war growth hold true even today. Post-war demand for Petro-Chemicals had been influenced by four crucial factors: low-cost factors like cheap crude oil, and thus naptha, and economics of scale coupled with substitution and GDP growth. It is surprising that policy planners connected with Europe's Energy Planning should have been such blatant optimists for according to Stephen Ahearne "they expected the almost exponential growth in demand for petrochemicals to continue based on an expectation of no about-turn in the oil price trend. It was this expectation, which is mainly responsible for today's problems because most of the capacity on the ground today was planned before the 1973 crisis in oil."

---

5 Ibid., pp. 42-43.

6 Phenomenal rise in petrochemical demand in the 1950s and 1960s was directly connected with post-war reconstruction and birth of an European Consumer Society where plastics and man-made fibres gradually replaced traditional materials. Approximate growth rates in the 1950s were 25 per cent per annum and in the 1960s 15 per cent. But in the 1970s we see a reverse trend, with growth rate falling to 10 per cent. See, David Beynon, "Rationalization - An ICI View", Chemistry and Industry, no. 2, 6 January 1982, p. 47.

7 Stephen Ahearne, n. 4, pp. 42-43.
The quest for economics of scale had also contributed to the lack of flexibility which has seriously hampered rationalization in petro-chemical industry. If we now turn from cost to demand factors we find that we need to take a fresh look at previous estimates of substitution element of growth. If we look at relative price movements in Table II,

**TABLE II**

**SOME RELATIVE PRICE LEVELS: 1954-80**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic materials</td>
<td>100</td>
<td>75</td>
<td>171</td>
<td>268</td>
</tr>
<tr>
<td>Imported Copper</td>
<td>100</td>
<td>224</td>
<td>421</td>
<td>480</td>
</tr>
<tr>
<td>Paper Products</td>
<td>100</td>
<td>220</td>
<td>377</td>
<td>558</td>
</tr>
<tr>
<td>Steel Sheets</td>
<td>100</td>
<td>137</td>
<td>462</td>
<td>647</td>
</tr>
<tr>
<td>Timber Products</td>
<td>100</td>
<td>125</td>
<td>355</td>
<td>692</td>
</tr>
</tbody>
</table>

it is not difficult to see why substitution had occurred, but it is doubtful whether adequate attention was paid to the probability of market saturation.

**Threat from the Middle East**

Although till now, USA continues to flaunt a relatively cheap feedstock base, the same claim would soon be made by oil producing countries of the Middle East, followed by Canada, Mexico, etc., and it is expected that within a decade, they would become net exporters of basic petrochemical feedstocks: Saudi Arabia for example has launched an ambitious petrochemical plan which may match 15 per cent of Europe's capacity to crack ethylene, a basic product used to manufacture such items as detergents, and polyester fibres. In May 1981, Saudi Arabia (Saudi Arabia Basic Industries Corporation (SABIC) had signed agreements with Dow Chemical to build an ethane cracker, and associated downstream chemical units. SABIC has also received offers from Japan's MITSUBISHI for setting up joint ventures.

Saudi Arabia's eagerness to be in the world Petrochemical map and its interest in the production of major petrochemicals, including thermoplastics had led to the setting up of three ethane crackers with a combined annual ethylene output capability well in excess of 3.5 billion lb. There will be two ethylene glycol plants with a total
capacity of 1.1 billion lb. per year, from low density polyethylene plants with a combined capacity approaching 1.5 billion lb. per year, two and possibly three, high density polyethylene plants; and units for making ethanol, ethylene dichloride, styrene, methanol and urea.  

(see Table III)

<table>
<thead>
<tr>
<th>TABLE III</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MAJOR SAUDI PETROCHEMICAL PROJECTS</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Partners</th>
<th>Location</th>
<th>Products</th>
<th>Projected start-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>SABIC, Shell Oil</td>
<td>Jubail a</td>
<td>Ethylene</td>
<td>1984-85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ethanol, Ethylene Dichloride, Styrene, Caustic Soda</td>
<td></td>
</tr>
<tr>
<td>SABIC, Dow Chemical</td>
<td>Jubail</td>
<td>Ethylene</td>
<td>1985</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low-density Polyethylene, High-density Polyethylene, Ethylene glycol b</td>
<td></td>
</tr>
<tr>
<td>SABIC, Exxon</td>
<td>Jubail</td>
<td>Low density Polyethylene</td>
<td>1985</td>
</tr>
<tr>
<td>SABIC, Celanese/Texas Eastern</td>
<td>Jubail</td>
<td>Methanol</td>
<td>1983</td>
</tr>
<tr>
<td>SABIC, Japanese Consortium c</td>
<td>Jubail</td>
<td>Methanol</td>
<td>1983</td>
</tr>
<tr>
<td>SABIC, Mobil</td>
<td>Yaubu d</td>
<td>Ethylene, Ethylene glycol, Low density Polyethylene, High density Polyethylene</td>
<td>1985</td>
</tr>
</tbody>
</table>

While the West has had considerable success in relocating some of its ailing petrochemical units to the Middle East, it could not repeat the same success story in the case of five major polymers - LDPE, HDPE, polypropylene, polystyrene and PVC, and we find that West European polymer industry is losing at the rate of £100 million per month. Demand for bulk polymers had been falling in Europe since 1981 by 10-20 per cent, especially this has further complicated chances of recovery in the petrochemical and polymer sector already troubled by over-investment (see Table IV) and presence of too many producers (see Table V) which has stunted the growth of a dynamic market structure.\(^9\)

The attraction of Middle East as a cheap source of feedstock and the present oil glut on world markets\(^{10}\) has

\[
\begin{align*}
a & \quad \text{Pérsian gulf coast} \\
b & \quad \text{Through joint venture} \\
c & \quad \text{Including C. Ito and Mitsubishi Gas} \\
d & \quad \text{Red Sea coast}
\end{align*}
\]

Note: SABIC is Saudi Basic Industries Corporation.


\(^9\) Ahearne, n. 4, p. 47.

## TABLE IV

**OVERINVESTMENT IN 1980**

<table>
<thead>
<tr>
<th>Product</th>
<th>W. European markets (including net exports) (kt.)</th>
<th>Average effective capacity (kt.)</th>
<th>Occupancy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene</td>
<td>11,000</td>
<td>15,000</td>
<td>73</td>
</tr>
<tr>
<td>Nylon fibre intermediates</td>
<td>1,095</td>
<td>1,760</td>
<td>62</td>
</tr>
<tr>
<td>Ethylene oxide derivatives</td>
<td>540 (EO equiv)</td>
<td>810</td>
<td>67</td>
</tr>
<tr>
<td>Polypropylene</td>
<td>1,385</td>
<td>1,860</td>
<td>74</td>
</tr>
<tr>
<td>LDPE</td>
<td>4,240</td>
<td>5,400</td>
<td>79</td>
</tr>
</tbody>
</table>

Market = Domestic market + net exports

#### TABLE V

**LARGE NUMBER OF PRODUCERS IN WEST EUROPE**

<table>
<thead>
<tr>
<th>Products</th>
<th>No. of Producers</th>
<th>1980 market size</th>
<th>Producer (kt.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene</td>
<td>30</td>
<td>365</td>
<td></td>
</tr>
<tr>
<td>LDPE</td>
<td>23</td>
<td>185</td>
<td></td>
</tr>
<tr>
<td>PVC</td>
<td>26</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Ethylene oxide derivatives</td>
<td>64</td>
<td>8.4 (€39 equiv)</td>
<td></td>
</tr>
</tbody>
</table>

*Market = Domestic market + net exports*

come in handy for some European oil companies like Shell which were trying to shed 'excess' labour. This is being done in the name of a 'conscious company policy' an euphemism for pruning downstream operations, investing outside Europe and shipping most of European crude overseas. The European oil giants are now laying more stress on exploration, 11 rather than processing. For example, in the five years from 1977 to 1981, Shell's oil production in Europe increased by 96 per cent, while the amount of crude oil processed in Europe fell by one-third. It is significant that outside Europe, cuts in oil production have not been matched by cuts in processing capacity. 12

In a report prepared by researchers at North-East London polytechnic, it has been pointed out that 'North-Sea oil is particularly suitable for some types of Chemical

11 For example in 1982, Shell's capital expenditure has been planned at £ 4,800 million - primarily devoted to securing sources of oil and gas, but also including coal. Ibid., p. 2.

12 Shell has tried to explain this essentially as a problem of refining over-capacity, as a direct result of drastic fall in oil demand. It contends that 'crude oil throughout could well be between 55% and 65% of primary capacity in 1982, which means a number of refineries will remain viable.' Ibid., p. 3.
production, and could provide the basis for an expanding industry, but this requires the oil companies to invest in new and converted plants but it is precisely this which the oil companies are reluctant to do. In Shell's case for example, capital expenditure on chemicals has fallen from 27 per cent of its total in 1977 to 6 per cent in 1981. Its current strategies include development of high-performance products, more economic production of base chemicals and the use of a greater variety of feedstock. In other words, a process of rationalization has been designed to promote Shell's long term strategy to relegate its UK operations to a 'marginal position'.

**Threat from the COMECON**

Some commentators like Jasper Becker have written about the grave threat posed by the COMECON countries to European Chemical Industry. The COMECON countries had


14 This strategy becomes clear from the veiled warning given by the Shell's Chemical Management to the Labour Union that the latter should be braced for serious cuts or total closure at the Carrington site in UK, which employs 2,000 people. Ironically, Shell is increasing its involvement in new Chemical Plants in Saudi Arabia, and Singapore. See, Peter Hildrew, "Oil Companies 'Shifting' Work Away from UK", *The Guardian*, 28 June 1982.

concluded compensation and buy back deals with EEC based chemical producers during their heyday, but now according to The Economist, they are "now producing an uncomfortably large harvest in the depressed, glutted Western European chemical market".16 'Dumping' by COMECON producers had prompted members of the European Chemical Industry body the Council of European Chemical Manufacturers (CEFIC) to lobby for an European selling price, which they felt would insulate them from being swamped by COMECON plastics, synthetic rubber and fertilizers, which was 40 per cent cheaper than those of West European Producers. Although the CEFIC had tried to block the entry of COMECON synthetic rubber by filing an anti-dumping case, it was hamstrung in its efforts because of complications in establishing COMECON producers' costs. When they had approached the European Commission for assistance, they got an assurance from Etienne Davignon, the present Vice President of the European Commission that future cases (mostly involving low-density polyethylene and PVC) would be judged not against COMECON costs but against a 'normal value' based on an 'efficient West European producer'. In a way it was similar to the US trigger price mechanism and as expected was confronted with the same set of problems, of gauging

different levels of efficiency varying from 'country to country, company to company and even plant to plant'.

The campaign against import of COMECON Chemicals and cheaper American Petro-Chemicals were being led by West German Chemical giants like BASF, Hoechst and Bayer, who were troubled by 50 per cent over-capacity in some of their plants producing plastics. It is ironic that much of these imports were either under buy-back deals (where the payment for the plant sold by the Western contractor or Chemical Company is made by its output) or compensation deals (where payment is made in other chemicals). The European Commission's efforts to 'log' all such deals have been frustrated by pressure groups representing German Chemical Industries (German contractors have specialized

17 Ibid., p. 89.

18 Other details include those contracted by (i) Italy's Montedison who is being paid for $800 million worth of Chemical plants with 250,000 tonnes of Ammonia per annum from 1981.
(ii) ICI and Klockner - who are being paid 300,000 tonnes of methanol per annum from 1981 as their payment for a three cornered deal under which ICI technology is used in a three way deal with Davy Powergas and Klockner.
(iii) Technip (French contractors) would get Benzene and other petro-Chemicals in part payment for chemical plants worth $500 million.
(iv) France's Rhone-Poulenc would get ammonia, methanol, and xylenes as part of a $1.1 billion deal involving sale of ammonium technology and straight barter of some chemicals. For details see, n. 16, p. 90.
in compensation deals) who were reluctant to divulge any information till they were certain of a compulsory European registration system. 19

19 Also see, R. Amann, "The Soviet Chemical Industry: Its Level of Modernity and Sophistication", Centre for Russian and East European Studies Discussion Paper, RC/CLI, University of Birmingham; and Philip Hanson, "Soviet Absorption of Western Technology", Draft Report for the Standard Research Institute on the Experience of UK Chemical Plant Exporter, November 1978. Here Hanson gives an idea of Soviet Imports of chemical equipment from the West.

Soviet Imports of Chemical Equipment (ETN 150) from the West, Selected years, 1965-77, million roubles current prices

<table>
<thead>
<tr>
<th>Year</th>
<th>1965</th>
<th>1970</th>
<th>1976</th>
<th>1977</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>99.5</td>
<td>83.5</td>
<td>814.6</td>
<td>1363.1</td>
</tr>
<tr>
<td>Imports</td>
<td>53.1</td>
<td>38.3</td>
<td>71.9</td>
<td>79.1</td>
</tr>
</tbody>
</table>

All imports from Western countries identifiable in the Soviet trade returns, viz.: imports from Austria, BLEU, France, FRG (incl. West Berlin), Netherlands, Italy, Denmark, Norway, Sweden, Switzerland, UK, Canada (no imports reported), Spain (imports reported only in 1977), USSR, various years, quoted in Hanson, n. p. 32.

Current Trends: Involvement of Oil Companies in Chemical Industry

Apart from the entry of oil-rich Third World states, and COMECON into production of both these petro-chemicals and some end-products, oil companies were also increasingly getting involved in the production of chemicals. The campaign was initially led by Shell (chemicals sales in 1976 amounted to £ 4 billion) and it is significant that subsidiaries of five oil companies happen to be the top 40 chemical firms in the world. 20

The traditional chemical companies were being gradually relegated to the background with oil companies increasingly assuming responsibilities for producing the olefines—ethylene, propylene and butadiene; and aromatics—benzene, toluene and butadiene and their polymer

derivatives.  

Change in Priorities

The oil majors started toying with chemicals after the 1973 Arab-Israeli war, when they found to their dismay that as far as extraction, distribution and marketing of petroleum were concerned, they did not have the last say, because Governments in oil producing countries were getting increasingly conscious of their prerogatives. Petrochemicals offered the most attractive choice, for the oil companies felt that they could produce it more economically, as they had access to a wider range of feedstocks, which more than compensated for the higher construction cost. The oil companies have not confined their production solely to olefines, aromatics and polymers. Data available till 1977

The present glut in chemicals owes among other factors to the earlier senseless installations of new capacity e.g., olefins in United States by chemical offshoots of oil companies, although apparently traditional chemical companies, dominated production. In Europe there was more enthusiasm with oil and chemical companies eager to form joint ventures. It is not difficult to understand why today there is over-capacity in the chemicals market, when we remember that since 1973, the world's nine largest oil firms have increased the share of their capital investment on chemicals from 5 per cent to 13 per cent. However, the period of boom during the 1960s when growth rates varied between 16-19 per cent is gradually giving way to a much sober projection of 6-7½ per cent. See Economist, n. 20, p. 68.
indicate that they were moving into fertilizers and plastics, although they were still reluctant to branch out into high-value pharmaceuticals, dyestuffs and specialty intermediates. Another interesting feature was their reluctance to get involved with fibre production, although they were not averse to sale and production of intermediate chemicals, an essential ingredient for fibres.

**Reaction of Chemical Companies**

Faced with downstream invasion by oil companies, the chemical firms have reacted in the following manner:

(i) **Backward Integration:** Companies like ICI have reacted by having an 19 per cent stake in the Ninian oilfield in the North Sea, which would guarantee its own feedstock. BASF similarly has an oil subsidiary which claims 20 per cent of group sales.

(ii) **Joint Ventures:** This trend has largely been confined to Western Europe since 1970. In Germany for example, Bayer has a joint venture with British Petroleum (Erdol Chemie) to produce petrochemicals. In France, Rhone-Poulene is in association with BP, Shell and BASF has a joint petrochemical subsidiary Rheinische Olefinwerke. Only Hoechst is an exception, although 25 per cent of its sales are in petrochemicals, secondly it has long-term supply contracts with Caltex and Marathon. ICI like Dow
Chemicals in USA has functioned independently, although it has links with Philips Petroleum in oil refining and a joint venture ethylene plant (shared with BP).

(iii) Integrated Technology: Union Carbide has pioneered the use of this technology, which involves production of petrochemicals directly without having to go through the intermediate production of Naptha or gasoil feedstocks; this process is being tried out in Japan in collaboration with Kureha Chemical Industry and Chiyoda Chemical Engineering Construction.

(iv) Cutting base Chemical Production: This has been the brainwave of US chemical firms since 1973. The US chemical firms have been limiting their production in such a way that it is solely geared to production of downstream products. They are also refraining from marketing of petrochemicals at the intermediate state - a sensible decision considering the ambitious petrochemical plans of new oil companies in oil producing countries.  

22 According to 1977 estimates, Middle East and North Africa will have over 5 million tonnes per annum capacity in ethylene production by 1990. See n. p. 69. It is significant that Arab League countries in 1977 had made it clear that their additional capacity was direct against EEC countries, when they sought tariff-free access for the output of three petro-chemical plants. (1.5 million tonnes of ethylene converted into products such as polythene) along the lines of GATT multi-fibre arrangement for textiles MFA). For details see, The Economist, n. 16, p. 69.
Need for Restructuring

Defensive action by chemical companies is however no substitute for restructuring. Even oil companies are thinking of reversing their earlier policy of dabbling in chemicals and following the example of chemical companies they would also like to concentrate on speciality products. However, while the oil majors have the time and resources to weigh their options, 'purer' chemical companies cannot afford to be lax on the question of feedstocks. ICI for example has even taken the unprecedented step of taking the British Government to the High Court, 

23 This volte face owes greatly to the shrinking ownership of oil resources of the free world by private oil companies. In 1970, their shares was 94 per cent which was an incentive enough to branch out into chemicals. By the end of the 1970s, it had shrunk to 45 per cent. The chemical business drew its strength from the assumption, that oil price would remain low and demand for it high. On the contrary, since 1973, there has been a hike in price of oil from $ 2.60 to $ 34 a barrel while demand for oil in OECD has plummeted by 8 per cent. According to data supplied by IEA, demand may fall by another 5 per cent in 1982. See, The Economist, vol. 284, no. 7244, 3 July 1982. The chemical companies who are interested in producing speciality chemicals (whose growth rate can be as high as 12%) would have to base their strategy more on marketing rather than research and development. According to the Economist "often, too, providing a solution means drawing on a range of know-how, not just on chemical savvy. Such flexible responsiveness to particular market needs may may come more easily to a small entrepreneurial firm (or intrapreneurial units within a larger company) than to the conventional chemical giant." For details see, The Economist, vol. 285, no. 7262, 1982, p. 99.
over the latter's taxation policy on chemical feedstocks. Interestingly it has touched a sympathetic chord in The Times, which commented: "...to do otherwise would be to jeopardise its huge petrochemical business at Wilton on Teesside". 24 Ironically, ICI like most other British companies has been far less enthusiastic about confiding its problems to the EEC. It has remained lukewarm to EEC's idea of a "crisis cartel" in the European Petro-Chemical and Plastics industry, in sharp contrast to its French and Belgian counterparts who are clamouring for EEC's intervention in this crucial sector. This has however not prevented the ICI from invoking Article 92 of the Treaty of Rome to buttress its charges against the British Government, which it has accused of favouring its arch rivals Shell and

24 Rupert Morris, "ICI threatens to sue over Finance Bill", The Times, 9 July 1982, and James Erlichman, "ICI sues State", The Guardian, 9 July 1982. Also see, Hamish McRee, "In an act, almost of Desperation, ICI is Preparing to Open a Pandora's box", The Guardian, 6 July 1982. It is widely suspected that the British Government had to succumb to pressure by Shell and Esso, who had threatened to abandon the construction of their £ 500 million petrochemical complex at Mossmoran in Scotland, if tax rebate on ethane was not made available for the next few years. BP had also jumped into the bandwagon by threatening to close its Grangemouth plant if it was left out of the deal.
ICI has alleged that the British Government's 1982 Finance Bill (which would grant tax concessions for use of ethane from the North Sea) would greatly help its rivals, Shell and Esso, who have their own £1 billion FLAGS pipeline from the Brent field. ICL 'cracks' ethylene, an important feedstock for polyethylene from oil-based naptha which does not enjoy similar tax concessions. In 1981, ICI lost an unique opportunity of procuring a secure source of ethane supply when the proposal to build a £2.7 billion state-sponsored gas pipeline was abandoned by the British Government.

Article 92 of the Treaty of Rome bars any attempt by member states in the EEC to distort competition. See for details James Erlichman, "ICI to Sue Treasury for 'unfair subsidies'", The Guardian, 6 July 1982. Although the Government has refused to budge from its earlier decision regarding the Finance Bill clause, it is not averse to holding talks with ICI, although it has made it clear in no uncertain terms that this clause was not a State Aid, because it did no more than put inter-affiliate deals on all fours with arms length deals for tax purposes and followed internationally accepted principles. See, Debate on 'Finance Bill', especially exchanges between John Wakeham, Minister of State, Treasury and Robert Sheldon, Opposition spokesman on Treasury and Economic Affairs. Quoted in The Times, 15 July 1982. Also see, Chemical Week (New Jersey), vol. 131, no. 3, 21 July 1982.

According to latest data available European petrochemical industry would no longer fight shy of the European Commission, although it would be reluctant to form a 'crisis cartel' modelled on those for steel or synthetic fibres and which has the European Commission's sanction. It would also be reluctant to seek the kind of 'voluntary' restraints on exports by sellers like Japan. The main aim of pressure groups representing European petrochemical industry is to win the support of European Commission to (1) raise prices, and (2) to turn losses into profits.
The question of feedstocks is equally important for survival of ICI's competitors. So it was only natural that Esso would react sharply to ICI's fulminations. Conscious of the fact that the question of subsidy would immediately draw the attention of the European Commission, it was careful while framing its charges against the ICI - it merely accused the ICI of resorting to pressure tactics, so that the Government could be induced to bail out its 'lameduck' -- the Wilton Petrochemical Plant. It has also reiterated that the clause in the financial bill in no way constituted a hidden subsidy, for the companies are accountable to the Inland Revenue.

Major Trends : Decline of Chemical Giants: A Case Study of ICI

Although ICI has remained sensitive on the question of feedstocks, it has succeeded in graduating from bulk chemicals to higher value added specialities. In 1981, its by paring capacity. In exchange they would allow the European Commission a freer access to data relating to their industry which is an euphemism for monitoring. They would also like the European Commission to oversee the capacity-cutting market-sharing deals besides ensuring that such deals do not fall foul of anti-trust articles of the Treaty of Rome. For details see, The Economist, vol. 285, no. 7262, p. 20.
agricultural and pharmaceutical operations had been the most profitable and we find a new ICI, less affected by

ICI's agricultural division plans to spend about £5 million for production of catalysts (an important input in the manufacture of ammonia and methanol), because it is well aware of the increasing demand for catalysts in the world market; for details see, European Chemical News (Sutton, Surrey), vol. 38, no. 1023, 15 March 1982, p. 26. For a general discussion on catalysts, see, The Economist, vol. 285, no. 7259, 16 October 1982, pp. 107-8. Shell International Company, a close competitor to ICI has however responded more favourably to this increasing demand for catalysts by setting up a plant in Ghent, Belgium, for it also knows that catalysts would greatly help it to upmarket into speciality chemicals. For details, see, The Economist, vol. 279, no. 7189, 13 June 1981, p. 71.

Although in recent years ICI has brought about a radical transformation in its universal chemical image, with growing interests in fertilizers, herbicides and pharmaceuticals, the fact remains that the latter are neither cyclical nor loss making. ICI still derives succour from its oil interests which helps it to remain viable. In 1979, for example, oil's contribution to ICI's £560 million profit was £79 million. The Economist, however, sounded quite pessimistic when it had blandly commented: "ICI will be lucky to end 1980 with much more than £300 million in pre-tax profits, £250 million less than in 1979." For details see, The Economist, vol. 277, no. 7155, 18 October 1980. Latest available data suggest that falling oil prices has made ICI's position critical, oil profits fell from £25 million in the previous quarter (1981) to £12 million (1982) although because of the inflexible tax structure, tax payable fell only by £4 million oil exports have been slashed from £40 million to £13 million (1982 figure). But falling oil prices failed to provide any succour to ailing petrochemical and plastics business and agricultural sales was not brisk. For details see, Peter Rogers, "ICI Brings in only £62 million", The Guardian, 30 April 1982;
cyclical downturns and having an increasing stake outside Britain, particularly in the United States. Profit from ICI's pharmaceutical division has doubled in the last four years and are expected to grow 25 per cent in 1982 and it is significant that 80 per cent of this UK based chemical firm's drug sales are outside Britain compared with 61 per cent over all. 27 ICI like its rivals could no longer remain content with building larger, more advanced and more economical plants for providing commodity chemicals that its R and D provided. It also needed a different orientation which involved a change in its traditional management style. As one commentator Graham Searjeant has pointed out:

"Marketing and finance had to become the arbiters of production instead of its hand maidens." 28 Talking about the change in management he contends "ICI's highly sophisticated bureaucratic machine was built around vetting the competing demands for investment funds from its eight divisions and overseas subsidiaries. Now that the rate of investment has

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27 Business Week, 15 March 1982, p. 32. ICI has been most successful in marketing a hypertensive drug known as Tenormin which has a projected growth rate of up to 30 per cent for the US. But profit in pharmaceuticals has been offset by losses in fibres, petrochemicals and plastics. ICI's fibres division has abandoned bulk polyester production completely, which is part of a 25 per cent cut in fibre capacity by Europe's chemical industry.

28 Graham Searjeant, "In the World of 1982, it all had to Go", Sunday Times, 24 October 1982."
halved, even in money terms, control through the allocation of capital has become inadequate. The thrust of the operation has to be more defined by the board." Its latest strategy has been to cut down its loss making fibre division. Way back in 1980, it had tried to stem its loss (about £ 80 million) and attain a break-even position in 1981. Under this programme, nearly 4,500 jobs (40 per cent of the workforce) were axed at ICI fibres and petrochemical sites in UK and Germany. It was also decided that the West European fibres operation as a whole, including the nylon and polyester plants at Oestlingen in Germany would have a drastic cut in its workforce from 12,000 to 8,500. Although the ICI would continue to manufacture both nylon and polyester fibres i.e., ICI would quit production of commodity polyester filaments (used for cheap knitted goods) and move increasingly upmarket in nylon fibres and yarns.29 ICI

29 "ICI takes the axe to loss making Fibres Division in UK, Germany", European Chemical News, vol. 35, no. 953, 20 October 1980, p. 4. Since 1976, about 25 per cent of synthetic fibre capacity has been closed as a result of which sales of fibres for rag trade has been adversely affected (as much as by 25% on 1981's level). According to latest data available, ICI has already started quitting production of bulk polyester fibres, and is experimenting with new products like artificial silk. In 1981, for example, ICI introduced Mitrelle, which resembles silk and Terinda which is an imitation of suede. For details see, The Economist, vol. 285, no. 7258, 9-15 October 1982, p. 70.

It is ironical that ICI in the late 1960s was not only the largest UK fibre producer but had also held sway over the texturisers (those who transform man made fibres e.g. nylon and polyester) by establishing
also had to reckon with a new challenge: by 1978 United States had transformed itself from being an importer to a major exporter of fibres and textiles, ICI could remain unruffled in spite of £100 million plus losses in its fibres division over the last five years because of its strength in petro-chemicals. But in 1982, the whole fibre chain (fibres plus upstream petrochemical operations) was on the verge of collapse. Fibre losses alone in the first half of 1982 amounted to £38 million.

However even while cutting down its presence in fibre operations, the company has seen to it that its traditional link with fibres is not snapped permanently, this explains why the company in a surprise move has planned increased investment in upgrading its fibres operations: five new machines, costing £4-5 million a piece for ICI's new polyester yarns has been installed. However, such a move might be illtimed, for at present UK's fibre industry is fighting a losing battle against high inflation rate, steep interest rate and an inflated value.

the "Crimplene Club" for texturisers. Unprocessed polyester fibre was bought by "Club" members which enabled the latter to charge a controlled premium price for the finished product. The deal helped ICI to impose its own standards of quality control, and also secured an assurance from texturisers that they would not process other polyester fibres. For details see, Andrea Likieman, "Pricing Policy in the Texturising Industry, 1958-71", The Journal of Industrial Economics (Oxford), vol. 30, no. 1, September 1981, p. 27.
of the pound. Its customer base is also on the wane with the closure of about 100 textile mills, which represents 20 per cent of the industry. Secondly, UK's fibre industry cannot be immune from the crisis that faces European fibre industry as a whole, combined losses of which were estimated to be around $1.1 million (1980 figures) and it is feared that surplus capacity in Western Europe could rise to 550,000 ton/year by 1985 or 25 per cent of present production. Western Europe finds itself helpless against the onslaught of US fibre and textile imports, while the less developed countries are made a scapegoat for the ills affecting European fibre and textile industry. However what is ominous is the fact that textile imports as a whole are expected to rise by an estimated 100,000 tonnes annually from a total of 1.4 million tonnes in 1979. However, this has greatly contributed to a more restrictive stance on the part of EEC in its re-negotiation of the multi-fibre


agreement. 32

What is often forgotten is the fact that chemical giants like ICI prefer to keep out of fibres, not because of the challenge posed by low-wage countries, but because the European governments have failed to promote industrial re-adjustment in this important sector. A study of West Germany's textile clothing industry shows that although 908,400 jobs were lost between 1962 and 1975, only 70,000 jobs were lost because of imports from developing countries (in contrast 215,000 jobs were lost due to imports from developed countries!). The rest 623,000 resulted from improvements in productivity. In case of British textile industry we find that although it has been alleged by UK that reduction in labour force in its textile industry owes greatly to imports from low-wage countries, its own service working paper of

32 Ibid., p. 10. Also see, Arvind Bhandari, "India - EEC Ties", Hindustan Times, 3 November 1982, which discusses India's problems regarding export of textiles to the EEC, and the latter's hardening attitude which has precluded any amicable settlement on the MFA issue. UK has played a crucial role in contributing to EEC's intransigence on the question of textile imports from the Third World by demanding that the EEC demand lower import growth which would have a direct correlation to existing penetration and domestic market growth, but it faces the piquant situation of having to promote its own exports while trying to stifle third world imports. In 1976, for example, British total textile exports (fibres, textiles, and clothings) rose by 39 per cent while imports rose by 34 per cent. For details see, The Times, 26 January 1981.
January 1979 (in respect of changes in employment in Britain for the years 1974-75) contradicts it. It shows that whereas Britain had suffered a total net loss of 110,000 jobs, a net 85,000 jobs were lost owing to imports, but 57,000 jobs or 67 per cent owed to imports from developed countries.  

33 Although much hue and cry has been raised by UK over MFA, it has been observed that although in theory MFA (multi-fibre arrangement) was designed to help developing countries by permitting 6 per cent real annual growth, in practice overall growth from MFA countries was restricted to only 4 per cent (1976-1979). Group I products coming under the most 'sensitive' category, contributing to 56 per cent of MFA goods increased by only 1.9 per cent. Total imports into UK by volume increased by 35 per cent (1976-77) but imports from low-cost suppliers grew by only 19 per cent in contrast to 58 per cent from developed countries. Other EEC countries have responded more favourably to problems of readjustment. For example, Italian firms have started paying more attention to design and cost reduction, German firms have opted for production ranges containing an overwhelming proportion of specialized fabrics. The Belgians are concentrating on the manufacture of low-quality tufted carpets while Denmark is concentrating on high-class clothing. This data has been provided by E. Ira Brown, Director, British Importer's Federation. For details see, The Times, 26 January 1981. Also see, The Economist, vol. 285, no. 7262, 6 November 1982, p. 75.

EEC's strict interpretation of the GATT dumping code in respect of import of US polyester fibre imports has agmered 'protectionist' European fibre manufactures, who strongly feel that the council regulation imposing 'definitive' anti-dumping duties has opened a major breach in the community's defence against US fibre imports. European industry was particularly upset over the relief provided in the form of exemption from dumping duties, to all independent US texturizers, although as a sop the duties on import of US textured yarns were increased from 9.6 per cent to 16.4 per cent. The Commission's ruling that approximately one-third of US polyester yarn imports
While withdrawing from fibres, ICI has seen to it that it succeeds in keeping up its image as a viable chemical giant; this has been made possible by a combination of job cutting techniques and specialization. Obviously such a strategy has not gone unrewarded, it has succeeded in moving over from 18th to 8th position among the world's top chemical groups in terms of productivity. Although ICI's performance in fibres has been dismal, it has fared equally badly in plastics and petrochemicals. Its losses

(non-textured, partially oriented as well as textured) was not being dumped into the EEC market was unaffected by the fact that the resell price of these imports is 20-25 per cent lower than those charged by Community producers and a dumping margin of 20 per cent of normal value has been recorded. What is more ominous is the increasing volume of imports (from 1 million square metres in 1978 to 3.5 square metres in the first half of 1980) which is flooding the EEC market. For details see, European Chemical News, vol. 36, no. 964, 12 January 1981, p. 4.

According to latest figures available for 1982, ICI has been forced to abandon its target of break-even in fibres after suffering losses to the tune of £20 million, but if it had succeeded it would have been the first time since 1974. For details see, Jonathan Davis, "ICI Quarterly Profits at 18-month Low", The Times, 29 October 1982.
in plastics and petrochemicals have risen to a record £ 100 million in 1982. Since 1980, it has suffered a total loss of £ 223 million in this sector and what is worrying its planners is the fact that recession has started playing havoc with such secure overseas markets as Canada and Australia which had remained immune from the worst of the declining demands. But ICI has remained unruffled and has not hesitated to push up its prices by 4 per cent in 1982 but labour and raw material cost has more than kept pace with the hike in the prices thus

35 The only consolation which ICI might have is the reported decision of major European petrochemical and plastic companies to orchestrate their efforts to carry on diagnosis of their problems of a prelude to a possible co-ordinated restructuring. However, they were adamant on the question of forming a "crisis cartel" to control production and oversee restructuring. West German and British firms are particularly opposed to such an EC inspired plan and would like to handle problems individualistically. For details see, "Major European Plastics Makers to draw up a list of their Woes", International Herald Tribune, 16 July 1982, and James Eriksen, "ICI Plastics Loss Worsens", Financial Guardian, 4 August 1982.

The crisis in plastics is most evident in sharp fall of demand in thermoplastics (which include high and low density polyethylene, polystyrenes, polyvinyl chlorides and polypropylenes). While European production of thermoplastics which finds wide use mostly in packaging, is estimated at 11.1 metric tons a year, consumption is only 10.7 metric tons which compares unfavourably with a total capacity of 16.7 metric tons. No wonder plastics (especially engineering plastics) has been chosen as one of the selected areas of technology transfer by the EEC in India for small and medium scale industries. See for details, The Statesman, 13 June 1982; and The Telegraph (Calcutta), 3 November 1982.
maintaining a tight squeeze on markets.

ICI's rationalisation plan to stem losses has been most evident in the recent swapping (or portfolio exchange) of unprofitable petrochemical operations with British Petroleum (BP) which was aimed at producing over-capacity and making it more market-oriented. The deal stipulated that BP would cease manufacturing polyvinyl chloride or PVC\(^{36}\) and sell some of its capacity to ICI. BP chemicals in turn would acquire ICI's polyethylene (low-density polyethylene or polythene) manufacturing operations.

36 BP's chemical business has suffered huge losses to the tune of £ 194 million ($ 340 million) in 1981 and a further deficit of £ 46 million in the first quarter of 1982. The deal would not only reduce over-capacity and combat slack demand but would also bring about a loss of 1800 jobs on Teesside and South Wales. However, BP chemicals would have to share the redundancy costs to the tune of £ 25 million (approximately) and the total bill including write-offs might approach the £ 100 million figure. ICI was secretive about overall costs but estimated that redundancy costs could amount to £ 10 million. For details see, James Erlichman, "Chemicals deal cost 1800 Jobs", The Guardian, 18 June 1982. One of the major factors which prompted ICI to enter into such a deal with BP was the collapse of the proposed £ 2.7 billion state sponsored gas gathering system which would have supplied ethane. However, by acquiring BP's market share in PVC, ICI would become the second largest PVC manufacturer in Europe, for the deal would help it raise its British PVC capacity to 375,000 tons from 235,000 tons. For details see, International Herald Tribune, 18 June 1982. Also see, The Economist, vol. 279, no. 7189, p. 74.
in Britain. BP feels that the losses suffered by its chemical division could turn into profit in the second half of 1982 once it succeeded in gaining access to cheap ethane from North Sea, the gas feedstock which is an essential ingredient for ethylene and polythene. The deal would help ICI for it is uncompetitive in polyethylene although both ICI and BP has reiterated that the deal is no way going to affect ICI's polyethylene interests in continental Europe. ICI has however pinned its hopes on PVC, for it has been traditionally a world leader in chlorine technology, which helps it to manufacture low-cost PVC.

ICI's failure to keep pace with its rivals in the manufacture of polyethylene, the simplest bulk plastic however, glosses over one important factor: the inroad made by Union Carbide of America into European plastics market in the 1960's with its technologically advanced linear low-density polyethylene which required much less energy to produce. ICI's answer to it was high density polyethylene introduced around the same period and which also involved less consumption of energy although it was no match for ICI's original low-density variety. But ICI's fascination with plastics soon ended when it started facing new challenges from American Exxon Corporation which was shrewd enough to acquire the Union Carbide license which
made its investment in linear low-density plastic, a much more attractive proposition. The American firms in addition had access to ethane as a feedstock which not only helped them to saturate the European market with cheap plastics but also fibres.

Critics like James Erlichman however feel that it was a great mistake on the part of ICI for not having exploited Union Carbide's technology for linear low density polyethylene had the unique characteristic of being "much thinner to the same strength as ordinary low density, thus saving also on oil-based raw material costs. But ICI, believing that the license fees and investment costs were too great, continued to back its own method even, inexplicably, after the oil crisis made the virtue of Union Carbide's product so clear". The company was too proud of its own undoubted achievements, too cushioned by its dominance of its home market, and too reluctant therefore to buy the invention and businesses of rivals, even when inescapable commercial logic seemed to require it.37

In its latest drive to compensate for the losses it is suffering in fibres, it has made two acquisitions:

37 James Erlichman, "Honeymoon is over for ICI's new boss", The Guardian, 17 June 1982. It may be noted that in volume terms polyethylene accounts for around 20 per cent of the total world plastic sale.
The first involved buying of Dye interests of French products, Chimiques Ugine Kuhlmann, the Chemicals Subsidiary of State owned Pechiney Ugine Kuhlmann. The Dyes and pigments sector of PUK accounts for around 10 per cent of its 8 billion franc ($1.14 billion) turnover. This was essentially a marriage of convenience for the French government was eager to restructure French chemicals industry around the nationalized companies: Rhone Poulenc, Societe Nationale, Elf-Aquitaine and CDF-Chimie, but it found that Elf was reluctant to takeover Produits Chimiques for it would have involved an additional investment of 1 billion francs a year. The French government was eager that the activities in the dye sector should continue to generate employment and was convinced that only ICI could help in the salvage operation. However, the deal did not come out smoothly, for it had to face considerable opposition from confederation Generale du Travail, France's largest labour union which is sensitive to any foreign takeover of French interests. The second acquisition has been that of Arthur Holden and Company a leading British paints company, in clinching this deal ICI seems to have thwarted a move by its main rival

38 International Herald Tribune, 10 August 1982. ICI had to give an undertaking that it would continue to maintain current research activities and level of exports besides avoiding discrimination in investments in France and abroad.
international paint company (a subsidiary of Courtaulds) to acquire it, although the latter would continue to exert some influence in its functioning through its 12 per cent share in Holden. 39

ICI's newly found interest in Dye stuffs will take time to show results, for it is essentially a low-growth business. Moreover ICI's efforts to merge plastics and petrochemicals may not yield immediate dividends, for although it accounts for 23 per cent of ICI's total sales, 45 per cent of these divisions (amounting to £ 54 million) are in the red. No wonder Kidder, Peabody, the Wall Street brokerage house feels the only solution left for ICI is to discard all its commodity business (which lost £ 120 million in 1981), for if it had done so, its gross return on sales would have been 10.3 per cent instead of 4.9 per cent which ICI actually attained.

ICI has been however more successful with its job cutting programme. It still has too many workers on its pay roll (132,400 at the beginning of 1982) but in Britain ICI's British work-force fell by 9,600 to 74,700 or 56.4 per cent of the total world-wide employment. In 1982, 6000 jobs have been already axed which is likely to be repeated.

in 1983. Cuts in Britain has however started showing results especially in terms of sales per employee, an important criteria for measuring productivity. (see Table VI)

**TABLE VI**

<table>
<thead>
<tr>
<th>Company</th>
<th>Sales/Employee</th>
<th>World Sales</th>
<th>World Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Du Pont</td>
<td>$39,315</td>
<td>$4.4 billion</td>
<td>1</td>
</tr>
<tr>
<td>Hoechst</td>
<td>$28,967</td>
<td>$3.8 billion</td>
<td>3</td>
</tr>
<tr>
<td>ICI</td>
<td>$19,960</td>
<td>$3.9 billion</td>
<td>1</td>
</tr>
<tr>
<td>1977</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Du Pont</td>
<td>$71,849</td>
<td>$9.4 billion</td>
<td>4</td>
</tr>
<tr>
<td>Hoechst</td>
<td>$61,430</td>
<td>$10.5 billion</td>
<td>1</td>
</tr>
<tr>
<td>ICI</td>
<td>$49,360</td>
<td>$8.6 billion</td>
<td>5</td>
</tr>
<tr>
<td>1980</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Du Pont</td>
<td>$100,456</td>
<td>$13.7 billion</td>
<td>5</td>
</tr>
<tr>
<td>ICI</td>
<td>$95,582</td>
<td>$13.7 billion</td>
<td>4</td>
</tr>
<tr>
<td>Hoechst</td>
<td>$81,235</td>
<td>$14.1 billion</td>
<td>1</td>
</tr>
</tbody>
</table>

ICI's Continental Thrust

ICI's search for markets in Europe has been a recent phenomenon. Its insularity is reflected in its failure to bring down costs in Britain which still contributes to 40 per cent of its sales. To quote James Erlichman, "...It failed decisively to grab its share of world markets believing the home and Commonwealth markets would sustain it." After more than 10 years of investing in United States and Western Europe, its balance sheet has not shown any marked improvement for it can lay claim only to 1 per cent of the American and 2 per cent of the West European chemicals market. A fifth of ICI's total sales (against two-fifths in Britain) are directed towards other European countries which amounts to about $2.4 billion out of a total world sale of $19 billion in 1979. Of $2.4 billion half is exported from Britain and ICI wants to keep up the trend even if there is an increase in volume, ICI's interest in the continental market is evident from the fact that even in 1979, ICI had spent 15 per cent of its total $118 billion investment on the continent which was equal to the amount it spent in United States, which was another important area
for expansion. In 1980, it was expected that ICI would vigorously scout for market in United States, for the first phase of the new complex at Wilhelmshaven on the North Sea coast of West Germany was nearing completion. Once this was completed it would have additionally given a 35 per cent boost to its total continental turnover which was growing (in volume of sales) at one and a half times the industry average.

To tighten its grip over


Although in 1972, ICI in terms of sales was the second largest integrated chemicals company in the world, its sales per employee were 32 per cent lower than its biggest European rival, Hoechst and almost 50 per cent lower than Du Pont, its leading US rival. By 1977, ICI had closed the gap considerably but by 1980, ICI had overtaken Hoechst in sales per employee and could match the levels attained by Du Pont. For details see, James Erlichman, "Sto watch basher who could not stop being Promoted", The Guardian, 1 April 1982.

41 Since 1978, ICI has adopted an aggressive salesmanship in Western Europe for it has lately realized the vast potential of this market which as a whole is about a third of the non-communist world's chemicals market. In contrast the British market is about a twentieth besides having a sluggish growth rate. For details see, The Economist, vol. 276, no. 7145, 9 August 1980, p. 70. ICI in its efforts to maintain an edge over its rivals has been experimenting with new ideas, especially those which would bring down capital costs of chemical plants. Its latest brainchild is a miniaturised distillation plant which can solve the problems of distillation on a large scale. While embarking on a continental expansion programme, this
the continental market ICI has fallen back on its strength in bio-technology; this is evident from the way it is trying to capture the European market for animal food-stuffs with single cell protein (SCP) produced by bugs, on which it has already spent $35 million. It has also set up a plant costing $93 million to produce 50,000-70,000 tonnes of SCP. However, ICI's venture smacks of adventurism, for no other European company, with the exception of West Germany's Hoechst has dared to enter the animal feed market with a petrochemical-based SCP process for SCP profits are vulnerable to falling soya prices or rising chemical costs. All other chemical firms, which have begun commercially exploiting SCP

process would be useful for ICI for it would make the company's products fully competitive, helping to offset the price advantage of rivals with access to cheap feedstocks. However it would be difficult for ICI to find market for such chemical plants because of financial constraints placed on chemical firms because of recession. For details see, The Economist, vol. 285, no. 7263, 13 November 1982, pp. 101-2.

42 For details see, The Economist, vol. 275, no. 7138, 21 June 1980, p. 98. ICI has taken considerable risk in trying to market SCP, for out of 23 projects specialising in production of SCP (petrochemical-based) strewn all over the world, only two are operational and three are still in the pilot plant stage. The SCP process remains profitable only at present prices, but latest trends point to an increase in price of natural gas (the chief source of methanol which provides nourishment to the bugs) relative to SCP's rival soya meal.
process have scaled down the size of their plants besides taking the precautionary measure of going up market. 43 ICI is well aware of this fact for although apparently its Billingham plant would be manufacturing about 4,000 tonnes/month of bacterial SCP from methanol and ammonia, it might also be used as a testing ground for manufacturing bacteria induced natural polymers and polyhydroxy butyrate (PHB). 44

The only real competition which ICI might face in the continent in marketing SCP will come from West Germany's Hoechst, for its purified variety of SCP contains only one per cent nucleic acids, which makes it ideally suitable for human consumption. Hoechst's pilot plant in Germany is currently producing 1,000 tonne/year of protein and 50 tonne/year of nucleic acid, and a board decision is awaited to scale up the plant having a 20,000 tonne/year capacity. However, Hoechst has been more imaginative than ICI to scout for third world

43 Ibid., p. 98. This involves selling of SCP for human consumption or for opting for a cheaper chemical feed stock like sulphite liquor wastes from pulp making plants.

44 ICI is currently examining the market potential of PHD as a possible thermoplastic material for the future, for because of its biological origin it would have a high degree of biodegradability. For details see, European Chemical News, vol. 36, no. 976, 6 April 1982, p. 21.
locations to reduce the cost of production; in Indonesia for example it is in the final stage of planning a joint ethanol and SCP project, both based on starch from cassava.  

ICI's reliance on bio-technology to capture the continental market however partially unveils its future plant of producing textiles and plastics with bacteria. Such a plan would however hinge on the new process which is being currently tested at the £ 40 million Billingham plant for production of Pruteen. It also indicates that ICI's future orientation in research and development in contrast to its continental rivals would be greatly influenced by biology; this is reflected in the fact that about a third of its £ 200 million annual R and D budget is bio-technology oriented. Already 18 per cent of this is devoted to its profitable pharmaceutical operations.


46 Apart from replacing the monopoly of soya bean meal in the animal feedstuff, in the continent, Pruteen might also succeed in capturing the East European market, which is keen to reduce its dependence on Western sources for supply of protein. This partly explains ICI's extraordinary interest in SCP, which is reflected in its research expenditure in developing this process, which is between £ 10 and £ 20 million. For details see, Stephanie Yanchinski, "ICI to make textiles from bacteria", New Scientist, 19 March 1981, p. 723.
However, ICI is still resisting the temptation of devoting fully its efforts and energy to the cause of promoting small volume, higher-value products, which has been recommended by experts studying restructuring in chemical industry.

ICI's Deal with Soviet Union

Although ICI's continental rivals are still not fully convinced of the gains that bio-technology can reap, Soviet Union has shown unusual interest in ICI's SCP process, although this process is yet to receive technological clearance in the Soviet Union. In its current five year plan Soviet Union hopes to increase SCP production by 80-90 per cent and it has already approached John Brown

ICI in this respect has exercised more discretion than its competitors, like BP chemicals which is moving away from bulk chemicals and investing in speciality chemicals (its latest investment is in a £4 million plant for producing hydroxyalkyl-acrylates for speciality paints). For details see, Nature, 12 March 1981, p. 80.

Continental Pharmaceutical companies have been especially cautious about bio-technology which largely remains in the domain of the United States. However it has been observed that even the most reputed biotechnology firms like CETUS have been forced to announce redundancies and redirect research programmes having shorter pay off period, largely because withdrawal of support by oil companies like Standard Oil of California, Chemical companies are still reluctant to commit themselves in promoting bio-technology, for the application of bio-technology to agricultural products and bulk chemicals has been very slow for details. See, Clive Cookson, "The Investers' Honeymoon with bio-Technology comes to an End", The Times, 25 October 1982.
of the UK (which had engineered ICI's 60,000 tonne/year SCP plant in Billingham) and Mitsubishi of Japan. ICI would have a definite edge over Mitsubishi for the latter would be quoting the Mitsubishi gas chemical technology, secondly its experience is confined to semi-industrial production, and thirdly its process is not based on methanol, a prerequisite to bag the Soviet contract. It is significant that Soviet Union has not approached West Germany's Hoechst or its subsidiary Uhde, for the latter's methanol based protein process is still in the pilot plant stage. This is another example of Soviet Union's marked preference for commercially proven process plants, although it is trying hard to develop its own methanol based protein process.49

ICI's trade links with Soviet Union are however not confined to bio-technology alone. Way back in 1977, ICI was toying with the idea of trebling its sales to Soviet Union by the end of 1980, which would have largely composed of agricultural speciality chemicals to increase grain yields and proliferate herds. It had moreover signed...

49 Soviet Union is in search for an indigenous process, for although ICI has taken a corporate decision to license its SCP process, it would be expensive because of rising inflation. The minimum cost of setting up a SCP plant in Soviet Union would be around £ 80 million. For details see, European Chemical News, vol. 38, no. 1024, 22 March 1982, p. 26.
a buy-back deal under which Davy Engineering group was entrusted with the construction of two 2,500 tonne/day methanol units based on know-how supplied by ICI, the latter even agreeing to handle about 200,000 tonne/year of the total off-take. In 1979, ICI's total exports to Eastern Europe including technical agreements amounted to £ 69 million of which a third was earmarked for the Soviet market. However in the bargain ICI did make considerable gains, by getting substantial volumes of Soviet oil and naphtha in return.

ICI's Quest for Third World Markets

While the Soviet market still exercises the same magnetic pull, ICI has been pragmatic enough to exploit third world markets as well. In India for example, it enjoys a virtual monopoly in the Urea market through

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51 Ibid., p. 18. In 1978, ICI predicted that by 1985, the West would have a deficit of about $ 1,700 million with the East bloc countries, but current estimates provided by ICI itself indicate that it might be actually a surplus to the tune of $ 1800 million which greatly tallies with the data provided by CEFIC (European Council of Chemical Manufacturers' Federations), which showed that Western Europe has over-reacted to threats of buy-back deals in the 1970s for surplus might be around $ 1,800 million per annum.
Indian Explosives, the fertilizer and industrial explosives company (50 per cent of which is owned by the ICI group). However, only recently, in 1982, did this company succeed in increasing capacity at its urea plant by 50 per cent (which amounted to 675,000 tonnes per year) for only now it is free from the constraints imposed by irregular supply of naptha which was a regular feature in 1981. This has greatly contributed to an increase in pre-tax profit for the company from Rs10 million ($580,000) to Rs. 73 million (in the year ending September 1981), while total sales had increased by almost 90 per cent to the tune of Rs. 1.28 billion.52

But while charting ICI's history in India, one wonders whether ICI has fully understood the potential

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52 European Chemical News, vol. 38, no. 1014, 11 January 1982, p. 128. This is in sharp contrast to the dismal performance of the company in 1980, when its sales and pretax profit fell by 22 per cent and 90 per cent respectively.

For a general idea of the Indian chemical market, see, O.P. Arya, "Infrastructure for Chemical Industry", The Statesman, 7 January 1980. European Chemical companies interested in tie-ups in India should note that application of Indian indigenous know-how in high technologies like large ammonia plants (1,3500 tonnes per day capacity), large petrochemical complexes and newer technologies of producing alcohol from both bio-mass and molasses leaves much to be desired, and these are areas where their expertise could be utilized.
of the vast Indian market, for although ICI is the largest transnational investor in India, the Indian sub-continent account for only 2.13 per cent of global sales in 1981, and 2.35 per cent of trading profits world-wide, what is however more ominous is the fact that its profit rate has been far from impressive. It had earned a post-tax return (for the entire group) of only 4.08 per cent on net worth (for the year ending 30 September 1981). Secondly, not all members of the ICI group have fared well, for example whereas in the first six months of 1982, Chemical and Fibres of India Ltd (CAFI) and Indian Explosives Limited (IEL), have reaped profits, Alkali and Chemical Corporation of India (ACCI) continues to be in the red. However, ICI being a blatant optimist has refused to restrict growth. Between 1977 and 1982, fixed assets had grown by nearly Rs. 110 crores.

The Indian Government's attitude has been ambivalent towards ICI's expansion programmes in

53 Subrata Roy and Kiron Kasbekar, "The Ups and Downs of the largest foreign Group in India", Business India (Bombay), no. 109, 10-23 May 1982, p. 40.

54 Ibid., p. 40.
## TABLE VII

### ICI - TERRITORIAL ANALYSIS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>United Kingdom</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Home sales</td>
<td>2,569</td>
<td>2,393</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Exports (at invoice value)</td>
<td>1,650</td>
<td>1,316</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4,219</td>
<td>3,709</td>
<td>216</td>
<td>137</td>
</tr>
<tr>
<td><strong>Continental Western Europe</strong></td>
<td>1,015</td>
<td>924</td>
<td>(13)</td>
<td>-</td>
</tr>
<tr>
<td><strong>The Americas</strong></td>
<td>1,077</td>
<td>825</td>
<td>63</td>
<td>44</td>
</tr>
<tr>
<td><strong>Australasia and the Far East</strong></td>
<td>939</td>
<td>802</td>
<td>94</td>
<td>85</td>
</tr>
<tr>
<td><strong>Indian Subcontinent</strong></td>
<td>140</td>
<td>96</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td><strong>Other countries</strong></td>
<td>99</td>
<td>87</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>7,489</td>
<td>6,443</td>
<td>374</td>
<td>279</td>
</tr>
<tr>
<td><strong>Inter-territory eliminations</strong></td>
<td>(908)</td>
<td>(728)</td>
<td>(4)</td>
<td>8</td>
</tr>
<tr>
<td><strong>Royalty Income</strong></td>
<td>-</td>
<td>-</td>
<td>32</td>
<td>24</td>
</tr>
<tr>
<td><strong>Government Grants</strong></td>
<td>-</td>
<td>-</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td><strong>Total as in profit and loss account</strong></td>
<td>6,581</td>
<td>5,715</td>
<td>425</td>
<td>332</td>
</tr>
</tbody>
</table>

Source: *Business India* (Bombay), no. 109, 10-23 May 1982.
TABLE VIII

FINANCIAL PROFILE OF ICI MANUFACTURING COMPANIES IN INDIA (1980-81) ($ in crores)

<table>
<thead>
<tr>
<th></th>
<th>ACI</th>
<th>CAFI</th>
<th>IEL</th>
<th>CDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share capital</td>
<td>5.12(1)</td>
<td>7.48(2)</td>
<td>28.98(3)</td>
<td>2.40(4)</td>
</tr>
<tr>
<td>Reserves</td>
<td>2.28</td>
<td>8.32</td>
<td>22.71</td>
<td>1.60</td>
</tr>
<tr>
<td>Loan Funds</td>
<td>22.02</td>
<td>6.42</td>
<td>84.02</td>
<td>3.93</td>
</tr>
<tr>
<td>Gross Fixed Assets</td>
<td>36.75</td>
<td>21.87</td>
<td>173.58</td>
<td>2.99</td>
</tr>
<tr>
<td>Net fixed assets</td>
<td>16.90</td>
<td>9.59</td>
<td>109.45</td>
<td>0.96</td>
</tr>
<tr>
<td>Investments</td>
<td>0.10</td>
<td>0.23</td>
<td>0.20</td>
<td>0.39</td>
</tr>
<tr>
<td>Net Current Assets</td>
<td>12.42</td>
<td>12.40</td>
<td>26.06</td>
<td>6.57</td>
</tr>
<tr>
<td>Turnover</td>
<td>70.33</td>
<td>65.61</td>
<td>128.37</td>
<td>41.45</td>
</tr>
<tr>
<td>Other Income</td>
<td>0.74</td>
<td>0.66</td>
<td>1.72</td>
<td>0.75</td>
</tr>
<tr>
<td>Gross profit</td>
<td>-5.33</td>
<td>1.95</td>
<td>7.39</td>
<td>0.88</td>
</tr>
<tr>
<td>Net profit</td>
<td>-5.33</td>
<td>0.77</td>
<td>7.39</td>
<td>0.39</td>
</tr>
<tr>
<td>Gross profit/sales %</td>
<td>--</td>
<td>2.93</td>
<td>5.76</td>
<td>2.14</td>
</tr>
<tr>
<td>Net profit/equity shares capital(%)</td>
<td>--</td>
<td>10.16</td>
<td>25.47</td>
<td>16.25</td>
</tr>
<tr>
<td>Equity Dividends (%)</td>
<td>--</td>
<td>10.00</td>
<td>12.00</td>
<td>13.00</td>
</tr>
</tbody>
</table>

Notes: (1) ICI (UK) owns 51 per cent of ACI's equity; 25% equity capital issued as bonus shares.
(2) ICI (UK) owns 55% of CAFI's equity; 60% equity capital issued as bonus shares.
(3) ICI (UK) owns 50.4% of IEL's equity; 30% equity capital issued as bonus shares.
(4) ICI (UK) owns 40% of CDC's equity; 58% equity capital issues as bonus shares.
India. Way back in the early sixties, ICI had tried to make a 'backdoor' entry into the Indian explosives market by encouraging Atlas Chemicals Industries of USA to enter into a tie-up with IDL Chemicals Ltd. But when the Indian Government realized that Atlas Chemicals had already been taken over by ICI, it withdrew promptly the mandate given to ICI and instead asked IDL Chemicals to go in for collaboration with Dow Chemical Co., USA. But the same government went out of its way in 1952 to accommodate Indian Explosives Limited (IEL) by agreeing to enter into a joint-venture with a 80:20 break-up in share capital with the lion's share going to the British company. This venture's success

55 When ICI had first set its foot on India in the 1920s it was in the garb of a trading company, which acted as a conduit for marketing ICI (UK) products. In 1940, it came out in its true colours when it started local manufacturing operations with the ACCI starting production of caustic chlorine plant. By 1947, the transformation from a company engaged essentially in export-import operations to manufacturing was complete. Soon ACCI started diversifying into alcohol based polythene, pesticides, paints and rubber chemicals. In the mid-sixties, ICI was innovative enough to expose the Indian market to polyester fibres. For details see, ibid., p. 41.

56 Also see, John P. Lewis, Quiet Crisis in India (Bombay, 1963), p. 214. However, reservations about the quality of industrial explosives supplied by IEL have been made in the Indian Parliament (Lok Sabha). The opposition members led by Jyotirmoy Basu of Communist Party of India (Marxist) have alleged that the accident at Bhatdee colliery on 15 June 1978 can be attributed to the use of substandard soligex explosives manufactured by Indian Explosives Limited. This has put the Government on the defensive, forcing it to ask the
paved the way for the establishment of the highly successful urea fertilizer plant (450,000 tonnes per annum capacity was originally allowed) sponsored by IEL.57

Director-General of Mines Safety to prohibit the use of Soligex explosives in the blasting of coal in degree II and degree III gassy mines. For details see, the answer given by Jagdambi Prasad Yadav, the Minister of State in the Ministry of Industry, India, Lok Sabha, Debates, series 6, vol. 27, no. 57, session 7, 1979, col. 146.

Although the permission to set up this plant was given in 1965-66, the expansion which actually took place after 1977 was only to the tune of 60,000 tonnes per annum requiring an investment of nearly Rs. 90 crores. This whittling down of the plant's capacity only reflects the government's ambivalence, for according to the information supplied to the Lok Sabha it had stated blandly 'no collaboration agreement has been permitted during 1977 or 1978 with a foreign company for setting up a fertilizer plant as a joint venture either in the public or private sector'. See the answer given to Jyotirmoy Basu, by H.N. Bahuguna, the Minister of Petroleum and Chemicals, India, Lok Sabha, Debates, series 6, vol. 23, no. 16, Session 7 of 1979, col. 222. It is significant that the working group on fertilizer industry set up by the Planning Commission has recommended setting up of seven nitrogenous fertilizer factories for the Sixth Five Year Plan with the following capacities:

<table>
<thead>
<tr>
<th>Location</th>
<th>Product</th>
<th>Capacity (tonnes per annum)</th>
<th>Estimated cost (Rs. crores)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thal I &amp; II</td>
<td>Urea</td>
<td>13,86,000</td>
<td>570</td>
</tr>
<tr>
<td>Namrup</td>
<td>Urea</td>
<td>3,30,000</td>
<td>173</td>
</tr>
<tr>
<td>Hazira I &amp; II</td>
<td>Urea</td>
<td>13,72,000</td>
<td>569</td>
</tr>
<tr>
<td>Kanpur</td>
<td>Urea</td>
<td>2,25,000</td>
<td>71</td>
</tr>
</tbody>
</table>

Once these projects come on stream, the Government would be less enthusiastic about sanctioning projects sponsored by firms like IEL. For details see, India, Lok Sabha, Debates, series 6, vol. 23, no. 16, session 7, 1979, col. 52.
Between the end sixties and 1977, there was a lull in ICI's activities in India, which was broken only after 1977, with ACCI's inauguration of Rs. 12 crore complex at Ennore, Madras, for the manufacture of weedicides and pharmaceuticals. ACCI has managed to capture a sizable section of the Indian market for bulk drugs (especially Phenothiazine used for Veterinary purposes). However, there is evidence to show that it has increased prices of such drugs without caring for government approval. For example, it had declared a price of Rs. 11,878 per tonne for Phenothiazine Fine on 11 June 1971 under the provisions of Drugs (price control) order 1970. On 11 October 1971, it sought government approval for increasing the price of the bulk drug to Rs. 14,359 per tonne, and according to the statement made by the Government at the Lok Sabha, ACCI "seems to have thereafter effectuated the increase before receiving approval." However, this was not an isolated case, for according to the information furnished by the government at the Lok Sabha ACCI "sought another approval on 7 November 1974 for a further increase in the price of the bulk drug to Rs. 25,848 per tonne and effectuated before receiving the needed approval." However, no clear explanation was given at the Lok Sabha to account for the government's inaction regarding ACCI's flouting of the government's directive. The government's stoicism was expressed in the
following statement: "No action seems possible against the companies in this regard: Since government have approved increase in prices of veterinary formulations based on this bulk drug, firstly on 29 November 1973, and then on 7 February 1973 and these increases were based on the escalated prices of the bulk drugs." 58

58 The Government had been careful to see that ACCI's diversification into weedicides and technical grade pesticides does not result in domination of the market by a single firm for at the same time it allowed seven other companies (having more than 40 per cent direct foreign equity like ACCI) to manufacture similar range of products. Their names and their actual production of such material during 1978 were as follows:

<table>
<thead>
<tr>
<th>Name of the Company</th>
<th>Item of technical material</th>
<th>Production in 1978 (Tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alkali and Chemical Corporation of India</td>
<td>BHC, Dithio Carbamate</td>
<td>3382 (for year ending 30.9.78)</td>
</tr>
<tr>
<td>Calcutta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Ciba Geigy of India Ltd., Bombay</td>
<td>Phosphamidon</td>
<td>566</td>
</tr>
<tr>
<td></td>
<td>DDVP</td>
<td>212</td>
</tr>
<tr>
<td></td>
<td>Dithio Carbamate</td>
<td>92</td>
</tr>
<tr>
<td>3. Bayer (India) Ltd., Bombay</td>
<td>Methyl</td>
<td>1879</td>
</tr>
<tr>
<td></td>
<td>Parathion</td>
<td>207</td>
</tr>
<tr>
<td></td>
<td>Fenitrothion</td>
<td>213</td>
</tr>
<tr>
<td>4. Indofil Chemicals of India Ltd., Bombay</td>
<td>Nitrogen Propapinil</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Zineb</td>
<td>534</td>
</tr>
<tr>
<td></td>
<td>Maneb</td>
<td>1144</td>
</tr>
<tr>
<td>5. Union Carbide of India, New Delhi</td>
<td>Carbaryl</td>
<td>367</td>
</tr>
<tr>
<td>6. Cynamid (India) Ltd</td>
<td>Melathion</td>
<td>1167 (for year ending November 1978)</td>
</tr>
</tbody>
</table>
An Appraisal of ICI Group's Operations in India

ACCI's rubber chemicals plant at Rishra, West Bengal with a capacity of 8,500 tonne/annum was part of the same

7. Sandoz (India) Ltd., Quinalphos Bombay 430
8. BASF (India) Ltd., Bavistin Bombay 17

Source: India, Lok Sabha, Debates, series 6, vol. 22, no. 6, 27 February 1979, col. 6.

At the same time, the Government was giving encouragement to the public sector owned Hindustan Insecticides Limited, with the avowed intention of making India (a) self-sufficient in the manufacture of Insecticides, and (b) to decrease its reliance on foreign firms. The main features of the projects implemented by Hindustan Insecticides Limited were as follows:

<table>
<thead>
<tr>
<th>Capacity (Tonnes/annum)</th>
<th>Location</th>
<th>Likely date of commencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Malathion 1800</td>
<td>Rasayani</td>
<td>Early 1980</td>
</tr>
<tr>
<td>2. DDT 5000</td>
<td>Rasayani</td>
<td>Early 1980</td>
</tr>
<tr>
<td>3. Endosulfan 1600</td>
<td>Alwaye</td>
<td>Early 1980</td>
</tr>
<tr>
<td>4. BHC granulation 6600</td>
<td>Alwaye</td>
<td>Not yet determined</td>
</tr>
<tr>
<td>5. Dicofol 150</td>
<td>Delhi</td>
<td>1978</td>
</tr>
<tr>
<td>6. Methoxycalor 5</td>
<td>Delhi</td>
<td>1978</td>
</tr>
</tbody>
</table>

At the same time Hindustan Insecticides Limited was asked to set up firms for making formulations of Endosulfan and Malathion to the extent of 50 per cent of their production of technical material, and of DDT to the extent of 100 per cent of their production of technical material. Their formulation plants for Endosulfan and Malathion were expected to be completed by the end of 1977 and September 1978 respectively, and
package which included Ennore operations, but it has been
less controversial. But ACCI as a whole is not immune from

their DDT formulation plant was likely to be ready
by November 1978. For details see, Lok Sabha,
Debates, series 6, vol. 6, session 2, 1977, col. 51.

Analysts like David Bull and Praful Bidwai have however,
questioned India's policy on indiscriminate use of pesti-
cides. David Bull in his OXFAM report entitled, A
Growing Problem - Pesticides in the Third World, quotes
the results of a survey provided by the British Agro-
chemicals Association to show that 11 chemicals subject
to statutory requirements in the UK are exported to
Third World countries, where 'restrictions on their use
are either non-existent or unenforced', thus implying
that many of the West-European Chemical firms now
diversifying into agrochemicals in Third World
countries might be doing so with the full knowledge
that there is the absence of an international code
of practice by WHO and FAO, which if implemented in
letter and spirit could have imposed tighter controls
on the import and export of hazardous pesticides,
including their promotion and labelling. For details
see, Chemistry and Industry (London), issue 15, 7 August
1982, p. 499. Praful Bidwai has shown that 70 per cent
of the pesticides manufactured by West European
chemical firms and by Hindusthan Insecticides Limited
has already been banned or severely restricted in many
countries, and has been identified by the WHO as
excessively toxic or hazardous. Many of the agro-
chemicals manufactured by EEC based chemical firms in
India have been banned or severely restricted in the
EEC itself! They include BHC, Methyl and Parathion,
Heptachlor, Endosulfan, annual consumption of which
in India, in the absence of any regulation, would
exceed 51 million kilograms. No wonder this has con-
tributed to a Third or more of all the 5 lakh annual cases
of pesticides poisoning in the Third World estimated
by WHO. For details see, Praful Bidwai, "Poisoning
on Very Wide Scale", Times of India, 15 December 1982.

What is more ominous for Indian Agriculture is the
fact that excessive dosage of first generation of
pesticides, Chlorinated hydrocarbon or organochlorines
such as DDT or BHC in the 50s and 60s has made the
Praful Bidwai pests resistant to them. For details see,
Praful Bidwai, "India on brink of pesticides treadmill",
Times of India, 16 December 1982.
losses, in 1980-81 for example, it had suffered a loss of Rs. 5 crores and in spite of its diversification into products like caustic chlorine, paints, polythene and water treatment chemicals it has to fall back upon group support and technological backup from other ICI companies to maintain its economic viability. If the company has to carry out rationalization in its operations, it would be faced with several hard options which might include: (1) closure of the company's Rs. 1.5 crore Caustic Chlorine business which has become unprofitable, because of the exhorbitant transport price being paid for its feedstock, salt, which is being supplied by Gujarat; (2) Trimming of its polythene plant at Rishra, which unlike other conventional polythene plants does not use petrochemical based processes but alcohol, supply of which has become uneconomical, because of the steep pass fees and levies imposed by the Uttar Pradesh and Maharashtra State governments, which are its major suppliers. The small size of the plant (10,000 tonne/annum compared to Union Carbide's 20,000 tonne/annum or IPCL's 20,000 tonne/annum) does not give much scope for practising economies of scale.

Even the company's Rs. 12 crore Ennore plant, which was supposed to reap profit from sale of gramoxone,
an advanced weedicide, and certain life saving drugs

59 For details see, India, Lok Sabha Debates, series 6, vol. 25, session 7, 1979, col. 154.

M/s. Alkali and Chemicals Corporation of India had been issued a letter of intent on 28 May 1969 for the manufacture of the following drugs in Tamil Nadu:

- Primidine: 4,500 kg per annum
- Propranolol: 1,000 -do-
- Clofibrate: 10,000 -do-
- Halothane: 10,000 -do-
- Tetramisole: 10,000 litres
- Cetrimeide: 50,000 kg. per annum
- Chlorhelidine: 3,500 -do-
- Hexachloro ethane: 35,000 -do-
- Tetmosol: 1,5000 -do-

To years later, on 20 December 1971, the company had been granted a letter of intent for the manufacture of 2,500 K.L. per annum of Bipyridilium herbicides, which clearly shows that the losses in the drug manufacturing unit could not deter the company from branching out into agro-chemicals, implying that the company took a calculated risk. For details see, India, Lok Sabha Debates, series 5, vol. 33, session 9, 1973, col. 125.
are in the red to the tune of Rs. 1.5 crores per annum. The company's profit rate was adversely affected by the Indian Government's Drugs Prices control order (DPCO) of 1979, which reduced prices of a large number of essential drugs under the 'leader price' concept based on the prices of efficient major manufacturers. By this order, price control was withdrawn in respect of 15 per cent of the non-essential anabolic drugs, ACCI's earlier calculations were based on the DPCO issued in 1970, which had given the companies the alternate solution of fixing formulation prices. Under the broad parameters indicated in the earlier order, the companies had allowed themselves a mark-up ranging between 75 and 150 per cent. The new order which was in pursuance of the Hathi Committee's recommendations sharply reduced the prices of certain drugs of mass consumption (like adalphen esidrex, category III drugs; a drug widely used for the treatment of hypertension) in which manufacturers were enjoying a mark-up over 600 per cent, to 100 per cent. Probably what had affected ACCI's pharmaceutical operations most was that DPCO, 1979 had set out a "scheme of ceilings on pre-tax return on sales turnover of formulations based, besides, the magnitude of the turnover on such criteria is whether a drug manufacturing concern manufactured bulk drugs or not, and is engaged in approval research and development work or not", and secondly, "Under the DPCO 1979 all bulk drugs which are used in the production of price controlled formulations will be subject to price control. In this respect, the new order improves upon DPCO 1970 under which firms could declare prices of bulk drugs which had not been categorized as essential under that order and were obliged to seek government approval only where they sought to increase these declared prices". For details see, The Economic Times, 15 April 1979. The manufacturers obviously have not taken kindly to such regulations and instead have been pleading for the escalation in production costs. Steep increase in price of petroleum products, packaging materials, excipients, power and freight has adversely affected the output of bulk drugs and manufacturers claimed that at current administered prices of various drugs and pharmaceuticals they were denied the stipulated pre-tax profit ranging from 9 per cent to 13 per cent. This explains why manufacturers like ACCI slowed down their operations and had second thoughts on expansion and development. For details, see The Statesman, 28 November 1979.
Capacity utilization at the 2,500 KL gramoxone plant has been only confined to 25 per cent which is a reflection of ACCI's overoptimistic and inflated projections, which had remained innocent of the fact that in India, agricultural labour would continue to remain cheaper than chemical weedicides, although if one has to rely on the company's brochures, in terms of advanced agricultural methods, like the minimum tillage technique, gramoxone remains ideal. However, disillusioned with the performances of gramoxone, ACCI has decided to use part of the spare capacity at the gramoxone plant for the manufacture of synthetic pyrethroids, which are advanced crop protection chemicals particularly suited for cotton cultivation, and the project in all probability will be sanctioned because it has already been cleared both by the union government and the MRTP Commission.

The company's programme for expanding its rubber chemicals capacity at Rishra, West Bengal from 2,770 tonnes to 6,000 tonnes per annum at a cost of Rs. 4 crore has hardly been a judicious decision, seen against a background of overcapacity in rubber chemicals industry and this has been a major factor in low capacity utilization (hardly 40 per cent) of its 8,500 tonne/annum plant. However,

there might be an improvement in the not too distant future, with introduction of radical tyres and burgeoning tyre industry.

ACCI's strength does not lie in anti-ozonant chemicals, but in peptisers, accelerators and retarders. But it has been more successful in marketing durable paints, an important and specialized segment of the paints market. However, the biggest drain on ACCI's financial resources has been its pharmaceuticals operations which is today largely surviving on external borrowings. 62

In contrast to ACCI, IEL has a better track record, although its installed capacity of 36,000 tonnes per annum for production of industrial explosives is only about 30 per cent of the total installed in the country, meeting nearly 50 per cent of the country's demand. However, along with the public sector owned IDL chemicals Limited (see Table IX) it has not only succeeded in partially meeting the country's needs, but has also succeeded in exporting explosives and accessories viz. Detonating fuse and Safety fuse worth Rs.145,09 lakhs (1976-77) figures) to countries like Bahrain, Bangladesh, Iran, Jordan, Malaysia and Sri Lanka. 63

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62 In 1980-81 for example, ACCI owed Rs.22 crores in loan funds, interest on which alone amounted to Rs.4 crores, greatly contributing to the Rs.5.32 crore loss the company had suffered.

63 For details see, India, Lok Sabha Debates, vol. 7, no. 3, session 3, 1977, col. 64.
TABLE IX

PRODUCTION OF INDUSTRIAL EXPLOSIVES

(in Tonnes)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of the company and description of products</th>
<th>Installed capacity</th>
<th>Production in 1976</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Indian Explosives Limited, Gomia, Bihar (Nitro-glycerine based explosives)</td>
<td>36,000</td>
<td>37,074</td>
</tr>
<tr>
<td>2.</td>
<td>IDL Chemicals Limited, Hyderabad and Rourkela (Slurry explosives)</td>
<td>22,500</td>
<td>10,544</td>
</tr>
</tbody>
</table>

Source: India, Lok Sabha Debates, vol. 7, no. 3, 16 November 1977, col. 64.

Although the government had declared at the Lok Sabha on 16 November 1977 that in view of availability of industrial explosives, the question of curtailing export of explosives does not arise, in reality the situation was far from comfortable. For, in 1978 the following undertakings under the administrative control of the Department of Mines experienced difficulties due to shortage of explosives. They were: Hindustan Zinc Limited, Hindustan Copper Limited, Bharat Gold Mines Ltd., Bharat Aluminium Limited, and Mineral Exploration Corporation Ltd. The situation had become so critical that 13,000 tonnes of explosives had to
be imported on an urgent basis which was canalized through State Trading Corporation (STC). In addition STC was forced to place an additional order for 4,500 metric tonnes of explosives under UK grant, out of which 300 metric tonnes of explosives were imported on an emergency basis at the exorbitant rate of £650 per metric tonne (c.i.f.). However both the MRTP Commission and the Government has been unsympathetic to IEL's expansion programmes, and are determined to break its monopoly in industrial explosives. While the MRTP Commission has refused to acquiesce to IEL's request for a second 15,000 tonnes per annum explosives plant, the Union Government has been encouraging IEL's rival firms like Indo-Burma Petroleum Company to enter the explosives market by allowing it a production rate of 500 tonnes per month so that 1,500 tonnes of additional production could be kept ready as a buffer stock (1978-79 figures). At the same time the Government had encouraged M/s. Narendra Explosives at Dehradun and M/s. Laichem Limited at Hyderabad to commence their production by 1980. Similarly, at the Union Government's initiative, the commissioning schedules of Coal India Ordnance factories project at Bhandara and M/s. Chowgula's Project in

64 India, Lok Sabha Debates, series 6, vol. 21, session 6, 1978, col. 173.
Karnataka had been advanced to mitigate the shortage of explosives.65

The Government has however been less lukewarm to EIL's diversification in fertilizers. However, in the mid-sixties, when ICI was enthusiastic about setting up a petrochemical complex, the government had remained indifferent for it was keen in sponsoring IPCL. But ICI's persistence paid rich dividends when the government finally agreed to allow it to set up a Rs. 60 crore, 450,000 tonne per annum ammonia-urea complex at Panki near Kanpur.66

65 India, Lok Sabha, series 6, vol. 21, session 6, 1978, col. 173.

66 The government had to relent, for it was probably finding it increasingly difficult to procure finance for such capital intensive projects. For example, through a World Bank team had visited India between 14 June and 7 July 1970 to hold discussions in regard to the financing of fertilizer projects viz. Nangal and Cochin expansion, it did not offer any assistance. For details see, India, Lok Sabha Debates, series 4, vol. 45, session 12, 1970, col. 41. No firm in the public sector was however being allowed by the Government to produce fertilizers with foreign collaboration. Two factors probably played an important role in influencing the government's decision vis-a-vis IEL's project on fertilizers and Coromandel Fertilizers Ltd.: (1) The amount approved by Government for investment by foreign collaborators in fertilizers had been contributed by them, which was utilized to meet part of the foreign exchange requirements of the projects. The question of releasing foreign exchange to the foreign collaborators therefore did not arise; (2) to offset the effect of increasing imports, it was necessary to set up more fertilizer plants, even if it meant involvement by foreign collaborators in the private sector. Even in the 1970s, some West European countries and Japan were offering credits to
However, the technology at Panki is outdated and although IEL has gone in for third stream expansion, involving an

buy fertilizers. An Indian government delegation went to UK, Switzerland, Italy, France, West Germany, Holland and Japan in the same year. Against the contracted quantities for imports from various sources during 1969-70, of 6.91 lakh tonnes of Nitrogen (N), 1.07 lakh tonnes of phosphate (P) and 1.08 lakh tonnes of Potassic (K), contracts were tentatively placed for 4.50 lakh tonnes of Nitrogen (N), 0.08 lakh tonnes of Phosphate (P), and 0.84 lakh tonnes of Potassic (K) during 1970-71. However, such imports could not be sustained indefinitely, and it needed to be substituted by indigenous production, even if assisted by foreign collaborators. For details see, India, Lok Sabha Debates, series 4, vol. 45, session 12, 1970, col. 151. Along with IEL, Coromandel Fertilizers Limited was also allowed to set up fertilizer factory with foreign collaboration:

<table>
<thead>
<tr>
<th>Name of the Firm</th>
<th>Total Investment (Equity) (₹. crores)</th>
<th>Proportion of shares held by foreign collaborators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coromandel</td>
<td>9.53</td>
<td>47%</td>
</tr>
<tr>
<td>Indian Explosives Ltd.</td>
<td>16.68 (for fertilizer project alone)</td>
<td>58.45%</td>
</tr>
</tbody>
</table>

The Coromandel Fertilizers and Indian Explosives Limited produced the following quantity of fertilizers in their factories:

<table>
<thead>
<tr>
<th>Year</th>
<th>Coromandel Fertilizers Ltd (In terms of Nitrogen)</th>
<th>IEL (In terms of Nitrogen)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(in '000 tonnes)</td>
<td>(in '000 tonnes)</td>
</tr>
<tr>
<td>1967-68</td>
<td>6.98</td>
<td>--</td>
</tr>
<tr>
<td>1968-69</td>
<td>51.71</td>
<td>--</td>
</tr>
<tr>
<td>1969-70</td>
<td>68.30</td>
<td>16.9</td>
</tr>
<tr>
<td></td>
<td>126.99</td>
<td>100.93</td>
</tr>
</tbody>
</table>

Coromandel Fertilizer Factory went into production in December 1967 and Indian Explosives Limited Fertilizer
investment of Rs. 92 crores, large single stream fertilizer plants are more common and IEL's rival firms in India like SPIC or Zuari Agrochemicals prefers the letter. Although capital costs at Panki are higher, it is compensated by greater efficiency and plant 'occupancy' ('capacity utilisation'). Care has also been taken by IEL to increase productivity by setting up a 12 MW captive power plant, although it is still sceptical of maintaining reasonable off-season sales.

The Indian Government has however seen to it that IEL confines its production largely to industrial explosives and fertilisers. This to some extent explains why this company's proposal for a license for the integrated project for the manufacture of Aniline (6,000 tonnes capacity), Nitro Benzene (9,000 tonnes capacity), Nitric Acid (6,000 tonnes), and Hydrogen (600 tonnes) per annum in the state factory at Kanpur in December 1969. There is saving in import of fertilizers to the extent of the above production.
of West Bengal was rejected. 67

Chemicals and Fibres of India Limited CAFI in contrast to IEL has seen its transformation from a monopoly, market-pioneering role to that of one troubled by competition, low capacity utilization and low profits. Initially it could exploit the advantage of being the first user of its parent company's international patent of polyester fibre 68 although

67 For details see, India, Lok Sabha Debates, vol. 33, session 9, 1973, col. 125. The Indian Government has however done little to encourage investors in fertilizer industry (both in public and private sector) for the prices of inputs like naptha and petroleum products had sharply escalated while retention prices for fertilizers allowable to manufacturers were not increased to cover the increased cost of production. (This was valid till April 1979.) The Union Government however has been sympathetic to private Indian companies like Zuari Agrochemicals Limited (who had submitted applications for doubling the capacity for complex fertilizers at the cost of Rs. 19 crores), and was not averse to its joining the Andhra Pradesh Government as co-promoter for the Nagarjun fertilizer project involving an investment of Rs. 12 crores in the venture. The fact that investment in fertilizer industry pays rich dividends is proved by the fact that in spite of several constraints (like the Government assurance of a post-tax return of 12 per cent on net worth of investment being tied to the condition that capacity utilization for ammonia must be 80%), Zuari's profit at Rs. 8.36 crores in 1978-79 was 108 per cent of the previous year's. Although Zuari paid a higher taxable equity dividend of 15 per cent, 16.30 per cent of the dividend was tax-free under section 80 of the Income-Tax Act, 1961; for details see, The Statesman, 29 November 1979.

68 ICI (UK) the original holder of this patent was keen to gain a foothold in the Indian market before the expiry date of the patent in 1965.
its initial strategy lay in importing fibre, marketing it on a pilot scale and processing it in such a way that it could be adapted to Indian conditions. The strategy paid off, enabling CAFI to expand its 2,000 per annum capacity to 6,100 tonnes per annum by 1972. Till 1971, CAFI had a monopoly in the polyester staple market. According to the Economic Times Survey for 1967-70, "CAFI with a total capital of Rs. 12.8 crores was 96th out of 101 industrial giants, but was fourth in terms of gross return on total capital employed (30 per cent in 1969-70), fifth in gross return on sales (31.5%) and sixth in net return on owned funds (28.1%)."69 However in the year ending 30 September 1981, CAFI had seen a change in its position of strength, with a low capacity utilisation ranging between 55 per cent and 65 per cent and net return on owned funds sliding to 4.8 per cent.

CAFI's poor performance owes greatly to the following factors: (i) increased competition from indigenous manufacturers; (ii) steep prices of raw materials; (iii) government excise policy which equates blended fabrics with items of luxury consumption and (iv) an import policy

69 n. p. 43.
which encouraged dumping by foreign producers.\textsuperscript{70} However

\textsuperscript{70} After 1971, CAFI’s virtual monopoly in polyester staple yarn was ended with the emergence of firms like Indian Organic, Swadeshi PolyteX and Calico mills. By 1978, CAFI’s share of installed capacity was 24 per cent and share of total output 21 per cent. However, excise duty claimed the lion’s share of its total turnover, accounting for over ₹30 crores in 1980–81, out of a total turnover of ₹66 crores. However CAFI faces a dismal future because of the government’s liberal import policy. Although domestic manufacturers are able to meet the annual demand for polyester staple fibre which is around 31,000–33,000 tonnes, imports are cheaper because of the exhorbitant price of the raw material (DMT) mostly produced locally by IPCI at three times the international price. No wonder imports have been increasing; whereas in 1978–79, 7,000 tonnes were imported by 1979–80, it had peaked to 19,000 tonnes although it tapered off to 8,000 tonnes in 1980–81. However, it remains to be seen whether the government’s decision to increase basic duties on viscose staple fibre group from 10 to 20 per cent has any appreciable impact on imports. For details see, \textit{The Economic Times}, 18 December 1982.

The Union Government had been allowing foreign collaborators like CAFI a freer hand till 1969, for till then indigenous technical know-how for polyester fibres was not available. However on 24 July 1969 for the first time a letter of intent was issued to M/s. Swadeshi Cotton Mills Company Limited, Kanpur, for a capacity of 6,100 tonnes per annum to set up a plant at Ghaziabad, Uttar Pradesh, for which the foreign exchange involved was around ₹120 lakhs. The Union Government also received a number of proposals from the following seven firms: viz, Assam Industrial Development Corporation, Shillong (State Undertaking); M/s. Rajasthan Spinning and Weaving Mills Ltd., Calcutta, Haryana State Industrial Development Corporation Ltd., Chandigarh (State Undertaking), M/s. Haryana Fibres, New Delhi, Kerala State Industrial Development Corporation Ltd., Trivandrum (State Undertaking), Shri G.K. Devrajalu and Shri G.K. Govindarajalu, Coimbatore (for Andhra Pradesh and Madras State). This greatly contributed to a decline in CARI’s bargaining position vis-a-vis the Union Government. For details see, \textit{India, Lok Sabha Debates},
the company pins its hopes on the 16,000 tonnes per annum
future projected demands for polyester fibre by 1985-86.

Although CAFI would marginally gain from the
excise reliefs given on blended yarns in the 1982-83 Union
budget, the effect would be negated to some extent by the
Government's decision to go in for manufacture of the
product at Bongaigaon and the award of five more licenses
to State Industrial and investment corporations in Orissa,
Punjab, Karnataka, Uttar Pradesh and Madhya Pradesh to set
up joint sector fibre units. However, CAFI pins its hope
on the bourgeoning demand for blended yarns in India, and

vol. 41, session 10, 1970, col. 205. Later events
however show that the Government's policy towards
indigenous manufacturers like M/s. Swadeshi
Polytex has been far from encouraging. According
to the information furnished in the Lok Sabha we
see that Government has been lukewarm to this
commpany's expansion programme (under section 21
of the MRTF Act) from 16,100 tonnes to 12,200
tonnes per annum, and this company's case was ulti-
mately referred to the MRTF Commission on 31 January
1979 for further enquiry and report. For details
see, India, Lok Sabha Debates, vol. 27, session 7,
1979, col. 233. On the other hand the Government
has been reluctant to curtail, redundant import of
man-made fibres, which has seriously affected
indigenous units manufacturing polyester fibre and
filament yarn. Even by lowering their 'selling prices,
the latter have not been successful in marketing their
production. The indigenous industry claims that its
installed capacity is being used to the extent of only
60 per cent in fibre and 85 per cent in filament yarn.
It also contends that with an installed capacity for
37,000 tonnes of fibre it is easy to produce about
32,000 tonnes a year which is in far excess of the
domestic requirement. For details see, The Statesman,
23 November 1982.
this was reflected in its decision to expand its Thane plant from 6,000 to 10,000 tonnes per annum at a low cost of Rs. 2.5 crores which was achieved through 'debottlenecking.' For the half year ending 31 March 1982, production could be maintained at 85 per cent of capacity, but the Bombay Textile strike might bring about a fall in demand. The only technological disadvantage which CAFI suffers from is the miniscule size of the plant (which was originally pagged at 2,000 tonne per annum) which compares unfavourably with the standard western size polyester fibre plants of 500,000 tonnes per annum or that in the Far East which ranges between 80,000 tonne per annum and 100,000 tonne per annum. Such diseconomies of scale are compounded by CAFI's DMT based process which is no match for the more economical PTA (pure terephthalic acid) based process which yields up to 17 per cent higher output. However ICI (UK) which is a world leader in this technology would be reluctant to introduce it in India, for below 100,000 tonne per annum. This process is not cost-effective and secondly if the project is not in the private sector.

However CAFI has remained adamant on certain issues: it still prefers the 'batch' process than the 'continuous' process of fibre manufacture, although the latter involves lower capital costs and efficiency in
materials management. Even then the latest expansion programme was achieved by keeping the ratio of capital cost per tonne at a minimum. However, it remains to be seen how long CAFI's strategy would pay rich dividends for already it is facing stiff competition from Swadeshi Polytex in the field of high tenacity fibre (which claims 20-25 per cent of its total output) whose demand has far outstripped supply. It is felt that CAFI had made a miscalculation in anticipating market demand for this product and had also been rash in rejecting a firm proposal to diversify into the burgeoning polyester filament yarn market. However in spite of such errors the company has been innovative as far as reutilization of waste fibres is concerned, and latest available data suggests that although there has been a slight decline in its sales turnover, it has succeeded in maintaining a steady profit rate.\footnote{CAFI registered a sales turnover of Rs. 65.71 crores and a profit of Rs. 296 lakhs during the year ending September 30, 1982, as compared to Rs. 65.75 crores and Rs. 195 lakhs respectively in 1981. After providing Rs. 196 lakh for taxation (Rs 118 lakhs) the net profit for the current year is Rs. 99 lakh (Rs. 77 lakhs). A transfer of Rs. 9 lakhs to investment allowance reserve and a transfer of Rs. 10 lakh from the development rebate reserve have been made. The Directors of CAFI has transferred Rs. 45 lakhs from capital reserve revaluation leaving a total of Rs. 144 lakhs for appropriation. For details see, The Telegraph, 21 January 1983. We get a clearer picture of the company's financial profile, if we look at the summarized financial position of the company which appeared, in the two latest audited balance sheets;}

\textit{-/-}
Crescent Dyes and Chemicals (CDC), formerly ICI

(footnote cont'd.)

<table>
<thead>
<tr>
<th>Rs. in lakhs</th>
<th>30.9.81</th>
<th>30.9.80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share capital</td>
<td>240.00</td>
<td>240.00</td>
</tr>
<tr>
<td>Reserves and surplus</td>
<td>159.91</td>
<td>153.68</td>
</tr>
<tr>
<td>Secured Loans</td>
<td>339.20</td>
<td>264.71</td>
</tr>
<tr>
<td>Unsecured Loans</td>
<td>53.73</td>
<td>53.74</td>
</tr>
<tr>
<td>Current liabilities and provisions</td>
<td>589.34</td>
<td>647.93</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,382.18</td>
<td>1,360.06</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rs. in lakhs</th>
<th>30.9.81</th>
<th>30.9.80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed Assets</td>
<td>96.32</td>
<td>100.24</td>
</tr>
<tr>
<td>Investments</td>
<td>39.59</td>
<td>39.39</td>
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<tr>
<td>Current Assets</td>
<td>1187.06</td>
<td>1157.50</td>
</tr>
<tr>
<td>Loans and Advances</td>
<td>59.21</td>
<td>62.93</td>
</tr>
<tr>
<td>Miscellaneous expenditure</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Profit &amp; Loss Account</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1382.18</td>
<td>1360.06</td>
</tr>
</tbody>
</table>

(India) Private Limited\(^\text{\textsuperscript{72}}\) another 'sick' member of the ICI group has a large turnover (Rs. 42 crores in 1981) but its profit at Rs. 39.09 lakhs (1981 figure representing 16.25 per cent of equity capital) is disappointing, and reflects a falling rate of profit. *(see Table X)*

**TABLE X**

PROFITS AND DIVIDENDS

<table>
<thead>
<tr>
<th>Year ended 30 Sept.</th>
<th>Rs. Lakhs profit before tax</th>
<th>Rs. Lakhs profit after tax</th>
<th>Rs. Lakhs Dividend</th>
<th>Dividend per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>152.11</td>
<td>56.31</td>
<td>42.00</td>
<td>17.5</td>
</tr>
<tr>
<td>1980</td>
<td>155.96</td>
<td>57.16</td>
<td>42.00</td>
<td>17.5</td>
</tr>
<tr>
<td>1981</td>
<td>88.59</td>
<td>39.09</td>
<td>31.20</td>
<td>13.0</td>
</tr>
</tbody>
</table>


\(^\text{72}\) It had earlier acted as the selling agency for ACCI products, and was formerly 100 per cent owned by the British parent converted itself into an Indian company with 40 per cent foreign formerly equity. The company is engaged in the manufacture and sale of a wide range of textile auxilieries, heat treatment salts and polythene extruded firms and pipes. For details see, The Statesman, 5 October 1982.
In order to maintain its economic viability, the company has started accepting deposits from shareholders and the public which stood at Rs. 53.73 lakhs between October 1979 and January 1980. In 1982, again it invited fixed deposits from shareholders (amounting to Rs. 39.57 lakhs) and Rs. 63.93 lakhs from the public aggregating to Rs. 103.50 lakhs for a period of three years by renewing the existing deposits and by accepting fresh deposits as required. (see Table XI)

TABLE XI

THE AMOUNT WHICH THE COMPANY CAN RAISE UNDER THE COMPANIES (ACCEPTANCE OF DEPOSITS) RULES, 1975 AS AMENDED TO DATE

(a) (i) 10 per cent of the aggregate of the paid up share capital and free reserves of the company as deposit against unsecured debentures or any deposit from a shareholder or any deposit guaranteed by a Director of the company: Rs. 39.57 lakhs

(ii) 25% of the aggregate of the paid up share capital and free reserves of the company as deposits from the public Rs. 98.93 lakhs

(iii) The aggregate of deposits actually held under these Rules as the 30 September was Rs. 88.73 lakhs Out of this Rs. 53.73 lakhs, are deposits from public, balance Rs. 35 lakhs is a loan from Trustee of a Provident Fund.

CDC's independent entity has been considerably diluted by its acting as an agency for marketing 50 per cent of the produce of Atic Industries, the sales value of which stood at Rs. 21 crores (1980-81 figure). However, the pace of competition has forced ICI to concentrate on specialized areas of manufacture; Vat dyes (where ICI's main thrust lies) and dispersed dyes for polyester fibres. In direct dyes, ICI's share is negligible and in reactive ("procion") dyes, only about 15 per cent. This owes greatly to the excise reliefs favouring small manufactures. CDC's efforts to enlarge its manufacturing base has not yielded any tangible results. However CDC has remained unperturbed and proposes to manufacture methyl chlorosinanes and silicones (2,500 tonnes per annum capacity). Although capital costs have increased, international prices have remained uncompetitive. However, CDC is engaged in re-evaluating the economic viability of this project for it is unlikely to be in a position to guarantee tariff barriers. CDC is therefore engaged in importing on a pilot scale and carrying out market surveys.

73 According to the latest figure available, Atic accounts for about 12 per cent of the entire dye stuff industry of Rs. 300 crores and has played a pioneering role in nurturing the market and encouraging the rise of direct and reactive dyes.
ICI as a whole has pursued a conservative, cautious policy of vertical integration in India, venturing out into areas like fertilizers, only when the group has been sure of its technological expertise. However, as far as process know-how is concerned ICI stream reforming process and synthesis process has long been in great demand in the Indian fertilizer industry. Fertilizer Engineering and Design Organization, an arm of Fertilizers and Chemicals, Travancore Limited, had obtained know-how for designing and engineering of synthetic gas plants, and ammonia synthesis plants, both based on ICI process after entering an agreement with M/s. Power Gas Corporation of UK. The fertilizer sector would continue to interest ICI as is evident from the confidence reposed by investors in fertilizer shares as reflected in steady prices of Indian Explosives; and according to a survey on fertilizers optimism over the future outlook is fuelled by the distinct improvement in the working of the industry during the current year (i.e. 1982) following adequate availability of feedstock...

74 FEDO is engaged in the designing and construction of plants on the know-how it has developed on its own or secured from organisations like ICI and Power Gas Corporation of UK. The latest technology in ammonia synthesis starts from naptha and uses the steam reforming process. Fertilizer plants at Gujarat, Cochin and Durgapur are based on this process (which has been patented by ICI) of which the FACT Engineering and Designing organisation has become a sub-licensee. For details see, Forty Eighth and Forty-Ninth Report, submitted by the Estimates Committee (1967-68) to the Fourth Lok Sabha, Ministry of Petroleum and Chemicals, April 1968, pp. 6, 144.
production up to now has escalated by 51 per cent and the output of nitrogenous fertilizers may exceed the target of 3.1 million tonnes: The growth prospects of the industry are rated high in view of the investment in the industry in the public as well as private sectors, and it is aimed to enhance the capacity by 3 million tonnes if new farm technology is to be inducted. Such a strategy was long overdue for consumption of chemical nutrients is lower in India in comparison to countries like Brazil and China.

Both divisions of Indian explosives comprising fertilizers and explosives are poised for a steady growth rate: "With the successful implementation of the expansion project at Panki, the capacity of this factory has been raised from 450,000 tonnes to 675,000 tonnes. As for the explosives division, the successful development of emulsion explosives has helped strengthen the product range, with the most cost effectiveness...Modernization of facilities has been undertaken."75 According to A.L. Mudaliar, Chairman, IEL "the Company has received a letter of intent to manufacture 100 tonnes of a primary reforming catalyst a year...interest is being taken by the company in setting

up a gas-based fertilizer complex involving a capital investment of Rs. 500 crores. IEL has already completed the necessary feasibility studies, and would prefer an inland site for the plant rather than a coastal location. The project implemented would also help IEL in effecting a judicious tax strategy. If IEL's project comes through it would help ICI move away from multi-product dimension to that one dominated by fertilizers.

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76 ICI is competing for one of the six new fertilizer plants proposed to be built with Bombay High Gas as feedstock. For details see, EM "Crippling Crutches in Fertilizers", Economic and Political Weekly (Bombay), vol. 17, no. 52, 25 December 1982, p. 2081.

77 Recent reports however suggest that outlook for fertilizers as estimated by Indian Explosives is far from being buoyant, although production of nutrients has been steadily increasing since 1979. It is slated to rise to 3.65 million tonnes during 1982-83 compared to 2.16 million tonnes in 1981-82, and output of phosphate is anticipated to be 1.05 million tonnes against 0.8 million tonnes in 1981-82. This improvement owes greatly to (1) a better operating ration at 74 per cent compared to 67 per cent in 1981-82; (2) to installation of captive power generating sets which has partially solved the problem of erratic supplies of power. However one disquieting feature is in the interruption of flow of oil from Assam, although attempts are being made to procure adequate supplies of feedstocks from other indigenous sources. The problem is compounded by a decelerating trend in the consumption growth in nutrients. The growth rate is only 4.3 per cent for nitrogenous fertilizers for 1983; compared to 10.6 per cent in 1982. The growth in consumption of phosphate is estimated to be only 1 per cent. As a result stocks of nutrients have accumulated to about 1.5 million tonnes valued at Rs. 700 crores. This has trained the finances of manufacturers who would like to drastically reduce production. Slow consumption growth of nutrients is ascribed to the prevailing drought conditions, although it owes mainly to steep price of nutrients. The farmers are not eager to use costly
As far as polyester staple fibre is concerned, ICI has ruled out vertical integration and it is not interested in opting for PTA either. However, IEL has been an exception, for it has had some success with vertical integration, by encouraging manufacture of Chemicals, needed for manufacturing explosives and also nitro-cellulose (which is to some extent used by paint manufacturers). IEL would also be interested in manufacturing fertilizer catalysts which would greatly contribute to the company's effecting economies in its manufacturing process. What is more heartening is the fact that ICI in its search for more R and D intensive processes is not averse to more expenditure: this was reflected in the company's establishment of an independent research unit, the Alchemie Laboratories, and its decision to allocate 1 per cent of net sales to R and D. However, much remains to be desired about ICI's level of technological sophistication which has been impeded by a restrictive Indian market, compounded by a reluctance to sponsor a

fertilizers for there has been only a slight increase in procurement prices. The Government's reluctance to give any more subsidy, effectively rules out any reduction in price of fertilizers, although half-hearted promotional measures are being undertaken to popularize the use of fertilizers. The Government in a bid to reap a bumper rabi crop has encouraged distribution of marketing nutrients, although this is primarily to cater to the needs of small farmers. In some cases the producers have also benefited from the discount or rebates offered by the Government. However this has hardly satisfied the producers who are lobbying for an increase in retention price of nutrients to compensate for the hike in prices of nearly all inputs. The industry being power intensive, has also been affected by an increase in the power tariff. For details see, The Statesman, 25 March 1983.
commercial venture which needs a constant escalation of capital investments, examples being CAFI and ACCI's polythene units. ICI group's conservatism in investment decision notwithstanding, the group has experimented with products like soda ash, polypropylene film fluorocarbons, and polyester films. However in all these cases there was no correlation between economies of scale and the cost of production. However, in the case of polyester film, in spite of an excellent technology project, the constraints imposed by FERA and MRTP could not be wished away. ICIs reluctance to encourage 'local downgradation' however enabled Garwares to step in.

ICI draws its succour largely from institutional marketing, which is intensely competitive. This has resulted in the ICI group of companies catering exclusively to the needs of a few large buyers (e.g. tyre companies for rubber chemicals, co-operatives for fertilizers, the government and the nationalized coal industry for explosives). ICI is conspicuous by the absence of a 'hard-sell' approach, which however partly exists in paints, small quantities of which makes up bulk of the business. However what it lacks in terms of a 'hard-sell' approach it has more than made up by its emergence as a 'technology vendor' through the recent sale of its nitric acid process to FEDO, for imminent commercialisation by the Government of India. 78

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78 European Chemical (Sutton, Surrey), vol. 36, no. 973, 16 March 1981, p. 28.
ICI's excessive dependence on fertilizers and sale of process know-how and its disillusionment with polyester fibres is reflected in the gloomy projections it continues to make about the state of polyester fibre industry in India. Chemicals and fibres of India Limited has even proposed an amalgamation with Indian Explosives Limited, so that it could provide a broader financial base essential to carry out the company's diversification programmes. Facts however do not warrant such a drastic course of action.

79 For details, see The Statesman, 24 February 1983.

80 At the Annual General Body meeting held in Bombay on 23 February 1983 the Chairman of Chemicals and Fibres of India Limited, A.L. Mudaliar had blamed imports for poor sales of the company which were 44 per cent lower in the first quarter of 1982-83 than 1982. He had also pointed out that "the prices ruling in October-December 1982 have been on average Rs. 4 per kilo lower than in the corresponding quarter of last year", adding that "even this substantial price reduction has not offered sufficient inducement to local textile mills to use domestically produced fibre in large quantities, and utilization of installed capacity in the industry continues to languish at 60 per cent or lower." However in explaining better company results achieved in 1981-82 he said that "it derive in very large measure from the Rs. 121 lac sundry income figures which was earned from business other than sale of fibre." He however felt that this could not continue for long, for the post-tax return on shareholder's funds would be seen to be "working out to a meagre 6.23 per cent during the year just completed - a far cry from the 12 per cent rate which even the Bureau of Industrial Costs and Prices considers to be a fair return on shareholder's funds. "However the fact that the Company remains a blatant optimist is borne out by its decision to complete a capacity expansion to 10,000 tonnes, which was completed at a capital cost of Rs. 5,000 per tonne against the standard in the industry of Rs. 22,000 per tonne. This optimism
for this has actually encouraged US based Chemtex Inc operated to gain a foothold in the Indian polyester fibre market.

While ICI is frantically trying to consolidate its position in India by trying to amalgamate under sections 391-394 of the Companies Act and imposing a tighter rein on CAFI, while at the same time tilting towards IEL, attempts are

draws its strength from the fact that CAFI has successfully exploited customer needs with a degree of innovativeness which has helped it to stay well ahead of its competitors. An example of this is introduction of black and coloured fibres. But CAFI is well aware that this optimism might be shortlived, because of the following factors: shortage of the main raw material DMT, raw material prices which are two and a half times international prices, the year old strike in Bombay textile mills and dumping, compounded by steep excise duties. CAFI might adopt the following strategy (1) widening its manufacturing base for it rightly feels that a single product company would not be economically viable, (2) to make plants world-size so that they can compete with other countries within India and in the export markets (3) to rely more on a capital intensive operation, which in any case is unavoidable for inflation has increased the cost of capital goods eight-fold in the last thirty years. For details see, The Statesman, 24 February 1983.

ICI has proposed to amalgamate Alkali and Chemical Corporation of India (ACCI), Chemicals and Fibres of India (CAFI) and Crescent Dyes and Chemicals (CDC) with Indian Explosives (IEL), for it feels that amalgamation would (a) make a company with a broader product range, (b) improve market presence and widen scope for growth and diversification, (c) be beneficial to shareholders of the constituent companies because of cost savings through streamlining of organization, (d) lead to improved cash management and better tax planning leading to steady performance and steadier growth of dividend payments. For details see, Economic and Political Weekly (Bombay), vol. 17, no. 44, 30 October 1982, p. 1777.
being made by Chemtex to exploit the latent Indian demand for Polyester fibre. With increasing pressure on land for food crops on account of burgeoning population growth, the area under cotton cultivation in India would have to be reduced.82 Although nearly 85 per cent of Indians use cotton cloth, polyester fibres would continue to be in demand, even if it is of the polyester-cotton variety rather than the polyester-viscose blended variety as is borne out by the latest union budget.83

82 Expanding world population would require an additional 16 million tonnes of fibre between 1980 and 2000. Cotton which presently accounts for half of total world market for fibres would decline to 39 per cent. While more cotton acreage would be earmarked for food, demand for polyester staple and filament would grow at a rate averaging 4.4 per cent annually with polyester accounting for 26 per cent of world fibre consumption in the year 2000, compared with 17 per cent in 1980. This partially explains why the developing countries have accounted for 80 per cent of all new polyester plants in the last decade. For details see, The Hindustan Times, 27 February 1983.

83 In the latest Union budget, the incidence of basic and additional duty on polyester cotton fabrics containing more than 40 per cent but less than 50 per cent polyester is proposed to be reduced from 15 per cent ad valorem to 6.5 per cent ad valorem. These concessional rates would not, however, apply if polyester filament yarn is used. The overall incidence of duty on cotton yarn containing more than 40 per cent but less than 50 per cent polyester is also being reduced from Rs. 11.25 to Rs. 7.5 per kilogram. The revenue sacrifice entailed in these changes is Rs. 19.40 crores in a full year. The effective duty on viscose staple fibre is being raised from Rs. 4 per kilogram to Rs. 5 per kilogram. To discourage import of this fibre, import duty on ordinary viscose staple fibre is being raised from 30 per cent to 40 per cent ad valorem and on improved varieties of viscose staple fibre also to 40 per cent ad valorem. The revenue gain would amount to Rs. 5.6 crores. For details see, The Economic Times, 1 March 1983.
Chemtex in contrast to ICI would not only concentrate on polyester fibres but would also like to widen its range of products. This impelled it to sign a memorandum of understanding with Ballarpur Industries for an acrylic staple fibre plant, having a capacity of 17,000 tonnes, which is scheduled for completion in the third quarter of 1985, and which is estimated to cost $55 million. Increasing American interest in this sector is also evident in the ongoing $51 million project for high wet modules rayon fibre based on Du Pont and American Enka technology, and negotiations which are in progress for a polyester film project.

While ICI is on the defensive in countries like India, it is busy exploring possibilities in other third world countries like Libya, which has still remained a

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84 Chemtex will provide the know-how technology of El Du Pont de Nemours as well as basic engineering and imported machinery and equipment worth $20 million. For details, see, Hindustan Times, 28 February 1983.

85 In an attempt to gain a foothold in the Indian polyester market Chemtex had opened its first overseas office in India two decades back. However, only recently it has started making its presence felt in a big way in India: its latest project being Reliance Polyester at Patalganga which was commissioned in October 1982. It hopes to increase its number of joint ventures in India; although apart from India it has joint ventures in Korea, Greece, Yugoslavia, Egypt and Costa Rica. For details see, Hindustan Times, 27 February 1983.
comparatively virgin territory for Western Chemical firms. This became evident with the award of letters of intent to SIM-CHEN and ICI (UK) for the supply of engineering and know-how for a 55,000 ton/year low-density polyethylene plant, which was a part of a $5 billion petrochemical complex. It covered the supply of licensing and know-how, design, engineering, procurement services and the provision of technical advisory personnel during erection and commissioning.

**Future Projections**

The predicament in which ICI finds itself in India, has its reverberations also in its home market, where this Chemical group acts as a 'marker' for the state of British industry. According to the latest data released by the British Government, there has been a "steep rundown in stocks at the end of 1982, to meet the surge in consumer demand with industrial output being left in the doldrums". 87

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87 Frances Williams and Jonathan Davis, "ICI profits slump as investment in manufacturing falls to 18 year low", The Times, 25 February 1983.
### TABLE XII

**INVESTMENT AND STOCKS**

(Seasonally adjusted at 1975 prices)

<table>
<thead>
<tr>
<th>Year</th>
<th>Investment (total)</th>
<th>Mfg.</th>
<th>Change in stocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>9,054</td>
<td>3,769</td>
<td>949</td>
</tr>
<tr>
<td>1979</td>
<td>10,082</td>
<td>3,969</td>
<td>1,097</td>
</tr>
<tr>
<td>1980</td>
<td>10,028</td>
<td>3,573</td>
<td>-1,611</td>
</tr>
<tr>
<td>1981</td>
<td>9,337</td>
<td>2,938</td>
<td>-1,259</td>
</tr>
<tr>
<td>1982*</td>
<td>9,399</td>
<td>2,644</td>
<td>-713</td>
</tr>
<tr>
<td>1981 Q1</td>
<td>2,332</td>
<td>777</td>
<td>-329</td>
</tr>
<tr>
<td>Q2</td>
<td>2,336</td>
<td>756</td>
<td>-475</td>
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<tr>
<td>Q3</td>
<td>2,303</td>
<td>705</td>
<td>-219</td>
</tr>
<tr>
<td>Q4</td>
<td>2,365</td>
<td>699</td>
<td>-236</td>
</tr>
<tr>
<td>1982 Q1</td>
<td>2,363</td>
<td>698</td>
<td>74</td>
</tr>
<tr>
<td>Q2</td>
<td>2,295</td>
<td>658</td>
<td>-85</td>
</tr>
<tr>
<td>Q3</td>
<td>2,384</td>
<td>641</td>
<td>-336</td>
</tr>
<tr>
<td>Q4</td>
<td>2,358</td>
<td>641</td>
<td>-366</td>
</tr>
</tbody>
</table>

* Provisional

(a) Manufacturing, distributing and services.

Source: Department of Industry, United Kingdom, quoted in The Times, 25 February 1983.
ICI reported after-tax profit in 1982 of £167 million, down from £224 million, which reflected a 25 per cent decline in earnings. This sharp paring of profit has taken place, despite an increase in sales from £6.5 billion in 1981 to £7.4 billion.\(^\text{88}\) It reported profit from pharmaceuticals, agricultural products, industrial explosives, paints, oil and chemicals, but its performance continued to be blighted by heavy losses on petrochemicals and plastics (which lost £139 million in 1982 against a £54 million profit in 1981).\(^\text{89}\)

\(^{88}\) *International Herald Tribune*, 11 March 1983.

\(^{89}\) ICI's promotion of certain drugs as a part of its increasing involvement in pharmaceutical industry in Third World countries has come in for sharp criticism from welfare agencies like OXFAM. For example, ICI had promoted an anabolic steroid called Anapolen in Bangladesh, with a product leaflet that claimed "it promotes growth in underdeveloped children", with a re-assurance that it has "no effect on liver function". But the double standards practiced by ICI become evident when we are informed that anabolic steroids would never be prescribed in Britain for under-nourished children, for the drug's link with liver disease is well documented. After facing mounting criticism from agencies like OXFAM, ICI had agreed to withdraw the offending leaflet, but it refused to withdraw the drug from sale! However, whereas ICI has at least made a token gesture, companies like Glaxo and Pfizer are not willing even to discuss criticisms of their product range in Third World. For details see, James Erlichman, "OXFAM accuses British drug Industry of exploiting Third World", *The Guardian*, 5 December 1982.
loss in 1981), and fibre and organic chemicals (which lost £43 million in between them after a combined loss of £66 million the year before).\footnote{90} However, the most important factor which would ultimately determine ICI's economic viability would be the pound's value against the West German Deutschmark, the dominant European currency. On a rough estimate, every one per cent fall in the average value of the pound would add between 0.5 per cent and 5.0 per cent to pre-tax profits of British companies like ICI whose principal markets are in the EEC: possibly giving an average figure of just over 2 per cent.\footnote{91} While cheaper pound can temporarily bail out ICI from its economic difficulties, the viability of the company would ultimately depend on the way it can respond to unexpected challenges:

\footnote{90}{The latest balance of payments figures show a deterioration of £1000 million in the current account: from a surplus of £38 million in December (1981) to a deficit of £261 million in January (1982). The Company also reported fourth quarter pre-tax profit of £56 million (1982) against the previous year's comparable figure of £114 million. This left the full year figure for 1982 at £259 million down on the previous year's £336 million. However, what was admirable was the way the Company was determined to maintain a steady dividend rate at 19 per cent for the year rather than scrapping it altogether. However, ICI can take solace from the fact that the pound remains weaker, whose benefits would accrue to ICI's profits in 1983. For details see, \textit{The Times}, 25 February 1983.}

\footnote{91}{Alex Murray, "The Silver Lining to the Silver Gloom", \textit{The Sunday Telegraph}, 28 November 1982.}
<table>
<thead>
<tr>
<th>Leading Companies</th>
<th>Share Price (P)</th>
<th>Exports as percentage of sales</th>
<th>Overseas subs. profits as percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brit Aero</td>
<td>216</td>
<td>60</td>
<td>5</td>
</tr>
<tr>
<td>ICI</td>
<td>336</td>
<td>22</td>
<td>35</td>
</tr>
<tr>
<td>Smith Inds</td>
<td>375</td>
<td>20</td>
<td>35</td>
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<tr>
<td>Distillers</td>
<td>237</td>
<td>55</td>
<td>5</td>
</tr>
<tr>
<td>R'Tree Mac</td>
<td>208</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>BAT</td>
<td>614</td>
<td>3</td>
<td>93</td>
</tr>
<tr>
<td>De la Rue</td>
<td>545</td>
<td>57</td>
<td>66</td>
</tr>
<tr>
<td>RTZ</td>
<td>423</td>
<td>15</td>
<td>90</td>
</tr>
<tr>
<td>Sed Forbes</td>
<td>175</td>
<td>40</td>
<td>35</td>
</tr>
</tbody>
</table>

for example, in the UK fertilizer market which happens to be the traditional domain of the ICI, Norsk Hydro of Norway contemplated making its presence felt; a threat which could not be brushed aside lightly by ICI, for Norsk Hydro's ammonia capacity total 2.15 million tonne/year and it is currently busy adding another 500,000 tonne/year at its Dutch subsidiary, NSM. Secondly, it has the best prospects among all European producers of having an access to low-cost nitrogen feedstock over the latter half of this decade, owing greatly to its considerable North Sea gas reserves. Hydro, in a bid to enter the UK fertilizer market successfully negotiated takeover of loss-making fertilizer division of Fisons Limited in the UK. Hydro's was a calculated move for it knew that Fisons, though ailing, commanded 25 per cent share of UK compound fertilizer market, and 15 per cent of the faster growing and more profitable 'straight' nitrogen market.

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92 Earlier there were rumours of an imminent link-up between ICI and Fisons, which would have been a marriage of convenience, for ICI's commanding position in naptha would have compensated for Fisons' lack of backward integration. For details see, European Chemical News vol. 37, no. 1013, 28 December- 4 January 1981/1982, p. 5. The main loser in the conflict between Norsk Hydro and ICI, would be UKF Fertilizers, which would be the main UK fertilizer producer with no assured access to feedstock supplies at preferential prices.

93 For details see, European Chemical News, vol. 38, no. 1018, 8 February 1982, p. 4. Hydro paid £ 50 million for purchasing the fertilizer division of Fisons, which has a total asset value of £ 55 million.
Norsk Hydro's attempt to become the leading fertilizer producer in Europe has foundered, not because of the determined opposition put up by ICI, but because of a superior strategy adopted by Hydro's arch rival, BASF of West Germany, which in a clever move bought over the fertilizer operations of UCB, the Belgian Chemicals, pharmaceuticals and film group. According to the authoritative Fertilizer International, a journal specializing in West European Fertilizer Industry:

Ordinarily Norsk, would have taken control of UCB's operations, as it has in Fisons' Fertilizers' other associated companies, such as Diamond Fertilizers in the United Kingdom and RFC of Zimbabwe. UCB however took advantage of an option agreed at the start of their joint venture with Fisons in the early 1960's, whereby if the ownership of one partner were to change the other had the right to purchase its share, and purchased Fisons' 50% stake in Fisons-UCB at the end of May 1982. Subsequently, UCB negotiated the sale to BASF of its entire fertilizer operations. 94

While BASF and Norsk Hydro are locked in a bitter struggle for supremacy of the lucrative European fertilizer market, ICI in an attempt to stem encroachment by Norsk (along with its affiliate Fisons) into the UK market has implemented

94 Fertilizer International (London), no. 157, July 1982. In a two stage deal, UCB's Ammonia and two nitric acid units at Ostend, as well as the AN solutions and compounds plants operated at the site by its one-time 50-50 venture with Fisons of the UK, Fisons-UCB, was transferred to BASF's Belgian subsidiary, BASF Antwerpen NV.
a number of price changes: Nitrogen prices, for example, were increased by 5 per cent, but at the same time, it decreased phosphate and potash prices by 15 per cent and 10 per cent respectively\(^95\) so that it could maintain a competitive priced ammonia from Norsk's own resources. While ICI might succeed in maintaining some grip over the UK fertilizer market, the same cannot be said about the UK soda ash market, for ICI has been forced to re-negotiate its 'evergreen' soda ash contracts under pressure from the UK Office of Fair Trading, which would enable consumers to exercise its options which would include spot purchases and short term contracts.\(^96\) This decision would come as a blow to Europe's hard pressed synthetic soda ash producers facing increased competition from US manufacturers of natural products. Although at present, the UK soda ash market is considered to be a natural preserve of ICI, the OFT ruling

\(^95\) This could contribute to a decrease in NPK's price by 6 per cent and high PKs by as much as 12-13 per cent. This move not only coincided with weak demand for phosphate and potash, but was also aimed at countering Norsk's attempts to nibble at the UK market.

\(^96\) The decision was taken to avoid the risk of a formal investigation by the OFT (Office of Free Trading) which was invested with additional powers over anticompetitive prices, earlier in October 1980.
would expose the UK market to encroachments by US producers. While rounding off our discussion on ICI we are struck by the fact that ICI has long ceased to be a large petrochemicals, fibres multinational and has transformed itself into a major pharmaceuticals, oil and agriculture chemicals company. At present, almost three quarters of group profits is derived from agriculture, pharmaceuticals and oil, which amounts to more than double their contribution

97 Under old contracts Soda Ash purchasers were obliged to purchase all requirements from ICI, and was required to give a two-year notice of termination. Even if offered an alternate cheaper source of supply producers had to offer ICI the chance to supply at the new rate. For details, see European Chemical News, vol. 35, no. 954, 27 October 1980, p. 6.

ICI's attempts at warding off continental (and US) competitors would have become less difficult, if it was not for the sharp discrepancy in electricity costs between large industrial users in the UK and in the continent, which according to ICI amounts to about 35 per cent. In its Wilhelmshaven plant in the continent, for example, it is paying about half as much as in the UK, for electricity for its Chlorine operations. Electricity accounts for about 50 per cent of total costs, and 80 per cent of the variable costs in Chlorine production.

However, concern over disparities in electricity pricing is by no means confined to the UK. Akzo, for example, has referred to the strong competitive advantage in this sector enjoyed by companies in France over those in the Netherlands, where costs have been rising steeply. ICI's persistent demands for concessions has however not gone unheeded. As a result of UK government concessions, for example, ICI Mond division could save around £ 2 million in a year on its electricity costs. This was a considerable concession, for Mond's bill for electricity, used primarily for chlorine production is estimated around £ 52 million a year. For details see, European Chemical News, vol. 36, no. 983, 25 May 1981, p. 6.
of five years ago.\textsuperscript{98}

ICI's stake in the North Sea Ninian field has yielded rich dividends, but what is more significant is the fact that it holds 10 per cent share in Parcel 16 in the North Sea.\textsuperscript{99} Despite such an optimistic assessment, ICI's present Chairman wants a tighter board, and a small central staff to concentrate on strategy rather than on operations.

As far its pharmaceutical operations are concerned, ICI's famous Tenormin drug, an anti-hypertensive drug which has sharply reduced the incidence of heart attacks has greatly contributed to its pharmaceutical profits. Tenormin has already captured a sizable European market, earning the reputation of being the biggest selling drug in Europe, while its annual growth rate in US are estimated at 30 per cent. ICI is gradually establishing its leadership in heart drugs (which is the most proliferating branch of pharmacology) and has seen its royalty income steadily rising to £ 40 million in the last three years, thus contributing to 50 per cent of ICI's total drug royalties.


\textsuperscript{99} Santa Barbara would come on stream in 1985, the revenue from which would offset the expected decline at that time from Ninian earnings. For details see, \textit{The Sunday Telegraph}, 28 November 1982.
One important feature of such earnings is that it constitutes ICI's 'high-quality' earnings which are not geared to economic recovery or trends. However besides pharmaceuticals, the other sectors of ICI which constitute the sheet anchor of its earnings' base are the agricultural division including the growth-oriented agro-chemicals. However, in spite of the presence of such 'shock-absorbers', ICI is forced to pay greater attention to the most dominant factor in its profit rate which is the value of the German Deutschmark. For example, in November 1982, DM's change in rate from DM 4.28 to DM 4.06 was worth an annual £ 80 million gain in ICI's taxable profits. (See Table XIV).

ICI, the EEC and European Chemical Industry

ICI has however ironically blamed the EEC for its ills. It has accused the EEC of being unusually indulgent towards countries like South Korea, Mexico and Romania, by

100 According to Gerald Colverd, "Were the estimated 1982 pharmaceutical profits of £ 125 million, before tax valued on the same basis as Glaxo (i.e. a 28 price/earnings multiple) this division would be capitalized at around £ 2 billion compared with a market capitalisation for the whole ICI group of £ 2.2 billion. For details see, The Sunday Telegraph, 28 November 1982."
TABLE XIV

THE PROFIT PROFILE

(£ million)

<table>
<thead>
<tr>
<th>1</th>
<th>1977</th>
<th>%</th>
<th>1978</th>
<th>%</th>
<th>1979</th>
<th>%</th>
<th>1980</th>
<th>%</th>
<th>1981</th>
<th>%</th>
<th>1982 (Est)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
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<tr>
<td>Agriculture</td>
<td>139</td>
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<td>150</td>
<td>28.1</td>
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<td>151</td>
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</tr>
<tr>
<td>Fibres</td>
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<td>(13)</td>
<td>-</td>
<td>(38)</td>
<td>-</td>
<td>(86)</td>
<td>-</td>
<td>(36)</td>
<td>-</td>
<td>(28)</td>
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<td>25.5</td>
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<td>-</td>
<td>615</td>
<td>-</td>
<td>311</td>
<td>-</td>
<td>402</td>
<td>-</td>
<td>347</td>
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</tr>
</tbody>
</table>

* Incl. in Petrochemicals.

giving tariff-free access to their chemical products. ICI's disgruntled Director Denys Henderson even went to the extent of complaining to UK's House of Commons Select Committee on Industry and Trade that it was the EEC's mishandling of the situation which was partly responsible for 'damaging cases of unfair competition against the UK Chemical Industry'. By apportioning the blame solely on the EEC, the Company was however far from being honest, for the company's ill-fortune was directly linked to the following factors: high inflation, high exchange rate, low growth and low productivity.\footnote{For every one per cent increase in the value of Sterling, against the dollar, ICI lost around £5 million of annual sales increase, and the loss was partially offset by £2.5 million savings on raw materials purchases. For details see, European Chemical News, vol. 35, no. 940, 14 July 1980, p. 8.} However this has not prevented the company from harping on the well-established cost-advantages enjoyed by US fibre producers. However, its ire against the EEC centres around two allegations that (a) EEC has been sluggish in reacting to the problem of chemicals (primarily soda ash) being dumped by East European producers and that (b) it has also failed to stem the flow of low cost fibre imports. However, on close inspection, it is observed that the following extraneous factors (rather than the EEC) are actually contributing to the company's continuing ill-health. They are: (1) import licensing by
New Zealand, Argentina, Brazil and Ecuador, (2) extrataxes levied in Greece and Argentina, (3) quality control measures being imposed on chemicals which need to be paid for by the exporter, (4) tardiness in releasing foreign exchange for payment until after customs clearance, and (5) insistence by countries like Argentina and Brazil on insurance by a local firm. While the ICI is bent upon making the EEC a scapegoat for the malaise with which it has been afflicted, there is a growing sentiment in Britain\textsuperscript{102} that she should defy the European Commission, and following the example of United States and Middle Eastern producers should give its chemical industry the same advantages of cheap feedstocks. Such a move would certainly invited retaliation from Britain's other Common Market partners who would regard it as unfair competition and an infringement of Article 92 of the Treaty of Rome. But ironically, UK's Department of Energy has already granted three Petro-Chemical companies, BP, ESSO and Shell access to North Sea Ethane\textsuperscript{103} at concessional prices, and it was this anomaly which had

\textsuperscript{102} The same mention was echoed by Stuart Wamsley, market analyst with the influential stockbrokers W. Greenswell and Company. For details see, Chemistry and Industry (London), no. 2, 6 November 1982, p. 817.

provoked ICI to file a suit against the UK Government in July 1982.

Both the ICI and British Government have however paid scant attention to EEC's repeated exhortations to 'restructure'. The problem has been compounded by the Commission's ambivalence. On the one hand Etienne Davignon, Vice-President of the European Commission, has reiterated that "it is not the task of civil servants to tell the industry where to invest and where to divest" but to dispel the notion that it smacks of a laissez faire approach, in the same breath, he has clarified: "The European Commission has an instrument to react to radical structural modifications of a sector. Article 85 paragraph 3 of the Treaty of Rome allows 'concerted practices' by Companies which contribute to the improvement of the production distribution of goods or to the promotion of technical or economic progress while reserving to users an equitable share in the profit therefrom." Consequently, if a consensus could be reached on reduction of excess capacity, it would not contravene the Community's competition policy, but given the long history of State intervention to shore up chemical industry in Europe it would probably

104 Also see, Giles Merritt, "Europe calls a halt to the £ 30 billion money-go-round", The Sunday Times, 17 April 1983. The Commission had calculated that restructuring the European Petrochemical Industry could not involve unemployment of more than 10,000 throughout the Community.
be naive to assume that restructurig would be quickened in
view of the small scale of its social implications.

Instead of restructuring, European Governments
have resorted to cosmetic changes. For example, even in
the much heralded French 'Plan Chimie', the Government's
objective has been confined to re-structurig French Chemical
Industry around three groups which reflects the government's
desire to sharply reduce the number of companies operating
in this sector. The three groups would be made up as
follows: a petro-chemical group comprising Ato and Chloe,
a fine chemicals group under the leadership of Rhone-
Poulenc and the third group operating under CDF-Chimie. It
is also likely that the animal foods product group would
be encompassed under the Rhone-Poulenc umbrella.

Rhone-Poulenc, CdF Chimie and Cofaz (now under
State control as a result of the nationalization of Paribas)
all possess the necessary experience and expertise to head
the fertilizer sector.\footnote{It is interesting to note that the French Government
has not shown any interest in involving pharmaceuticals
and plastic processing in its 'Plan Chimie'. For
details, see \textit{European Chemical News}, vol. 38, no.
1026, 5 April 1982, p. 7.} Cofaz is likely to play the
role of a catalyst in consolidating the French fertilizer
sector, because of its recent successes, which include a
stake in Phosphate rock mine in US, and the Dutch fertilizer producer Windmill. It has also been speculated that dyestuff operations of PCUK would be put on the market for sale; this has already attracted the attention of potential buyers like ICI and Sandoz. There is also speculation that Pharmuka would also be sold, possibly to Hoechst France, thus complementing France's agreement with Hoechst for Roussel-Uclaf.

However, what is more important is the fact that even within the framework of the new French Plan, oil firms would continue to play a pivotal role in French Chemical Industry. The whole industry is for all practical purposes run as an integrated operation by a partnership of the twin French oil firms (the former privately controlled) Compagnie Francaise des Petroles (CFP) and state owned Elf-Aquitaine. In July 1980, Rhone Poulenc, France's traditional chemicals 'heavyweight' had decided to be divorced from most of its petrochemical interests. These interests were coalesced together to form a new company (whose initial turnover would exceed $1.3 billion), in which Elf had a 80 per cent stake, the remaining 20 per cent still remaining under controle of Rhone-Poulenc. In a separate agreement concluded with British Petroleum's French subsidiary, Rhone Poulenc was generous enough to
permit the former to tighten its grip on a joint steam cracking operation.

However, the partnership between CFP and state-owned Elf-Aquitaine has largely been a marriage of convenience. CFP, which sells its oil under the total trademark had been watching with dismay Elf's meteoric rise. The total group's turnover is still bigger than that of Elf's ($18 billion in 1979, in sharp contrast to Elf's $14 billion) but its cash flow and profits still lag behind that of Elf's $5 billion and $1.5 billion in 1979. In order to stem Elf's advance CFP's strategy has been to saddle Elf with a binding agreement (1971) under which both the groups agreed to offer each other a half share in the chemicals expansion. The deal was a part of their corporate decision in the same year to pool their existing petro-chemical interests in Ato-Chimie, a group with sales peaking to $2 billion. CFP would be taking half of the 80 per cent share, which Elf negotiated for itself in the new company, formed out of Rhone Poulenc's divestiture, for which the latter was paid

106 According to a report published in The Economist, "Rhone Poulenc's deal with Elf was hard to reconcile with the French Government's frequently expressed desire to prevent the State oil company from expanding the public sector with its acquisitions". For details, see, The Economist, vol. 276, no. 7149, 6 September 1980, p. 76.
$200 million by the two oil groups. The two big oil groups would have monopolized France's heavy chemical industry but for the presence of the coal-board's chemical off-shoot CDF-Chimie.

An Appraisal of the French 'Plan Chimie'

Originally under the French 'Plan Chimie' the state sector which now encompasses practically all the premier national concerns forming half the industry as a whole, was to be restructured around three groupings: Rhone Poulenc, which would specialize in pharmaceuticals, fine chemicals and bi-industries, while at the same time having a stake in basic chemicals, fibres, polyester film and information systems; Elf Aquitaine, which was to develop into a major heavy chemicals producer while at the same time playing a key role in pharmaceuticals, fine chemicals, speciality chemicals, bio-industry and phosphates and CDF Chimie which was to specialize in petrochemicals fertilizers and certain chemical specialities. If the Plan were implemented according to its letter and spirit, Pechiney Ugine Kuhlman would have been forced to leave the French chemical scene for good, and Elf

107 According to the Economist, "the next logical step would be the merger of the new petrochemicals company with ATO-Chimie, to create a company with sales swelling towards $3.5 billion". For details see, The Economist, vol. 276, no. 7149, 6 September 1980, p. 76.
Aquitaine would have emerged as a chemicals grouping comparable in stature to Rhone Poulenc, as it would have acquired most of PUK’s fine chemical interests and gained leverage in a new petro-chemical grouping, with Compagnie Francaise des Petroles reduced to a non-entity.  

But after the contours of the plan were circulated, CFP made it clear that it would not relish the idea of being reduced to a minority role in petrochemicals, and threatened to quit the field altogether, while Elf Aquitaine is

108 According to the latest French Plan, PCUK, the Chemicals division of the metals group Pechiney Ugine Kuhlman would be hived off to the oil company Elf-Aquitaine which has extensive chemicals interests. According to the influential Chemistry and Industry Journal, "no plans have been announced for reorganizing either Rhone Poulenc or CdF Chimie, the chemicals subsidiary of the coal giant, Charbonnages de France, although talks on possible rationalisation and investment strategies are continuing with both companies". For details see, Chemistry and Industry (London), no. 11, 5 June 1982, p. 341. Elf would be increasing its stake in the two heavy chemicals producers ATO-Chimie and Chloe Chimie, in which it shares an interest with the other major French oil company total. The loss making dyes division of PCUK is not affected by these proposals but may be sold independently. However, Elf, which earned $ 535 million on sales of $ 15.1 billion in 1981, remained the key to the French Government plan to bail out the petrochemical industry. For details, see Chemical Week (Highstown, N.J.), vol. 131, no. 6, 17 August 1982, p. 26.

109 Elf would have faced complications in its takeover moves in petrochemicals, because of CFP’s reluctance to remain as a minority partner in chronic losers like ATO and Chloe.
nurturing second thoughts as to whether it should finance the rationalization programme of this sector. According to Michael Parratt, an observer of the French chemical scene "CFP is also afraid it will lose out if its profitable fertiliser subsidiary COFAZ is merged with a loss-making group as envisaged by the government. And the communist unions are furious at the government agreeing to ICI's purchase of the dyestuff interests of PUK". 110

Earlier in 1983, the industry had been buoyant with the idea that the French economy was due to register a 3 per cent growth in sharp contrast to zero growth in 1982, and the chemical sector braced itself for a similar upturn. Nationalized companies nurtured false hopes about the Government pumping in more money as part of an ambitious strategy 111


111 The French Government did announce some ambitious plans to stimulate the falling rate of industrial investment. As part of a supplementary budget, measures were taken to inject about $ 825 million (fr. 9000 million) into public sector industry. The money will probably be made available as a mixture of direct capital subscriptions and loans. By reducing taxes paid by industrial companies, the Government hopes to assist private industry save around Fr 5000 million and to stimulate further investment in this field. For details, see, Chemistry and Industry, no. 11, 5 June 1982, p. 341.

However some critics do not agree with this view which purports to cast French Government policy in a favourable light. On the contrary, they feel that
based on the state-owned sector. Over the first five months of 1983, industry output did rise 2 per cent over the same period in 1982, with that of plastics up 5 to 6 per cent, of pharmaceuticals up 4 per cent and of organics up 3 per cent, while output of inorganics fell 5 per cent. However, with the present sluggish French economy, the industry cannot expect to achieve more than 1.5 per cent to 2.0 per cent for the year as a whole.

CdF Chimie, ATP, PCUK, Rhone Poulenc and EMC had suffered heavy financial losses in 1982, to this should be added 1400 m francs of losses incurred as a result of the four month prices and incomes freeze introduced in June 1982 to accompany the second franc devaluation in a year. The time could not have been more inopportune for the freeze aborted plans of some chemical firms to bring about a hike in their prices for plastics and fertilizers. The oil industry which was initially enthusiastic about the

the French Government's decision to put a tighter rein on the budget, by limiting to about $ 15 billion would result in a national spending policy that would grant the nationalised chemical companies only $ 666 million of the $ 1.2 billion in new financing aid they requested. According to Chemical Week, a journal specializing in market survey for chemical products, "the subsidies will be enough to cover some losses but will have little to finance the Government's plan to move the industry away from basic chemicals and into value added products."

rationalization programme of the heavy chemicals sector, has lost interest and has expressed its inability to undertake this task, for the government by holding down on the prices of oil products does not seem to be keen in offering incentives. As a probable consequence, Compagnie Francaise des Petroles (CFP) the state-controlled Oil and Gas Group seems to have returned to its first love, the Middle East, where it was bred and brought up. 112 The Middle East, more than France, exercises a magnetic pull on CFP, for currently, equity oil rights and contract purchases from this region account for some 60 per cent of CFP-Total's non-spot oil supplies and close to 40 per cent of its entire crude purchase. Although the Iraq-Iran conflict dealt a severe blow to CFP-Total's crude oil resources, but slackening oil demand, increased purchases from the Gulf region, and a vigorous exploration and production drive began in the 1980 helped the company recuperate. CFP currently is busy consolidating its position in Abu Dhabi where it lifts more oil than any other foreign concern, amounting to about 6 million tonnes (1982 figure).

112 CFP was established in the Middle East in the 1920s to chaperon France's 24 per cent share of the Iraq Petroleum Company. A decade back, after its Iraqi interests had been expropriated the company continued to draw sustenance from Iraqi crude although at the same time it was cultivating links with other suppliers, notably Iran and Abu Dhabi, and its persistent efforts helped it winning a long-term supply contract from Saudi Arabia. For details see, MEED Special Report (London), April 1983, p. 5.
Closely following on its heels is Elf-Aquitaine, which has made two proposals to Saudi Basic Industries Corporation (SABIC), although a final decision is awaited. One project concerns a polyvinyl Chloride plant (PVC) and the other a plant for methyl tertiary butyl ether. According to Frank Spooner, an industrial analyst, "substantial work would result from a decision to go ahead with these projects, reinforcing France's already considerable business in the Arab world. This was valued at FF 71,900 million ($ 9,986 million) in 1982, representing 11 per cent of the country's exports". However in contrast to its erstwhile rival, CFP is more well entrenched in the Middle East; and its dynamism is reflected in its diversification: for example in Abu Dhabi, it is also associated with the treatment of associated gas. It holds a 8.16 per cent stake in Abu Dhabi Gas liquefaction company and has been aggressive enough to corner a 15 per cent share in Abu Dhabi Gas Industries, which in turn acts as a conduit for marketing butane, propane and condensate produced at Ruwais from the Bab, Bu Hasa and Asab fields. Not content with this achievement, CFP even teamed up with ADNOC (Abu Dhabi National Oil Company) and Compagnie Francaise de l' Azote in 1980 to build and operate a fertilizer plant at Ruwais, where

113 Frank Spooner, "Sustaining a Regional Commitment on all Fronts", MEED, April 1983, p. 2.
production is scheduled to begin by the end of 1983.

Like the oil groups, the French chemical companies are also disillusioned with the French Government's austerity measures. As a part of the austerity programme, the government has been forced to cut back its funding of state-owned companies with Rhone-Poulenc due to receive only 1260 million francs in 1983. The other Chemical Companies like CDF Chimie and EMC would be getting 600 million and 200 million francs respectively, but it will barely cover their 1981 losses. If PUK is to receive 2,400 million francs, most of it will go into its non-chemical activities.

The French penchant for bureaucratisation may also interfere with the smooth functioning of the chemical firms, even under 'Socialist France' for according to Jean Gandois, the former Chairman of Rhone Poulenc "state-owned companies are being regarded increasingly as tools of the Government, rather than as companies which have to respect the same sort of principles as firms in the private sector. Investments are made regardless of whether a market exists. Sound financial principles are forgotten as ambitious investment programmes are launched, concessions are made in the field of productivity to favour employment and the very future of the companies are put at risk by dangerous power-sharing experiments with the Unions", and he ruefully ends his observation by saying "little by little, companies which
were once private are being turned into branches of the civil service which can only survive on government subsidies". 114

However, not all French chemical firms have sacrificed their dynamism and have become mere supine handmaidens of the Socialist Government as projected by Rhone Poulenc's former chief executive Jean Gadonis. In the recent past, Rhone Poulenc has displayed a rare bargaining power in its dealings with Soviet Union. For example, the $ 8 billion contract it signed with Soviet Union (spread over a decade) is a remarkable deviation from the standard 'compensation system', a stereotyped straitjacket reserved for West European firms. The contract was designed to be a two-way deal: Rhone Poulenc will sell to the Soviet Union vast quantities of high value agrochemical products (valued at $4 billion) and few factories. In compensation it will be supplied with

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114 According to revised estimates, Rhone Poulenc would be getting from the Government only $188 million, instead of $449 million, it requested. Although the Government wants it to play a crucial role in fine chemicals, its dynamism has been impaired by heavy losses to the tune of $341 million in the last two years. CDF-Chimie would be getting $89 million, although it needs $293 million partly to compensate for the heavy losses it suffered which amounted to $180 million in 1981 and $12 million in 1980. Similarly, Produits Chimiques Ugine (PCUK) the Chemical arm of Pechiney Ugine Kuhlman lost $132 million in 1981. The company had requested for $449 million but would get only $359 million. Only Enterprise Miniere et Chimique a leading fertilizer producer, seems to have come out unscathed in financial sweeps takes with government loans of $29.9 million, only slightly less than what it had asked for. Still the allotted funds are hardly an adequate compensation for losses of $46 million (1981). For details see, Chemical Week, vol. 131, no. 6, 11 August 1982, p. 26.
raw materials laced with crude oil. The contract is a distinct improvement on the $1.3 billion agreement negotiated with Soviet Union in 1976.

The French oil groups, Elf-Aquitaine and the Compagnie Francaise des Petroles, which have acquired Rhone Poulenc's petrochemical interests does not share Rhone Poulenc's enthusiasm, for henceforth Rhone Poulenc, a big buyer of Soviet raw materials will have proportionately less need of the basic chemicals being produced by its old plants, now jointly owned by Elf and CFP. However, the Soviet contract has come as a timely prop for Khone Poulenc, for according to the Economist its "profits might have been jeopardized because its long troubled man-made fibres division is doing as badly as other European textile makers are. Its group turnover (more than $8 billion in 1979) will be trimmed by 15% thanks to the sell-off in petrochemicals manufacturing. But it has managed to sell the Russians just the kind of high value-added chemical products in which it intends to build its future fortunes: pesticides, insecticides and animal feed",¹¹⁵ although the supply of high technology chemical plant accounts for no more than 10 per cent of the deal with Moscow. While the French

have succeeded in getting across the message to Soviet Union that they would like to clinch a deal solely on their own terms and conditions, the same French nationalistic orientation has stalled European co-operation in the fertilizer sector, which has actually degenerated into a fight by the major fertilizer manufacturers to strengthen their competitive positions and acquire market shares. Early in 1982, the French authorities had scotched an attempt by the Dutch producer and exporter UKF of the DSM group to strengthen its position in the French market through its subsidiary Christaen Levoester by the construction of a new ammonium nitrate (300,000 ton/year capacity) and nitric acid plant (230,000 ton/year capacity) at Gouaix, which was to be built at a cost of FF 400 million, while at the same time sponsoring a rival project proposed by APC, Cofaz and Rhone Poulenc at Rouen. The Dutch Project was deliberately sabotaged by an alliance of the French industry ministry, trade unions and local fertilizer producers who were perturbed over the cost advantage UKF would hold as the result of its access to relatively cheap natural gas and consequently its ability to produce ammonia at lower costs. 116 The denial of

116 Fertilizer International (London), no. 157, July 1982, p. 7. In 1978, UKF's bid to acquire the Gardimir fertilizer business had also been vetoed by France. This Dutch firm however, has been allowed to maintain a token presence by fixing a production quota of about 300,000 ton/year of NPKs at Gouaix. Ironically, with an eye on the French fertilizer market, UKF had entered into a partnership with Carbochimique of Belgium in 1981.
construction permits to the Dutch Chemical group DSM, clearly shows to what extent the French Government can go to accommodate the interests of domestic, industrial pressure groups which in this case was represented by a triple alliance of the Rhone Poulenc subsidiary Gesa, Compagnie Francais de l'Azote and APC from the CdF Chimie group, who were keen to protect their share of the 3 m ton/year market. As a sop these companies have proposed an alternative project - a FF 415 million (400,000 ton/year capacity) ammonium nitrate and nitric acid plant in the Rouen-Le Havre region which would be based on imported ammonia from the USSR.

Recent developments however suggest that France has started making determined efforts to explore untapped markets in countries like India. This would probably explain why France has been unusually generous in offering India free know-how and technology for producing Decis, to be used in cotton growing areas. 117 It is obvious that France wants to operate the new 360,000 ton/year N ammonia under construction in South Limburg. Ammonia from this plant (capacity 125,000 ton/year) was to have been transported to France to be utilized by UKF's new fertilizer plants. For details see, European Chemical News, vol. 38, no. 1020, 22 February 1982, p. 4.

Decis belongs to the genius of pyrethroid which was commercially introduced in 1976. According to estimates made by the French joint sector firm Roussel Uclaf, between 1976 and 1982, more than 140 million hectares could be saved from pests if crops had been covered by pyrethroids (of this 25 per cent were cotton crops). For details, see The Telegraph (Calcutta), 20 January 1983.
to exploit the burgeoning synthetic pyrethroid market, which
spans more than 100 countries, and it is significant that
decamethrin (Decis) has taken the lead covering about 42
per cent of the market (1982 figure).

While agro-chemicals may be one area in which
France might be interested in making an investment in India,
but if it intends to expand its Indian profile, it would be
in areas in which French chemical firms are world market-
leaders. For example, Rhone Poulenc, which has recently
set up a Volrho plant at Patancheru, a backward area of
Andhra Pradesh, has reportedly offered to the Indian Govern-
ment technology for manufacture of human vaccine. However,
Rhone Poulenc, which is still trying to find out the Indian
Government's disposition to foreign companies and import
of technology would probably extend its product range to
include the following:

(i) Methionine (of which it is the world's largest manu-
facturer) which is an essential amino acid for protein
synthesis in animals,

(ii) Vitamin B 12 and separated rare earth oxides of which
it is the world leader.

118 Rhone Poulenc's latest venture at Andhra Pradesh,
set up at a cost of Rs 17 crores would be manufacturing
a host of chemicals, the first in line being, organo
phosphatic pesticide. For details see, The Economic
Times, 23 March 1983.

119 Marketing these products would pose no problem; for
Rhone Poulenc already maintains its presence in India
Rhone Poulenc's latest venture at Andhra Pradesh was in the form of a trial balloon, and also was an attempt to take advantage of the Indian Government's new industrial policy, the main thrust of which was to take industries to the backward areas. For this, certain additional incentives were being given to entrepreneurs going to 'no industry districts'. This included liberal subsidy up to 25 per cent and giving matching grant to the state for creating infrastructural facilities.\(^{120}\) In sharp contrast to the inward-looking French chemical companies, the West German Chemical Industry represented by BASF, AG, Hoechst AG, and Bayer AG, is greatly dependent on export-earnings, and they have been especially hard hit in the United States, where price competition has been intensified by the recession. According to Donald Nordberg, an observer of the German Chemical Industry, "the US was a particularly lucrative market in 1981, when the D. Mark's relative weakness against the dollar allowed for

\[\text{through its association with May and Baker (India), Volrhh and Voltas. May and Baker, UK is a wholly owned subsidiary of Rhone Poulenc, and it is significant that the UK company's Indian affiliate is in the process of diluting foreign capacity to 40 per cent. The other Indian affiliate of the French company, Voltas is the Indian agent for most of Rhone Poulenc's chemical products. For details, see the write-up on the visit of Loik le Floch-Prigent, chairman, Rhone-Poulenc, to India. The Economic Times, 15 March 1983.}\]

\(^{120}\) The Statesman, 10 May 1983.
increased exports. But the mark is not much weaker against the dollar than last year (i.e. 1981) and there is little room to improve on last year's high level of exports". 121 (see Table XXIV) The companies have also suffered serious

TABLE XXIV

BASF GROUP SALES

(in Million DM)

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<td>Total</td>
<td>27,731</td>
<td>31,766</td>
</tr>
</tbody>
</table>


121 Donald Nordberg, "German analysts see lower chemical profit", International Herald Tribune, 9 September 1982. According to BASF Annual Report (1981). "Even though BASF was able to increase sales 14.6 per cent to DM 31.8 billion, only 2 percentage points of this substantial advance represented a growth in volume; the remainder reflected higher prices as well as advantages gained in currency conversions due to a US dollar valuation that was stronger than a year earlier. As a result of the increase, in volume, shipments reached the 1979 level again. The improvement in the value of sales stemmed primarily from business conducted outside of Germany."
setbacks in Latin America, where sales have fallen as a result of this region's chronic debt problems.

In the first half of 1982, BASF world group earned DM 545 million, before taxes: a 35 per cent decline, although turnover increased by 1 per cent to DM 16.4 billion. Earnings at that level would be insufficient (after taxes) to support a DM 7 dividend. BASF's woes have been compounded by its having own supply of crude oil, when oil can be procured more cheaply from the spot market. What is worse, there has been a decline in business for its potash subsidiary Kali and Salz AG. BASF also has lower bank debts than either Hoechst or Bayer, so it is benefitting less than its competitors from the current fall in its interest rates. However, BASF's Achilles heel lies in its commodity plastics business, in which it faces large operating losses (in 1981, losses had amounted to DM 190 million) prompting analysts from Westdeutsche Landesbank Girozentrale to speculate that BASF can be expected to earn DM 11 a share in 1982, compared to DM 16 in 1981.

122 In 1981, dividend had absorbed DM 284.6 million of the world group's net profit of DM 371.5 million. For details see International Herald Tribune, 9 September 1982. BASF had predicted in November 1982 that it would be unable to maintain its dividend in 1982, results at 1981's level of 7 Deutsche marks ($ 2.80). BASF's world group pretax profits fell in the first nine months of 1982 by 39.8 per cent from a year earlier to 667 million Deutsche marks, while parent company profits fell 26.5 per cent to 394 million Deutsche marks. For details see, International Herald Tribune, 27-28 November 1982.
According to latest figures (1983) made available by the company, it becomes evident that there has been no appreciable change in the company's position for poor results in oil refining, commodity plastics, fibres and potash has left world group pre-tax profits 21.6 per cent lower at DM 1,010 million.\(^{123}\) It is difficult to explain this dismal performance, for way back in 1981 the company had started viewing the future of its refineries in terms of conversions targeted towards higher output of chemical feedstocks and gasoline and less heavy fuel oil. It must be conceded however, that it had made a serious mistake in intensifying its oil exploration programme one, for in West Germany the burden of rising royalties on oil and gas production costs had jeopardized the profitability of its programmes.

\(^{123}\) \textit{The Times}, 23 March 1983. Poor results in commodity plastics appears to be the bane of the company. In its 1981 Annual Report, the company had declared, "A reduction of capacities for commodity plastics is indispensable to recovery, since demand is not expected to catch up with existing capacities in the foreseeable future. Initially, we have, therefore, reduced our commodity low-density polyethylene capacities. Whether or not, other companies follow our example, we intend to pursue medium-term a further decrease of capacities for commodity grades in keeping with the needs of our integrated production and to concentrate, in addition, on the manufacture of products, whose success does not depend solely on energy and feedstock costs, but also their special properties." Chairman's letter to stockholders, \textit{BASF Annual Report} (Lubwigshafen, 1981), p. 1.
BASF however had taken steps to diversify into know-how intensive businesses. They include a stake in fine chemicals through: (i) The acquisition of the vitamin operations of Grindsted Products A/S, a Danish company, as of 1 January 1982; (ii) co-operation with the University of Heidelberg by providing financial support for its basic research in molecular biology which is expected to have synergistic effects.124 Despite such diversification, BASF has remained steadfast in its plans to close 30 per cent of its plant producing lower-density polyethylene (ldpe) and is toying

124 BASF Annual Report, 1981, p. 1. BASF's scheme at Heidelberg University was to the tune of DM 1 M. per year over a span of five years. Although, rapid advances have been made in the field of genetic engineering (of commercial significance) applicable to veterinary and pharmaceutical sectors, these breakthroughs have been zealously guarded by the US and Switzerland, and according to the authoritative European chemical News, "BASF is worried that West Germany's drug, chemical and nutrition industries could be rapidly left behind in the race to develop bio-technology". Another aim of BASF's Heidelberg project was to give an opportunity to young, highly gifted scientists to carry out basic genetic engineering research and also to gear the centre to provide training facilities to young workers in recombinant DNA techniques. It is significant that the company currently has several in-house research groups, studying the potential of using micro-organisms and enzyme systems for the production of various fine chemicals. For details see, European Chemical News, vol. 38, no. 1018, 8 February 1982, p. 22; and The Economist, vol. 283, no. 7237, 15 May 1982, p. 75.
with the idea of replacing some of the equipment with plant that produce linear LDPE utilizing less energy (by then its productive potential would have halved since 1980). In addition to its planned cuts in LDPE capacity, BASF has also announced its plans of closing its small polystyrene plant in Ludwigshafen. Lately, BASF has realized that like Hoechst, it should also shift to specialities if it has to maintain its economic viability. This explains its unusual interest in cultivating the agro-chemicals sector in developing countries like India. Among the current projects in operation in India are: (i) Rs. 4 crore BASF integrated agro-chemical plant near Bombay. Of the total cost, the foreign exchange component was negligible, although plant and machinery accounted for Rs. 3.50 crores. This Indian branch of BASF was expected to achieve a net sales of Rs. 22 crores during the year ending 31 December 1982 with a capital expenditure of Rs. 8 crores. (ii) New Rs. 7 crore factory at Bokaro in Bihar for the manufacture of leather auxiliaries and dyestuffs which would be ready for production by the end of 1983. In India, the most lucrative market for BASF has been in the plant protection chemicals sector which has received the patronage of the Indian farming community. BASF India began formulating two sophisticated pesticides, Bavistin and Basalin, and also a plant regulator Lihocin in 1976. It started the manufacture of Bavistin and
Basalin from basic raw materials and also placed in the market another systematic fungicide, Calixin in 1979. All the four plant protection chemicals were well received and were instrumental in inducing the company to increase its turnover from Rs. 19 crores in 1981 to Rs. 22 crores in 1982, a growth rate of 15 per cent despite adverse market conditions and prolonged textile strike in Bombay. \(^{125}\)

Among the German chemical companies, Hoechst appears to have retained its composure, at a time when most European chemical companies are suffering heavy losses in their fibre operations, and sharply reducing their surplus capacity. Hoechst's fibre division achieved a 32 per cent increase in sales (1982 figure) which is no mean achievement, for structural problems still persist in West European fibre industry, especially in the acrylic fibre sector. Hoechst's fibres division could remain immune from such problems because of the "contribution of the new spun bond fibre Trevira, while another new product, the anti-biotic claforan, helped the pharmaceutical division record a sales growth of 21 per cent. The gains in some areas have been partially offset by the heavy losses sustained by the plastics business worldwide: this amounted to more than DM 200 million

\(^{125}\) Financial Express, 15 December 1982. The licensed capacity of the four plant protection chemicals were as follows: Bavistin: 135 tonnes; Basalin: 200 tonnes; Calixin: 50 tonnes; Lihocin: 31 tonnes.
consumption of plastics in Europe which declined in 1980, fell by another 10 per cent in 1982 and so further worsened the chronic overcapacity in European industry". 126

According to Professor Rolf Sommet of Hoechst, the fault squarely lies with backwards integrated producers who attempt "to lessen the pressure on their oil processing capacities, which are not fully employed, by pushing their production downstream. These companies have been trying to run their plastics plant at full capacity, resulting in a wholly unsatisfactory price situation". 127 Overall sales of the Hoechst group rose by 15.1 per cent to DM 34,435 million while the growth of business in real terms amounted to about 6 per cent. Profit before tax was DM 1168 million around 352 million less than 1980, and equivalent to a fall of 23 per cent. Sales of the parent company Hoechst AG also dropped by about 21 per cent to DM 718 million.

Hoechst, which happens to be West Germany's biggest chemical company reckons "it must rely heavily on specialities to lift profits. Pharmaceuticals now account for 17 per cent of the company's sales, the biggest single operation in the group." Hoechst's expenditure in research and development

is also mounting: it spent DM 645 million ($283 million), half of its research budget on R and D in drug in 1982.

Disillusioned with the stagnation pervading the European chemicals market, Hoechst is making determined efforts to enter the US chemicals market by increasing its share from a current 10 per cent up to 15 per cent. It wants to pump $750 million into fixed assets at its US subsidiary American Hoechst over the five year period with the bulk of the outlays ($120 million a year) to be utilized for expansions and new projects and the remainder on replacements and modernizations. Another $750 million would be spent on plant acquisitions, expected to contribute half of American Hoechst's future sales growth.128

Hoechst's Quest for Third World Markets

While trying to make its presence felt in the American chemicals market, it has also tried to consolidate its position in the Middle East through Uhde, its wholly owned subsidiary, which has specialized in building industrial plants. Among the new ventures taken up by Uhde are included (i) modernization of a fertilizer complex at Aswan, which it built in 1955; (ii) completion...

of test runs at the Maroc, Phosphate II complex in Morocco and in Libya; (iii) construction of the methanol and urea plant at Marsa El Brega, and (iv) consultancy services for a petroleum coke plant at Zuwara. From December 1981 onwards Uhde has been providing management expertise for plant design and turn-key installation for a calcium carbide plant near Riyadh ($ 25.4 million) and it is expected to play a crucial role in the expansion of the petrochemical and chemical industries in the Middle East. However, in this process it must keep in view the future direction of Middle East markets, for although the dominant raw materials in Arab countries are still crude oil and natural gas other raw materials like phosphate rock, salts, ores may gain significance in the future.

Uhde's activities in the Middle East are multifarious. They include (i) pharmaceuticals packaging plant in Ras El Khaimah, (ii) working on drawings for an ammonia tank farm in Kuwait, (iii) acting as a consultant to Bahrain's Gulf Petro-chemical Industries Company (GPIC) on a turnkey ammonia and methanol complex being constructed by Snamprogetti of Italy. 129

While Hoechst had a foothold in the Middle East way back in 1955, its foray into the Latin American chemicals market has been a comparatively new development. Hoechst is taking a $16 million stake in the $110 million Brazilian project (Polisul Petroquimica Project) for the production of 60,000 ton/year of low density polyethylene at Triunfo and the German banks are increasingly playing a crucial role in helping clinch such deals. For example, in 1979 we find that a $49.5 million loan to Thailand provided by the West German state-owned bank Kreditanstalt Fur Wiederaufbau was instrumental in Uhde's getting a contract for the 74,000 tonne plant. 130

Although Hoechst has taken the precaution of minimizing its risk factor as evident from spreading its net encompassing as diverse markets as United States, the Middle East or Latin America, it has not succeeded in escaping the effects of recession. According to the latest data available, the parent company pre-tax earnings fell 679 million Deutsche marks ($283 million) forcing it to announce a dividend cut to 5.50 DM from the 7 DM paid on 1981 results. Its earnings have been hit by the world recession, the high level of corporate failures, payments problems in many developing countries and world wide

political uncertainties. 131 Hoechst's earnings reflect a 2.7 per cent increase in labour costs and an increase in energy costs, although raw materials costs were modestly lower, and it has admitted that subsidiaries operating in the commodity plastics and petrochemicals proved a considerable drain on earnings.

Probably this would partly explain why Hoechst has shed the traditional insularity of the European chemical companies and is willing to take the assistance of the European Commission in rationalization of this important industry. Hoechst strongly feels that European plastics industry should appeal to European Economic Community for permission to discuss plans to reduce over capacity in standard plastics, knowing it fully well that the industry needs exemption from anti-cartel rules to hold such talks. As a part of the rationalization measures Hoechst plans to scrap a polyethylene plant in Frankfurt and a polystyrol plant in the Netherlands, eliminating capacity of 110,000 metric tons a year. 132

Bayer from the very beginning has relied on speciality chemicals. Through two capital increases during 1980-82

131 International Herald Tribune, 11 March 1983.
132 Ibid., 4 May 1982.
it has doubled its shareholding in Agfa to 100 per cent. Bayer has however remained wary of vertical integration. While Hoechst and BASF are still not sure about the best strategy to be adopted for cutting costs on price-sensitive bulk chemicals, Bayer had the foresight to hive off most of its bulk chemical operations. Bayer's remaining bulk chemical operations are managed by Erdolchemie, a 50/50 joint venture with British Petroleum. This helps Bayer to concentrate on high-profit margin speciality chemicals and plastics, 25 per cent of the bulk chemical raw materials being supplied by Erdolchemie. Even then Bayer has not succeeded in escaping the impact of rising costs. In 1981, its energy costs rose 50 per cent and its feedstock costs 70 per cent. The impact of cost increases is cushioned by the profit margins on speciality chemicals division.

133 Agfa ranks first in worldwide sales of industrial graphic equipment which caters to a $900 million a year market, and it was the first in Europe for the sales of X-ray materials such as films for use in the medical, space and construction fields. Bayer's taking over of Agfa assumes importance for Agfa has a tiny but technologically important share in Siberian pipeline. Its structurix - DR - dryer and films will be used for X-ray detection of imperfections in the Siberian pipeline. For details see, International Herald Tribune, 5 July 1982. Also see, The Economist, vol. 283, no. 7240, 5-11 June 1982, p. 89.
German Chemical Industry: A Critical Appraisal

In Germany inflation and booming exports had combined to enhance 1981 sales by about 9 per cent. But mounting labour costs and steep raw material prices pared profit margins throughout the industry to 1.8 per cent from 2.4 per cent in 1980. Production increases were confined to a relatively few sectors like drugs, farm products and specialities. Hoechst, BASF and Bayer were at the top in the world chemical ranking until DU Pont surpassed them earlier in 1982 after acquiring Conoco. But in Europe size has no correlation with dominance. In an economy roughly comparable to that of United States, Europe has 23 producers of ethylene, while the United States has six. The problem of over-capacity has become acute since 1980, when Europe had inadvertently slipped into recession. As a result there has been a two-thirds use of capacity; compared with almost 90 per cent a decade ago. There is little likelihood of excess capacity getting reabsorbed even if overseas plants open.

Of the three major companies, only BASF has chosen backward integration, an involvement in the energy search to offset future competition through its Winter Shall.

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134 Winter Shall holds 18.5 per cent of Deminex, a West German oil exploration company.
subsidiary. BASF is bargaining for a share in the natural gas reserves off Qatar, which may have the world's largest deposit. We find that West German chemical companies are increasingly going in for more sophisticated chemical products that they hope to be more recession resistant. As a consequence, we find pharmaceuticals account for 15 per cent of Bayer's world sales up from 3 per cent a decade ago.

But even then there are constraints on diversification for as John Togliabue has rightly observed:

> the real drive to reshape the industry will go beyond such diversification into a re-structuring of Europe's ability to manufacture speciality chemical products, such as the highly refined plastics used increasingly in the auto industry or the fibre reinforced plastics expected to find more use in aircraft making... the chief obstacles to such plans are potential nervousness among Common Market leaders that the reshuffling cost cost jobs and the limits set by the industry's liquidity haemorrhage, as the recession pares profits. 135

It is significant that major German chemical producers in March 1982 had appealed to European Parliament not to erect barriers to plant closures for fear of increased unemployment arguing that only "urgent and energetic measures to reduce

135 John Togliabue, "West German chemical giants face urgent need to reshape industry", International Herald Tribune, 26 April 1982.
capacity could assure the industry's long-term health."

The West German chemical industry's latest setback owes to price freezes in countries like France and adverse foreign exchange rate changes that made oil imports more expensive and exports to Europe less competitive. The other factors which are affecting their sales and profit are balance of payments deficits in Latin American countries, such as Brazil, Argentina and Mexico, hard currency shortages in the Eastern Bloc and shrinking oil revenues in OPEC. This was reflected in decline of sales throughout the industry by 5 per cent in the first 10 months of 1982 and shrinking of jobs by 2.3 per cent in the first eight months of 1982 to 535,000. However what was more ominous is the fall in capacity whose proportion has fallen steadily and is now at 65 to 70 per cent after running at 70 to 75 per cent in the second quarter of 1982.

The outcome is not difficult to gauge. With profits declining and companies reluctant to resort to borrowings at high rates, investment plans are being pruned which would lead to slower growth in the 1980s. Projects

would be smaller, no giant investments would be entertained, and we might see the rise of smaller but more integrated chemical firms like Schering which have recently made its niche in specialities like agrochemical firms like FBG which are research-intensive. 137

Restructuring in Italian Chemical Industry

In contrast to French, British and German chemical industry, the Italian chemical industry is subjected to much more direct government intervention. Under government insistence, the Italian State energy corporation ENI has signed an outline agreement for ENI and its subsidiary Enoxy to take over Montedison's primary chemicals operation. 138

137 Boots and Fisons have decided to sell FBC, their joint agro-chemical company to Schering, the West German chemical and pharmaceutical company for £ 120 million two years after it was set up. Although profitability had increased considerably since FBC was set up in July 1980, margins and returns on capital had been disappointing. Both companies were faced with huge cash investment in FCB for research and development and also there was a need for foreign acquisition. This bleak financial situation of the company prompted Schering to step in and acquire it. For details see, Jonathan Clare, "Boots and Fisons Sell Agrichemical Venture to Schering for £ 120 m.", The Times, 19 July 1983.

138 ENI and Enoxy would pay Montedison about 420 billion Lire ($ 290 million) to take over operation of Montedison's ethylene, polyethylene, PVC, Synthetic rubber and resin production capacity. For details see, International Herald Tribune, 2 November 1982.
Montedison had earlier also succeeded in reaching an agreement with Mediobanca, the powerful state-run merchant bank on a scheme to inject $250 million into its deficit ridden fibres subsidiary Montefibre, via a capital restructuring operation to be handled by a consortium of (creditor) banks. While trying to bail out Montedison, the Italian government had approved separate plans for a special $200 million funding for ENI, the State energy corporation, to enable its loss making chemical subsidiary Anic to reorganize Ottana, the polyester and acrylic complex in Central Sardinia, which it owns jointly with Montefibre which loses $75 million a year. According to the new scheme, Montefibre may concentrate on fibres largely from its ultra-modern plant at Accera near Naples and Anic will concentrate on acrylic fibres and Snia Viscosa may specialize on polyamids and cellulose.139

Broadly the plan provides for Enoxy to become the sole Italian producer of low density polyethylene by acquiring the Brindisi units of Montedison. While the latter would quit the idpe sector, the government had been exerting pressure on ENI through Enoxy to take over the ailing Montedison complex at Brindisi and in order to smoothen the

financial deals it did not hesitate to influence the state policy making body CIPI. Although cornered, Montedison is eager to ensure the company's dominant position in ethylene sector, thus provoking its rival Enoxy to go ahead with rebuilding of the 400,000 tonne/year Cagliari cracker and it is expected that by 1985-86, Italy would have a total ethylene capacity of 2 million tonne/year. However, demand is unlikely to exceed 1.5 million tonne/year by that date. So if the Italian government reconfirms ENI and Enoxy's plan for ethylene production Montedison could be forced to drastically prune its own operations (which might involve extensive lay-offs at troubled Brindisi complex).

However as a result of this trade off, both would remain substantial manufacturers of VCM and PVC, while Montedison will be the dominant producer of high-density polyethylene as well as polypropylene and it is expected to take over Enexy's ldpe plant at Gela in Sicily. However Montedison will suffer from a slight disadvantage for the plan does not provide for the reconstruction of the ethylene

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140 For details see, European Chemical News, vol. 38, no. 1018, 8 February 1982, p. 5.

plant at Brindisi (with Montedison having an 80 per cent share and ENI the remaining 20 per cent). Enoxy in contrast would be in an advantageous position for it would be the sole producer of ABS resins and also synthetic rubber. It has also been cautious enough to build a 60,000 tonne/year ethylene oxide plant to compensate for the closure of units at Ferrara, Brindisi, Priolo and Gela. 142

**Rationalization in Italian Chemical Industry: An Appraisal**

The rationalization measures adopted in Italian chemical industry would effect the following changes:

1. The transfer of primary petrochemicals capacity from Montedison to ENI's subsidiary Enoxy Chimica would create a combination controlling 15 per cent of the European market in low density polyethylene and 10 per cent of the market in low-density polyethylene.

2. The agreement would leave a slimmed down Montedison to concentrate its efforts in the more profitable fine chemicals and drug industries. The deal should provide a major boost to Montedison which lost a record 598 billion lire in 1981, largely reflecting the impact of

high interest rates on its bank debt of nearly 2 billion lire; cash from the transfer would cut the group's debt burden while freeing it from costly plant closures. 143

However the Italian government's pressure on ENI to conform to its rationalization plan was dictated by social rather than rational considerations. ENI reluctantly has agreed to the takeover as a way of saving jobs in depressed regions of Italy including Sicily and the South, where many of the plants were built in the past two decades with government grants to combat unemployment. 144 ENI has also been unhappy because many of the deals which it has signed under government pressure has been dictated by political reasons. This was evident in the recent signing of a 25 year gas

143 International Herald Tribune, 23 December 1982. The deal came after ENI announced the collapse of a year-old $ 525 million petrochemicals joint venture with Los Angeles - based Occidental Petroleum, ENI would pay Occidental $ 180 million for its share in the Enoxy Chimica joint venture, which owns about 60 petrochemical plants in Italy, for Occidental had refused to be drawn into the Montedison transaction.

contract by SNAM, the state natural gas company with Algeria in which it will be paying 12 per cent above the market price for a quantity of gas equal to about one-third of Italy's estimated demand.

The debate over 'restructuring' in Italian chemical sector would continue to be dictated by such factors as over-production, labour problems and politics which would underlie every major investment decision. According to Robert Wazeka:

The re-industrialization... poses many of the same questions that other Western companies and governments are trying to answer in attempts to revitalize such 'mature' sectors as steel, chemicals, automobiles, ship-building and textiles with one important difference... because ENI (along with IRI, Instituto per Ricostruzione industriale, which owns Finsider) are Italian state companies with a combined 1982 turnover of about $60 billion or 20 per cent of Italy's gross national product, the debate also touches on the most problematic areas of current Italian political life: a series of complex, interconnected scandals; political parties that meddle into personal and management decisions; the bitter battle between Christian Democrats and the Socialists within the four party coalition; a slow moving parliamentary system and an inability to reach a consensus.

Crisis in Italian chemical industry therefore should be linked to the general crisis affecting the Italian economic structure. This owed partly to the slow reaction of the market to the intensity of the crisis and the rate of adjustment of the competing economies, and as Guido Carli
has added a rider: "spontaneous adjustment does not generate deep changes in the sector composition of industrial output and in the relations among sectors, as observed in other countries, like Japan".\(^{145}\) Italian productivity has also been affected by institutional factors associated with wage bargaining which has become an autonomous force in the crisis, and this has conflicted with the need for the competitiveness of Italian products in domestic and export markets. Productivity performance of medium and small firms have been better than larger ones like ENI for small firms are imbued with elasticity as well as advanced technology. But this was an alibi for private and public decision-makers not to intervene in the medium and long term problems of the productive structure thus adversely affecting growth.

Crisis in European Chemical Industry and Role of the European Commission

In European petrochemical industry, recession has

\(^{145}\) Guido Carli, "The Italian Crisis", in Ralf Dahrendorf, ed., *Europe's Economy in Crisis* (London, 1982), pp. 101-15. Some critics feel that the crisis has also been aggravated because of Italy's failure to redesign its export pattern to achieve more advanced positions within the international division of labour and to strive for new and even more intensified economic and commercial relations with underdeveloped and developing nations." For details see, Interview by Eric Hobsbawm with Georgio Napolitano, *The Italian Road to Socialism* (Westport, 1977), p. 57.
brought about a loss of $5 billion over 1980-82 period. Capacity is running at 40 per cent above the level of demand (which is increasing upwards by a mere 2 per cent a year). And competition is bound to intensify, if Europe's petrochemical firms fail to win the protectionism they want from Saudi Arabia and other OPEC countries who are exploiting their cheap feedstocks to move downstream into chemical products. Unlike cars and steel and textiles, the industry is not a large employer of labour. On the EEC Commission's reckoning, balancing petrochemical supply with demand need involve the loss of only 4,000 jobs directly and another 6,000 jobs indirectly.

Crisis in European petrochemical industry has generated less social problems in comparison with steel and textiles and this has emboldened countries like UK to oppose EEC involvement in a 'crisis cartel' as an answer to the problems of 'overcapacity' for it feels that costs must be cut where possible and companies should concentrate as activities they do best and preferably where they enjoy a comparative advantage. Involvement by the EEC would result in companies becoming embroiled in arguments over the status of existing capacity and the

criteria for assessing its future potential. And rather than speeding up restructuring, it could well slow it down. 147

UK feels that European rules of competition should be flexible enough to be interpreted in such a way that the companies can tackle the problems together and where appropriate take action. Another important requirement, it feels, is that, decisions by companies are not distorted either by pressures unrelated to basic economic costs, or by the fact that in some areas, industry is in predominantly public rather than private hands.

The European Commission is of the view that the structural problems of the petro-chemical industry are a crisis sui generis, and since the years of the energy crisis it has focussed its attention on the structural problems, both external and internal. According to a report prepared by the DG III of the EEC Commission, the three external structural problems are:

(i) East-West Chemical Trade and Pricing Policies of Eastern European Countries

First with respect to compensation product but which later was discovered to have much greater implications not 147

Chemistry and Industry (London), no. 15, 7 August 1982, p. 498. Shell's chemical plants which will ultimately utilize ethylene feedstock derived from the North Sea, provides an example of where a comparative advantage could be exploited to the full.
only with respect to product line basis, but also beyond the
fringe of the Eastern European countries, namely with
Yugoslavia and particularly China.

Growth of market shares for imports from Eastern
Europe (in respect of Acrilonitrile, Ammonia, Benzene
Polyvinyl Chloride (PVC) and Low Density Polyethylene
(ldpe) between 1976 and 1980 far exceeded from outside
the European community. Compensation or buy back was not
so much a problem of volume but rather of pricing. But as
pricing clauses of compensation agreements pertain to secret
macro-economic data, the European Commission has adopted a
novel approach to survey imports from East Europe by
refraining from making any distinction between compensation
and non-compensation trade, but by comparing:

(i) market shares of imports from East Europe;
(ii) market shares of corresponding extra-EC imports
(from outside the domain of the EEC); and
(iii) unit price ratios of imports from East-Europe and of
intra-EC imports (unit price of the former divided by
the unit price of the latter).

148 Findings of a report prepared by Directorate-General
III of Commission of the European Communities (CSC)
as the impact of buy-back agreements on the EEC petro-
chemical markets. Quoted in European Chemical News,
After analysing the unit price ratios for imports from East Europe, the Commission has observed "for all thermoplastics, Acrylonitrile, Titanium oxide, caustic soda, ammonia and soda ash, a variable degree of underpricing seems to be practised taking duty into account". Of all the products examined by DG III of the European Commission "urea holds the highest market share for both extra-EC imports and for East Europe imports into the EEC". However the report clarifies that "this is one product that has always on average been priced correctly in unit price terms". Compensation agreements for this product are a monopoly of two EEC-based chemical firms, Montedison and Klockner (see Table XV and Table XVI). PVC shows a unit price level for moulding PVC (0.64 in 1980) that is lower than liquid imports (0.74 in 1980) thus inviting an antidumping complaint. After CEFIC claimed that the imports were undercutting EEC prices by about 26 per cent, an action was initiated in late 1981 by the European Commission against

149 Ibid.
### TABLE XV

PRODUCT AREAS IN WHICH EAST EUROPE HOLDS MORE THAN 5 PER CENT SHARE OF THE EEC MARKET

<table>
<thead>
<tr>
<th>Product</th>
<th>EEC import volume market share</th>
<th>Growth rates of market share</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>from EE</td>
<td>from outside EEC</td>
<td>(per cent)</td>
<td>(per cent)</td>
</tr>
<tr>
<td>Urea</td>
<td>26.03</td>
<td>53.35</td>
<td>157</td>
<td>227</td>
</tr>
<tr>
<td>Ammonia</td>
<td>18.42</td>
<td>37.12</td>
<td>565</td>
<td>221</td>
</tr>
<tr>
<td>Soda ash</td>
<td>15.23</td>
<td>22.43</td>
<td>127</td>
<td>147</td>
</tr>
<tr>
<td>Acrylonitrile</td>
<td>13.94</td>
<td>38.82</td>
<td>835</td>
<td>579</td>
</tr>
<tr>
<td>Benzene</td>
<td>10.35</td>
<td>26.61</td>
<td>201</td>
<td>137</td>
</tr>
<tr>
<td>PVC</td>
<td>9.01</td>
<td>18.51</td>
<td>429</td>
<td>200</td>
</tr>
<tr>
<td>IdPE</td>
<td>7.81</td>
<td>34.49</td>
<td>335</td>
<td>174</td>
</tr>
</tbody>
</table>

### TABLE XVI

**EAST EUROPEAN MARKET SHARES OF EEC CONSUMPTION**

<table>
<thead>
<tr>
<th>Product</th>
<th>EEC consumption</th>
<th>EEC import from EE per cent</th>
<th>Volume market shares from outside EEC per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene</td>
<td>1906</td>
<td>3.23</td>
<td>8.81</td>
</tr>
<tr>
<td>Orthoxylene</td>
<td>380</td>
<td>0.56</td>
<td>34.70</td>
</tr>
<tr>
<td>Paraxylene</td>
<td>340</td>
<td>4.63</td>
<td>53.96</td>
</tr>
<tr>
<td>VCM</td>
<td>1110</td>
<td>2.23</td>
<td>2.84</td>
</tr>
<tr>
<td>Methanol</td>
<td>1347</td>
<td>3.51</td>
<td>30.01</td>
</tr>
<tr>
<td>Ethylene Glycol</td>
<td>270</td>
<td>0.39</td>
<td>6.15</td>
</tr>
<tr>
<td>Maleic Anhydride</td>
<td>30</td>
<td>-</td>
<td>93.10</td>
</tr>
<tr>
<td>Pthalic Anhydride</td>
<td>194</td>
<td>0.10</td>
<td>3.05</td>
</tr>
<tr>
<td>DMT</td>
<td>1338</td>
<td>-</td>
<td>0.21</td>
</tr>
<tr>
<td>Caprolactum</td>
<td>165</td>
<td>0.27</td>
<td>2.59</td>
</tr>
<tr>
<td>hdPE</td>
<td>395</td>
<td>3.87</td>
<td>33.30</td>
</tr>
<tr>
<td>Polypropylene</td>
<td>265</td>
<td>0.73</td>
<td>31.93</td>
</tr>
<tr>
<td>Polystyrene</td>
<td>480</td>
<td>0.77</td>
<td>7.18</td>
</tr>
<tr>
<td>Caustic soda</td>
<td>2417</td>
<td>3.47</td>
<td>6.92</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>224</td>
<td>0.77</td>
<td>7.34</td>
</tr>
</tbody>
</table>

East European imports of PVC.  

The EEC report also analyses the strange pricing history of Ammonia. The East European countries had increased their market share of Ammonia (1977-79 period) from 1.1 per cent to 20 per cent, a factor of nearly 20. But it brought about an increase in revenue by a factor of only .16 with some 30 per cent underpricing. As nearly all of this ammonia is tied into compensation agreements.

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150 The East European countries against whom proceedings were initiated by the EEC were Czechoslovakia, East Germany, Hungary and Romania and it was done under pressure from CEFIC and the Association of Plastics manufactures in Europe (APME). With regard to injury to community procedures, CEFIC's statistics show that imports rose from 81,000 tonnes in 1979 to 119,000 tonnes in 1980. Furthermore, the share of the market captured by the producing countries in question increased from 3.2 per cent in 1979 to 5 per cent in 1980 and 6.5 per cent by 1981. Price undercutting indulged in by the East Europeans of up to 26 per cent has brought about a decline in the EEC based PVC industry over the past two and a half years. Since subsequent price depression did not allow EEC producers to cover rising costs. According to the authoritative, European Chemical News; "The question of PVC dumping by East Bloc countries has come to be regarded as a structural problem that is part of a wider situation of long-term, low-price selling of thermoplastics by COMECON." The French were the first to lodge a strong protest against such dumping and had the support of other producers who had seen PVC sales fall by 8 per cent in 1980 and a drastic 18 per cent during 1981. For details see, European Chemical News, vol. 37, no. 1013, 28 December-4 January 1981/82, p. 10.
(notably with Italian firms Montedison and Snamprogetti) much of this spectacular unit price decrease in 1979 can be attributed to plant product compensation imports. The calculated unit price for ammonia in 1980 was calculated at 0.68 as compared to 0.86 in 1976.\textsuperscript{151}

In its concluding remarks the Commission conceded that imports from East Europe do not call for radical measures although it was necessary to probe more subtly into ammonia and thermoplastics. However pricing policy remains the specific problem of all centrally planned economy countries. But the problems transcend the East European frontiers and involve China and Yugoslavia as well, and extend beyond the line of 22 products surveyed in this report, reflecting a lack of experience and tact in trading on the EEC markets.

(2) \textbf{Distortion of International Competition: Such as price controls in the USA}

Imports subsidies on crude oil in Canada or subsidies have contributed to an increase in petrochemicals exports, as with Brazil. (see Table XVII)

## TABLE XVII

**GROWTH OF EXPORTS OF SELECTED BRAZILIAN CHEMICAL PRODUCTS**

(Tonnes)

<table>
<thead>
<tr>
<th>Product</th>
<th>1975</th>
<th>1979</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl acetate</td>
<td>51</td>
<td>6,470</td>
</tr>
<tr>
<td>Hydrofluoric acid</td>
<td>-</td>
<td>4,000</td>
</tr>
<tr>
<td>Sulphuric acid</td>
<td>90</td>
<td>15,839</td>
</tr>
<tr>
<td>Pthalic Anhydride</td>
<td>-</td>
<td>9,627</td>
</tr>
<tr>
<td>Sodium bichromate</td>
<td>10</td>
<td>6,238</td>
</tr>
<tr>
<td>SBR rubber and latex</td>
<td>1,238</td>
<td>14,299</td>
</tr>
<tr>
<td>Ammonium chloride</td>
<td>100</td>
<td>1,295</td>
</tr>
<tr>
<td>Dichloroethane</td>
<td>-</td>
<td>8,066</td>
</tr>
<tr>
<td>Bimethyl terephthalate (DMT)</td>
<td>-</td>
<td>10,693</td>
</tr>
<tr>
<td>Ethylene glycols</td>
<td>25</td>
<td>20,991</td>
</tr>
<tr>
<td>Monsodium glutamate</td>
<td>-</td>
<td>8,530</td>
</tr>
<tr>
<td>Sodium hydroxide (caustic soda)</td>
<td>2,207</td>
<td>37,953</td>
</tr>
<tr>
<td>Propylene oxide</td>
<td>-</td>
<td>10,163</td>
</tr>
<tr>
<td>Polypropylene</td>
<td>-</td>
<td>7,505</td>
</tr>
<tr>
<td>Polypropylene glycol</td>
<td>4,017</td>
<td>7,753</td>
</tr>
<tr>
<td>Carbon Tetrachloride</td>
<td>-</td>
<td>23,802</td>
</tr>
</tbody>
</table>

(3) Arab Petrochemical Development, whose threat seems to have brought about a blurring of rationality. Arab petrochemical exports however remain modest and its pricing policy seems to be much less aggressive and it is felt that the Euro-Arab dialogue could be utilized to ventilate eventual future problems, and (4) an internal structural problem: overcapacity, which has plagued this sector for the 12 years since 1970.

If we look at the internal structural problem of overcapacity, we find that before 1973, high growth rates in production of petrochemicals pushed capacity expansions, particularly from 1970 onwards to such an extent that name plate capacity utilization rates dropped substantially between 1969 and 1972. (see Table XVIII) This also implies that a substantial part of the over-capacity at the core of the problem was already there when the energy crisis began in 1973-74 (see Table XIX). From 1974 onwards, the trend for capacity development and for demand evolution has diverged. From this it can be inferred that overcapacity has been sustained for many years implying that there has been some cost flexibilities allowing the industry to bear such a burden.
TABLE XVIII

CHANGES IN PERCENTAGE CAPACITY UTILIZATION, 1969-72

<table>
<thead>
<tr>
<th>Product</th>
<th>1969</th>
<th>1972</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene</td>
<td>84</td>
<td>70</td>
<td>-14</td>
</tr>
<tr>
<td>Vinyl Chloride</td>
<td>88</td>
<td>65</td>
<td>-23</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>85</td>
<td>62</td>
<td>-23</td>
</tr>
<tr>
<td>Styrene</td>
<td>87</td>
<td>68</td>
<td>-19</td>
</tr>
<tr>
<td>Polyvinyl Chloride</td>
<td>92</td>
<td>75</td>
<td>-17</td>
</tr>
<tr>
<td>Polystyrene</td>
<td>92</td>
<td>70</td>
<td>-22</td>
</tr>
<tr>
<td>Polypropylene</td>
<td>73</td>
<td>67</td>
<td>-6</td>
</tr>
<tr>
<td>High Density Polyethylene</td>
<td>84</td>
<td>68</td>
<td>-16</td>
</tr>
<tr>
<td>Low Density Polyethylene</td>
<td>82</td>
<td>84</td>
<td>+2</td>
</tr>
</tbody>
</table>

Source: Chemistry and Industry, 4 December 1982, p. 940.
## TABLE XIX

PERCENTAGE OF 1980 OVERCAPACITY ALREADY EXISTING IN 1973-74

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene</td>
<td>45</td>
</tr>
<tr>
<td>Vinyl Chloride Monomer</td>
<td>50</td>
</tr>
<tr>
<td>Ethyl Benzene</td>
<td>55</td>
</tr>
<tr>
<td>Styrene</td>
<td>45</td>
</tr>
<tr>
<td>Polyvinyl Chloride</td>
<td>33</td>
</tr>
<tr>
<td>Polystyrene</td>
<td>71</td>
</tr>
<tr>
<td>Polypropylene</td>
<td>24</td>
</tr>
<tr>
<td>High Density polyethylene</td>
<td>38</td>
</tr>
<tr>
<td>Low density polyethylene</td>
<td>36</td>
</tr>
</tbody>
</table>

Source: Chemistry and Industry, 4 December 1982, p. 940.
With the second energy crisis, and onset of the recession in 1980, we find producers engaged in a ruinous competition. Despite a slightly enhanced naptha price (ca $10/$) prices for thermoplastics dropped from 1980 to 1981 roughly by about:

$230/t for low density polyethylene
$260/t for high density polyethylene
$150/t for polyvinyl chloride
$180/t for polypropylene

By such manoeuvres producers expected to corner market shares and hence contribute to an improvement in production economics of their plant operations. But unfortunately, market sharing strategy coincided with slackening of demand, crude oil and naptha prices followed the downturn of demand and producers could not improve on their prices, thus strangling them in a cost price squeeze.

In 1980 and 1981 there was a fall in production and demand but polypropylene was the sole exception where there is a consistent growth trend unbroken since 1975. Capacity utilization for thermoplastics as a whole dropped to 60 per cent or less, a gain with the singular exception of polypropylene at 67 per cent in 1981. All these technical and economic indicators reflect that the crisis is very much home tailored and that "there should have been more
flexibility and economic responsibility to adjust more vigorously to the facts of the market. 152

The Commission feels that the crisis now affecting the petrochemical sector has not only an economic and social implication but also a legal one and once it was satisfied that the crisis situation was conditioned by certain crisis criteria (such as a widening gap in trends of capacity on the one hand and production demand on the other; competition resulting in destructive market-share fighting etc.) it responded to the appeal made by the major companies to tackle jointly the analysis of the situation and possible solutions of the structural difficulties (orderly reduction of redundant capacities).

According to the Commission the three options which European petrochemical producers can exercise are:

(i) try to find a sectoral consensus and arrive at sectoral industry agreement on orderly reduction of redundant and uncompetitive capacities, an industry agreement which should abide by community boundary conditions (sectoral approach);

(ii) to restore order into the sector through inter-company arrangements (joint ventures, integrations, portfolio transfers) which should in principle conform to community boundary conditions (bilateral approach);

(iii) companies scrap unprofitable capacity on their own looking only into their break even points with no bilateral or sectoral venture (this would not need a requirement to comply with community boundary conditions).153

However the Commission is least interested in assuming any decision making responsibility on behalf of the industry involving orderly reduction of redundant capacities and has reiterated that "it is the companies which have to judge individually when whether such (over capacities) become unbearable economically and it is the companies which have to determine the measures necessary to reduce such over-capacities". However the Commission can assist in restructuring by taking recourse to its competition policy to avoid delay or hindrance by price fixing, quotas, state aids etc. The Commission can also devise an instrument (Article 85 para 3 of the EEC Treaty) to react to radical structural modifications of a sector, provided the following 'boundary'

153 Ibid., p. 940. The European Commission interprets the community boundary conditions as those conditions to be respected when working out an agreement or agreements to reduce structural capacity.
conditions are fulfilled:

(i) The condition that an improvement in productivity could be brought about if the agreement allows the suppression of unprofitable capacity in a co-ordinated manner;

(ii) The consumer (plastics processors) ensures equitable participation in the advantages produced by the agreement (e.g. improved structure of the offer resulting from capacity reduction);

(iii) The agreement is confined to the reduction of capacities and sticks to a time limit;

(iv) There is no elimination in respect of a substantial proportion of the goods concerned.\textsuperscript{154}

While the European Commission is yet to convince all the EEC based chemical producers for the need to come under the EEC sponsored crisis cartel it has started taking measures aimed at humouring the powerful European chemical manufacturers association, the CEFIC. Some of the most important moves made in this direction are:

\textsuperscript{154} Ibid., p. 941.
Continuing cautious approach to US Chemical Trade Problems

This move is explained by the fact that total US exports including clothing has risen from $587 million in 1978 to more than $1 billion in 1980. One of the fastest growing products being polyester yarn (imports of which increased from 6,359 tonnes in 1978 to 15,876 tonnes in 1980). Although US oil price controls have been scrapped, the European Commission is hesitant to declare that crisis in European synthetic fibres industry is far from over for the USA is still continuing with its regulation of natural gas prices, and the EC feels that the energy content of base petrochemicals and synthetic fibres may be more crucial than the cost of feedstocks.

Increase of anti-dumping duty on styrene and VAM

The EEC Commission has increased the level of anti-dumping duty against US imports of both styrene and Vinyl


156 According to latest developments, decontrol of gas shortly followed decontrol of oil, making the European chemical producers competitive with their competitors in the US, and it is expected that the flow of certain products across the Atlantic could be revised in the Europeans' favour. For details see, European Chemical News, vol. 36, no. 985, 8 June 1981, p. 26.
acetate monomer (VAM) as a result of pressures exerted by European producers since October 1980. According to the Commission, the new anti-dumping duty applicable after the existing 6.4 per cent customs duty, payable at EEC frontiers has been applied to cif prices, with exports pegged around 33 cent/pound f.o.b. US Gulf Coast implying a price to US customers of over $960/tonne. It is significant that US Gulf f.o.b. prices were 15.95 per cent below those prevailing in Western Europe during the third quarter 1980, which was equivalent to a 14.8 per cent dumping margin when landed in Europe.

(iii) Dumping Complaints against US imports of Ortho, para-xylene and acrylonitrile

The European Council of European Chemical Manufacturers' Federations have levelled allegations against US companies charging the latter with dumping products on the EEC market at margins of 18.6 per cent for orthoxylene and 13.65 per cent for paraxylene. In the case of orthoxylene, the complaint shows that the US share of the European market for the first six months of 1980, reached 17 per cent, up from 10 per cent in 1979, and 9 per cent in 1977. Import


CEFIC'S DUMPING CASE AGAINST US ACRYLONITRILE SUBMITTED TO THE COMMISSION PRESENTED THE LATTER WITH A TRICKY CASE, FOR A GREAT PROPORTION OF EUROPEAN ACRYLONITRILE ARE EXEMPTED FROM DUTY IF THE PRODUCT IS TO BE UTILIZED IN THE MANUFACTURE OF PRODUCTS DESTINED FOR EXPORT MARKETS. HOWEVER CEFIC'S CAMPAIGN AGAINST US CHEMICAL PRODUCERS DOES NOT ALWAYS GET THE BACKING OF THE EUROPEAN COMMISSION FOR:  


the latter has exempted Celanese, the largest exporter of VAM from the proposed dumping duties. But CEFIC's persistence does pay dividends in the long run; for we find the Commission taking measures to levy duty amounting to as much as 24.6 per cent on all imports of US styrene. The same procedure was repeated in the case of lithium hydroxide, but this time it was following a request from the EEC's sole producer Metallgesellschaft. Here the levy imposed in September 1980 was calculated on the basis of the US domestic market price (the normal price of the product was calculated at $1.66/pound) for it was detected that the normal value of the product had risen by 4.6 per cent since January 1980. The level of current dumping margins was estimated at 5 per cent for the Lithium Corporation of America and 4.4 per cent for the Foote Mineral Corporation.

However, there have been cases where the European Commission has refused to succumb to pressure by CEFIC.

160 US and USSR lithium hydroxide imports into the EEC totalled some 1,503 tonnes (1979) equal to a 66.8 per cent share of the market. For details see, European Chemical News, vol. 35, no. 948, 15 September 1980, p. 16.

161 CEFIC has questioned the validity for granting licenses for inward processing when the European market suffers from surplus capacity. For details see, European Chemical News, vol. 35, no. 956, 10 November 1980, p. 10.
For example, in the anti-dumping case against imports of fluid cracking catalysts from USA, the Commission had made it clear to CEFIC that it was unlikely to impose a duty, although according to CEFIC (which was representing the case of Europe's fluid cracking catalysts) there was an alleged 31-61 per cent dumping margin. It also had alleged that US producers have captured 5 per cent of Europe's free market and the products were being dumped at an average rate of 70 tonnes/month.\textsuperscript{162} US Chemical producers have however reacted sharply to the protectionist measures initiated by CEFIC, and the European Commission, for dumping has been a two-way process. So we find Pfizer Inc. of USA accusing EEC producers of dumping Sorbitol and Sodium gluconate in the US Chemicals market. The International Trade Commission (ITC) has started investigating charges that the sole French producer of Sorbitol, Roquette Freres, a subsidiary of Rhone-Poulenc has sold Sorbitol into the US at prices 29-35 per cent below US prices.\textsuperscript{163} But it is doubtful whether

\textsuperscript{162} The EEC ruling was not expected to include the controversial exemptions of the vinyl acetate case. For details see, \textit{European Chemical News}, vol. 35, no. 960, 8 December 1980, p. 14.

such occasional attempts to bar import of European chemical into the US market, can become a regular feature in US policy. For today US chemical exports face sharp decline as a result of loss of chemical export markets as new plants come on stream in Canada, Mexico and OPEC countries,\(^\text{164}\) which would result in loss of significant raw material cost advantages. US exporters cannot afford to antagonize the EEC for between 1980 and 1985, US net chemical trade is expected to drop to 4.2 billion lb. from 9.44 billion lb.

In future the US chemical companies in Europe will have to approach Europe as a unified market, although sourcing and marketing decisions might be on a non-European basis. However it has to be well integrated in the European economy in both production and marketing. In the basic petro-chemicals area, those US firms that have strong raw material positions will have the best chance of remaining competitive in Europe, although an increasing proportion of raw materials would have to be of North Sea origin. The medium sized US firms without specialization would be

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\(^{164}\) For details see, *Chemical and Engineering News*, 24 May 1982, p. 21. If exports become less of a factor in US production its decline is bound to affect the growth rate of petrochemicals output. It is significant that exports of aromatics derivatives have already declined in 1980 and 1981. Exports of ethylene and propylene have also dropped but compared to aromatics they will hold up until 1985, for they are based on low-cost, natural gas (based) feedstocks.
vulnerable in terms of costs, raw materials, security of supply and declining ability to handle the business cycle.\textsuperscript{165}

Large scale producers like Dow Chemical Europe have already started carrying out changes in keeping with demands of the market environment. It will lay less emphasis on basic petrochemical production but will be engaged more in both up and downstream.\textsuperscript{166} Dow has chosen growth areas like pharmaceuticals,\textsuperscript{167} plastic packing, automobiles, insulation, substitutes for pulp based paper and sophisticated agricultural products.

Unlike other US companies in Europe which are planning to quit, Dow plans to consolidate its position, although in 1981, its operating income was $135 million, which was less than half of 1980, and $80 million could be contributed to corporate profits, which was not much more than a quarter of the 1980 figure. Yet Dow continues to

\begin{itemize}
\item \textsuperscript{165} For details see, European Chemical News, vol. 37, no. 1005, 2 November 1982, p. 18.
\item \textsuperscript{167} As a part of this strategy, Dow has acquired Richardson-Merrell ethical pharmaceuticals business. This acquisition will bring the US majors total pharmaceutical sales to around $800 million annually. The Merrell ethical pharmaceuticals business had annual worldwide sales of around $300 million and made a profit after tax in 1981 of $10 million. For details see, European Chemical News, vol. 35, no. 956, 10 November 1980, p. 4.
\end{itemize}
invest $200-$300 million in new money in Europe plus a European budget approaching $100 million annually. Among all US companies in Europe, Dow has been the most innovative as far as use of feedstocks is concerned, for it has taken steps to modify its crackers to accept either naptha or (liquefied petroleum gas) LPG which is a valuable insurance against rising oil prices and rising naptha prices that go with them. In 1981, by using alternate feedstocks, Dow saved $10-$15 million. Dow has relied on multiple sourcing for securing its feedstock supply: to feed its cracking facilities in Terneuzen, Netherlands and Terragona, Spain, Dow Europe buys naptha from total refinery near Ternenzen and Rotterdam spot market besides relying as long term contracts with Saudi Arabia and Soviet Union.

168 Ibid., p. 25

169 Dow in its bid to have an access to cheap feedstocks, had plans to build a petrochemical complex in Cromarty, in North-East Scotland, for it would have got state-grants as the project was in a development area. However Dow's plans were opposed by European producers who expected tough competition not only in the ethylene market but throughout the range of industrial chemicals and plastics derivatives made from ethylene. It was also feared that Dow might resort to price cutting in pursuit of sales volumes as happened in the 1970s. For details see, The Economist, vol. 275, no. 7128, 19 April 1980, p. 70.
Dow's efficient management of its operations in Europe is reflected in its sales per employee (which is a rough indicator of its efficiency) amounting to $250,000 more than twice the median for the chemical companies on the Fortune 500 list. Dow's farsightedness is also reflected in its upgrading of product mix and the way it has dropped low margin staples like fibres and polyvinyl chloride. To cushion the effect of any adverse conditions which might arise in Europe, Dow has also stepped up its activities in Mid East and Africa where sales have been growing 15 per cent a year.

The most important role that US companies are likely to be playing in Europe in 1990 is in the field of high technology. According to a special European Chemical News Survey, Europe will continue to provide opportunities for those who can translate technology into applications and these opportunities will be largely reserved for companies with unique product profiles, with high technology and high quality products, and with access to avowed feedstocks. US companies are also likely to exploit

170 Robert Ball, "Dow plans to keep growing in Europe" *Fortune* (Los Angeles), vol. 105, no. 8, 19 April 1982, p. 74. Monsanto and Union Carbide have sold off substantial European operations and Tenneco is seeking a buyer for a British subsidiary. They would be followed suit by Gulf which is preparing to close down its plants. The only exception is Dow Chemical, whose sales of $3.5 billion in 1981 accounted for 28 per cent of the parent company's total world wide sales.
growth, potential for specialities such as the automobile industry, the construction industry, in agriculture and in medical pharmaceutical products.

(iv) Threat of Protectionism against US Exports to Europe

Although the US is in a conciliatory mood and is eager to resolve the transatlantic conflict on chemicals, Europe's attitude has hardened because of the 25 per cent price advantage in Europe that domestic energy policies are giving US producers, and unless the US levied some form of

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171 This became evident recently when the US Government ignoring the pressure groups representing domestic chemical industry allowed Belgium's Solvay to enter US linear low density polyethylene market. The company is operating a converted high density polyethylene unit, based on Solvay Catalysts and is selling a range of ILdPE resins for moulding operations. For details see, *European Chemical News*, vol. 38, no. 1017, 1 February 1982, p. 4.

172 An indication of the hardened attitude of the European Commission vis-a-vis United States, was its ruling that duty on US imports of Vinyl acetate monomer should be sharply increased to 14.27 per cent; secondly, more significantly, this time the duty would cover product from the largest US exporter, Celanese, which was earlier so contentiously excluded from the provisional (10.6 per cent) duty levied in November 1980. Although CEFIC has remained silent, but European industry circles consider it to be a significant victory. Even then the final duty falls a long way short of the 19-39 per cent that was first claimed to be the dumping margin. For details see, *European Chemical News*, vol. 36, no. 980, 4 May 1981, p. 15.
export surcharge upon its chemical producers, European countries could adopt protectionist measures against the US. In the recent case involving an increase in the extent of market protection given to vinyl acetate monomer by EEC, the European producers of VAM had prevailed upon the Commission to study the extent of market penetration by US. They expect the provisional anti-dumping levy to act as a deterrent against US imports, contributing to an easing of prices in Europe some 30 per cent since the beginning of 1981.173

In the coming years we may find the European producers getting more hostile towards US imports, for feedstock patterns are markedly different in the US and Western Europe. In Western Europe, naptha remains the key feedstock for both ethylene and propylene manufacture. In the US, ethylene is derived principally from natural gas liquids (composed mainly of ethene and propane). What is more critical for Western Europe is the resultant feedstock cost

173 The European Commission found that the US share of the free (i.e. non-captive) Vinyl acetate market cornered by US imports rose from 9.8 per cent in 1979 to approximately 32.3 per cent in 1980. The total market share of dumped imports rose from 0 to 22.7 per cent for the same period. In volume terms, US imports increased to 55,415 tonnes from 33,894 tonnes in the first nine months of 1980. For details see, European Chemical News, vol. 36, no. 980, 4 May 1981, p. 15.
differences between US and Western Europe. According to a European Chemical News special report "For an operating European naptha based steam cracker, the proportion of feedstock and energy costs in the total production costs has risen from 46 per cent in 1973 to 73 per cent in 1977." This explains why European ethylene producers are keen on passing on increased feedstock costs in their product prices. In contrast, US petrochemical producers are only partly dependent on naptha which is lower priced than in Europe due to controlled oil prices. Calculations made by CEFIC indicate that West European producers had a $50/tonne disadvantage for naptha $100/tonne for ethane/propane, compared with the US (June 1980 figure). 174 (see Table XX)

**TABLE XX (i)**

WESTERN EUROPE'S FEEDSTOCK COST ADVANTAGE IN JUNE 1980

<table>
<thead>
<tr>
<th></th>
<th>$/tonne</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude</td>
<td>45</td>
</tr>
<tr>
<td>Naptha</td>
<td>50</td>
</tr>
<tr>
<td>Gas oil</td>
<td>50</td>
</tr>
<tr>
<td>Ethane</td>
<td>ca90</td>
</tr>
<tr>
<td>Propane</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: CEFIC

### TABLE XX (ii)

**ESTIMATED EFFECT OF US PRICE REGULATION**

(First quarter 1980, $/tonne)

<table>
<thead>
<tr>
<th></th>
<th>Price in US</th>
<th>Estimated effect of US price regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene</td>
<td>520</td>
<td>115-129</td>
</tr>
<tr>
<td>Propylene</td>
<td>450</td>
<td>25-41</td>
</tr>
<tr>
<td>Benzene</td>
<td>499</td>
<td>62-73</td>
</tr>
</tbody>
</table>

Source: CEFIC, quoted in *European Chemical News* 3 November 1980.

Although the EEC based chemical producers have called for a US macro-economic solution to the transatlantic conflict in the form of export surcharges on US exports of chemicals, at the port of exit,\(^{175}\) which would adjust for the energy/feedstock advantage, it is doubtful whether it could be translated into practice. So the European producers have resigned themselves to undercutting American prices even

\(^{175}\) Ibid., p. 20.
when it means taking a loss. 176

The West Europeans especially the Germans are reluctant to foment a potential trade war with US on the question of chemicals, and have kept the doors still open for discussion, for import duties or import restrictions would only invite retaliation. European chemical industry would be vulnerable on that score as it exports an average of 43 per cent of its production.

West European Chemical Industry: A Critical Appraisal

In the West, Chemicals was the fastest growing industrial sector from the late 1950s until the late 1960s. The rate of output in constant prices was almost double that of total manufacturing. The development of this industry had a multiplier effect on consumption pattern of both industry and households, an investment, on research and development, and trade, although its impact on employment was less pronounced. The structural change that this growth pattern had brought about involved a substantial reallocation of resources, especially investment,

176 European Chemical News, vol. 35, no. 955, 3 November 1980, p. 26. It is significant that Western Europe is the world's largest chemical bloc with 33 per cent (26.8 per cent for the EEC) of world chemical sales in 1979 against 22 per cent each for the USA and the Eastern Bloc and 10.5 per cent for Japan.
capital and R and D, which was a *sine qua non* for this industry's development phase.\footnote{177}{Data available for UK and West Germany shows that for 1959-70, cumulative investment in chemicals was 19 to 20 per cent of the total for manufacturing, and it is quite probable that US had recorded an even larger share in the 1960s. The original data were at constant prices and included petroleum and coal products in chemicals. See, ECE, *Structure and Change in European Industry*, quoted in R. Ballance, et al., *The International Economy and Industrial Development, Trade and Investment in the Third World* (Brighton, 1982), p. 183.}

The data provided by OECD clearly shows that in R and D, chemical industry could attract 20 per cent of the qualified scientists engaged in the manufacturing sector, on this scale electronics only could have surpassed chemicals.\footnote{178}{The distribution would be similar if based on an expenditures, rather than number of researchers. See, OECD, *A Study of Resources devoted to R and D in OECD Member countries in 1963/1964*, Statistical Tables and Notes, Paris 1968 and International Survey of Resources devoted to R and D in 1967 by OECD Member countries, Statistical Tables and Notes, vol. 1, Paris, 1970, quoted in Ballance, p. 183.} However, petrochemicals got the lion's share of the R and D effort and capital investment in the developed countries. This ultimately brought about basic changes which would help to distinguish the chemical industry of the 1960s from that of the 1970s. Between 1950 and 1974, world production of petrochemicals, had increased from 3 million...
tonnes to 71 million tonnes. According to data available
till 1982 these products would claim 60 per cent of the
total production of chemicals. In reality, their influence
on industry was much more pervasive for they not only
served the needs of a wide variety of synthetic products
but also were critical inputs in combination with
inorganic chemicals. 179

Most western governments were instrumental in bringing about a transition of chemicals from a 'supplier
role' to that of a 'product' phase, where petrochemicals
played a dominating role. According to R. Ballance "The
nature and composition of resource flows (capital investment
and R and D) changed as the industry's product phase took
shape. Data for the period 1970-75 indicate that nominal
investment in the West remained stable at about 11-12
per cent of total investment in manufacturing. One
consequence was that real investment (at constant prices)
fell in many countries for most of this period. 180

179 For example polyvinyl chloride is derived from
inorganic chloride (60 per cent) and ethylene (40
per cent). Also see, U. Colombo, "A viewpoint on
innovation and the chemical Industry", Research
Policy (Amsterdam), vol. 9, no. 3, July 1980, pp. 204-31.

180 In the socialist countries levels of investment were
generally higher than in the West, although a down-
ward trend was also noticed. However, by all accounts,
the proportion of investment in manufacturing devoted
to chemicals in developed countries was definitely
below that attained in the 1960s. For details see,
ECE, Market Trends for Chemical Products, 1970-1975
TABLE XXI

EVER SINCE OIL PRICES STARTED RISING IN EARLY 1979, BECAUSE OF DOUBLING OF FEEDSTOCK COSTS, IMPACT ON SALES AND MARGINS OF THE TOP 15 CHEMICAL COMPANIES IN 1979

<table>
<thead>
<tr>
<th></th>
<th>Sales ($ billion)</th>
<th>Change (percentage)</th>
<th>Profit (in US $)(percentage)</th>
<th>Change (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASF</td>
<td>15.02</td>
<td>+20.4</td>
<td>359</td>
<td>+46.0</td>
</tr>
<tr>
<td>Hoechst¹</td>
<td>14.71</td>
<td>+10.1</td>
<td>377</td>
<td>+55.9</td>
</tr>
<tr>
<td>Bayer¹</td>
<td>13.57</td>
<td>+14.8</td>
<td>252²</td>
<td>-6.9</td>
</tr>
<tr>
<td>Du Pont</td>
<td>12.57</td>
<td>+18.8</td>
<td>939</td>
<td>+19.3</td>
</tr>
<tr>
<td>ICI</td>
<td>11.98</td>
<td>+18.4</td>
<td>926</td>
<td>+37.9</td>
</tr>
<tr>
<td>Dow</td>
<td>9.25</td>
<td>+34.4</td>
<td>784</td>
<td>+36.4</td>
</tr>
<tr>
<td>Union Carbide</td>
<td>9.18</td>
<td>+16.6</td>
<td>556</td>
<td>+41.1</td>
</tr>
<tr>
<td>Montedison</td>
<td>8.50</td>
<td>+18.3</td>
<td>161³</td>
<td>--</td>
</tr>
<tr>
<td>Rhone Poulenc</td>
<td>8.40</td>
<td>+32.7</td>
<td>197</td>
<td>+232.5</td>
</tr>
<tr>
<td>Shell</td>
<td>6.94⁴</td>
<td>+29.2</td>
<td>621⁵</td>
<td>+271.7</td>
</tr>
<tr>
<td>DSM</td>
<td>6.71</td>
<td>+27.4</td>
<td>47</td>
<td>+242.3</td>
</tr>
<tr>
<td>Akzo</td>
<td>6.32</td>
<td>+12.7</td>
<td>121</td>
<td>+858.3</td>
</tr>
<tr>
<td>Ciba-Geigy</td>
<td>6.21</td>
<td>+10.7</td>
<td>205</td>
<td>+9.2</td>
</tr>
<tr>
<td>Monsanto</td>
<td>6.19</td>
<td>+23.4</td>
<td>331</td>
<td>+9.1</td>
</tr>
<tr>
<td>Exxon</td>
<td>5.81⁴</td>
<td>+44.0</td>
<td>456⁵</td>
<td>+70.2</td>
</tr>
</tbody>
</table>

1 Hoechst and Bayer sales adjusted to take account of 50 per cent owned affiliates.
2 Pre-tax profit showed increase of 7.7 per cent.
3 Operating loss
4 Chemical earnings only, excluding inter-company transfers.
5 Operating earnings.

We notice a definite change in the pattern of R & D expenditure in the first half of the 1970s, which owed to the following factors: (1) Intense competition for available funds which included government support and industrial aid. This relegated chemicals to the background, and helped electronics and aerospace claim the lion's share in expenditure on R and D; (2) A shift in research priorities was evident with greater stress laid on improving the level of existing production processes and more importance being given to applied rather than pure research; (3) more stress being laid on product oriented research, especially in pharmaceuticals.

By the 1970s chemical industry was on its way to maturity. This was accelerated by increasing energy costs. Some analysts have drawn our attention to the fact that there might be a definite correlation between retardation in world growth during the 1970s and price trends for feedstocks and oil, for 90 per cent of organic chemicals are derived from oil and gas feedstocks. (See Table XXII)

181 In UK this sub-group along with synthetic rubber, resins, plastics, paint and varnishes absorbed almost one half the chemical Industry's R and D expenditure in 1975. What was more ominous was the earlier attitude shown towards pure research. It became difficult to develop new molecular combination for plastics and fibres and one became sceptical of high returns on R and D expenditures.
Rapid growth was experienced by the West prior to the energy crisis (1960-67). However there had been a slowdown in growth rate of chemicals by 1967, although it was not directly related to questions of energy. But by 1973-79, there had been retardation in growth rate of energy poor Europe owing to rising energy costs.

The initial impact of energy costs was transmitted (i) directly through energy prices, and (ii) indirectly through more expensive raw materials and intermediates. 182

The impact it had on production costs had varied widely in the West for energy prices are subject to

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182 Between mid-1973 and mid-1974, the prices of raw materials (e.g. naptha) rose by 300-400 per cent, intermediates such as ethylene and propylene rose by 100-200 per cent; plastics such as polypropylene and polyethylene rose by 50-100 per cent; while finished products (bags, films, moldings etc.) rose by 35-50 per cent. See, Economic Commission for Europe Annual Review of the Chemical Industry. CHEM/8, December 1974, p. 2.

government approval. However it was observed that price regulation by the Government did not necessarily benefit the

William D. Nordhaus, "Oil and Economic Performance in Industrial Countries", in William C. Brainard and George L. Perry, eds, Brookings Papers on Economic Activity (Washington, D.C., 1980), pp. 341-88. In the US for example, price controls on gas have been relaxed more slowly than those for oil. Since in US gas is the main feedstock for its chemical industry, its feedstock cost is 30 per cent less than that of European producers. But Europeans can take solace from the fact that since the 1960s proven natural gas reserves in USA have declined because Government price controls have discouraged new exploration. As a result US has become dependent on the Arabs for a pivotal 11 per cent of its oil.

OIL PRICES PER BARREL

Minimum for typical crude delivered to US West Coast from:

<table>
<thead>
<tr>
<th>January 1</th>
<th>Texas</th>
<th>Saudi Arabia</th>
<th>Venezuela</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974</td>
<td>$ 7.60*</td>
<td>$ 10.30</td>
<td>$ 10.50</td>
</tr>
<tr>
<td>1973</td>
<td>$ 5.05</td>
<td>$ 4.00</td>
<td>$ 3.50</td>
</tr>
<tr>
<td>1972</td>
<td>$ 4.75</td>
<td>$ 3.80</td>
<td>$ 2.90</td>
</tr>
<tr>
<td>1971</td>
<td>$ 4.75</td>
<td>$ 3.40</td>
<td>$ 2.90</td>
</tr>
</tbody>
</table>

* weighted average of controlled and non-controlled prices.

Source: The Time, 21 January 1974, p. 26. Also see, The Economist, 10 May 1980, p. 10. Cost relationships are never stable. The European producers were more affected by the increase in price of naptha (1978 figure) than US producers, who are more dependent on natural gas for fuel and raw materials. By 1980 US feedstock costs had become 40 per cent lower than the Europeans.
consumers. In the US for example, tax benefits to the industry became more generous as prices went higher. The contributing factor was the depletion allowance, which allowed the oil companies to deduct from their tax bills 22 per cent of the value of the oil that their oilfields produced. The higher the price climbed up, the higher was the tax write off.

It would be appropriate to describe petrochemical producers in the eighties as feedstock-intensive for it would be a misnomer to call them 'capital intensive'. Countries where chemical industry is well entrenched, has to set aside one sixth of the total commercial energy (allocated for the manufacturing sector) for this sector, and this share had been increasing between 1963-64 and 1975-76. 184

The petrochemical industry in Western Europe therefore has no option but to keep lowest cost at the top of its list of objectives for feedstock procurement.

184 Japan has set a better record with chemicals claiming one quarter of the manufacturing sector's total energy requirements in the mid 1970s. However, in order to reduce dependence on energy-intensive processes, Japanese chemical firms are diversifying which is in consonance with its policy for sponsoring joint ventures with developing countries. For details see, The Economist, 3 May 1980, p. 83. The relative 'feedstock intensity' implies that the economics of scale contributed by larger plants would not necessarily lead to substantial cost advantages.
Feedstock costs now represent between 40 and 75 per cent of the cost of production of mainstream petrochemicals and plastics, and the price of naptha, gas, oil etc. would continue to be a dominant factor influencing the management of a feedstock portfolio. 185

There has been a sharp fall in demand for petrochemical feedstocks in Western Europe since 1973, and a spectacular fall in demand for naptha. In 1979, 51 Mt of feedstocks and 45 Mt of naptha (expressed as naptha equivalent) was consumed by the petrochemicals and plastics industry. By 1981 naptha demand had slumped to approximately 33 Mt and for 1982, a further fall to 32.2 Mt was expected. Total feedstock consumption by the industry in Western Europe in 1982 was expected to be 43.2 Mt. The fall has been linked closely with the weakening of prices for petrochemicals and plastics and the overall structural weakening of the industry.

It is unlikely that a substitute for naptha as an ethylene feedstock would be available in Western Europe over the next five or ten years, although LPG (liquid petroleum gas) will account for a higher percentage of ethylene manufacture. At present only 2 per cent of West

185 Chemistry and Industry, no. 21, 6 November 1983, p. 820.
European ethylene capacity is LPG based, while 23 per cent methanol and 14 per cent of ammonia capacity is based on energy from the North Sea. North sea gas is however expected to play a more crucial role in ammonia (and perhaps methanol production). 186

In the coming years the Norwegian sector of the North sea might assume greater importance for although Britain now produces more energy than it consumes, there has been concern over the prospect of a significant shortage of indigenous gas supplies at the end of the 1980s. Already Statoil, the Norwegian State-owned oil and gas company has held preliminary discussions over Sleipner gas field with a number of potential European customers. Moreover the terms of the Sleipner deal will act as a crucial marker for future gas contracts in Europe at a time, when the International Energy Agency (IEA) continues to say that Europe faces a potentially critical dependence on imported Algerian and Soviet gas supplies by the end of the decade. 187


187 The field which lies near the median line between the Norwegian and United Kingdom sectors of the North sea, has an estimated 7,000,000,000 million cubic feet of gas reserves. Production is scheduled to begin in 1990, and is likely to flow at between 1,000 million and
Interim Conclusions

Since the early 1970s, Government involvement in chemical and petrochemical industry of West Europe has assumed increased importance. Earlier government interference was dictated by environmental factors, but now it has a much wider ambit. The entry of new state owned producers has heralded a new 'politically-oriented' era and is a reflection of the industry's growing maturity. Currently, the impetus for closer collaboration between the national governments and chemical industry is an outgrowth of the restructuring process.

In Europe, overcapacity is a major problem which will affect the industry's development through the early 1980s. The problem is attributed to over-investment in the mid-1970s set off by an 'artificial boom' in demand in 1973-74 after supply shortages. A good example of the

15,000 million cubic feet a day once it reaches a peak. This is equivalent to approximately a quarter of British gas consumption and would effectively replace the supplies from the Anglo-Norwegian FRIGG gas field, in operation since the early 1970s, and which is projected to fall off sharply in the 1990s. For details see, Jonathan Davis, "British Gas to talk on import Price", The Times, 11 April 1983;
consequences is polypropylene. In 1973, we find twelve EEC producers with a capacity of 600,000 tonnes per annum. Only five years later, there were sixteen producers with a total capacity of three times the level of 1973.\textsuperscript{188}

The problem of overcapacity has led to charges of dumping, as in an effort to maintain rates of capacity utilization, firms export marginal production to neighbouring countries at cut rate prices. This gave rise to calls for an 'European cartel', although a more effective solution would have been to restrain investment.\textsuperscript{189}

Of more serious concern has been the question of imports of low cost chemicals into the EEC, particularly

\textsuperscript{188} The Economist, Chemical Survey, 7 April 1979, p. 13. The same applies in the case of ethylene. According to BP Chemicals, demand for ethylene, the most important single source of base chemicals is unlikely to grow from its present level of about 10.5 million tonnes a year to more than 11.5 million tonnes a year in 1990.\textsuperscript{1}

The present European industry's capacity is more than 15 million tonnes a year. For details see, The Times, 29 November 1982.\textsuperscript{1}

Also see, H. Peter Gray and Ingo Walter, "Investment related trade distortions in Petrochemicals", Journal of World Trade Law (Twickenham), vol. 17, no. 4, July-August 1983, pp. 283-307.\textsuperscript{1}

\textsuperscript{189} Rising feedstock costs however make dumping a less attractive proposition, as variable rather than fixed costs become more crucial.
from the US. The US policy of doing away with price controls on oil and gas is seen as a hidden subsidy. It is not clear whether US cost advantages in this branch are artificial. There might be structural reasons: fewer, large producers operating in a large homogenous market where economics of scale are significant, contributing to lower costs of imports. Moreover, protectionism in chemical industry may raise prospects of potential trade reprisals in other areas like steel and textiles. A compromise in the form of 'industry restraint deal' might be welcome which would limit further cheap imports whether it involves dumping or not. 190

While the EEC based chemical producers might exercise restraint vis-a-vis US imports for fear of reprisals, in case of third world imports they can afford to be much more aggressive. However their views are not always in consonance with the European Commission which has been advocating a more liberal policy.

According to data provided by the European Commission we find that "not only has European chemical industry won a victory in the number of chemicals for which import controls must be retained under the European community

190 Financial Times, 24 June 1980."
1981 Generalised System of Preferences (GSP) agreement, it has also won relatively low threshold limits at which the controls become operative". The EEC Commission had intended to trim the number of "sensitive" chemicals (which were subject to controls) from 30 to 11 for 1981. However under pressure from UK and French-based chemical producers, it was forced to include 14 more products, taking the number of "sensitive" chemicals in the new list to 25. Among them are included very big volume chemicals, reinstatements and completely fresh additions.

The reinstatements must be viewed as a victory for the European chemical industry and a defeat for the

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192 Provision has also been made to include further nine products which are deemed to be important. The Commission will monitor activity in imports so that member states could be alerted when such products attain their ceiling. One interesting feature of controls is that they are to be calculated in money (European Units of Account) rather than tonnage terms. The limits have been calculated at 2 per cent above the 1980 levels to allow for the accession to the EEC of Greece. Each individual chemical was judged on its own merits which gave rise to such peculiarities as while the limits for most chemicals are slightly higher, those for some chemicals are lower than for 1980. For example, the limit on titanium dioxide is relatively low at 409,000 EUA S (§ 5.58 million) and the paracetamol limit is 1.276 million EUA S (§ 1.68 million).
European Commission which has spared no attempts to rationalize the list in order to improve access to EEC markets for developing countries. The Commission has also been disappointed with the management of the quota and ceiling system, which should have been imbued with greater flexibility. However, it is in no position to stop individual states to impose duties once a certain level of imports is recorded. It can only delay its implementation for 10 days for consultation.

The new GSP system replaces the earlier "maximum amounts system" and operates at three levels for each chemical or product. However there is an in-built discriminatory system which has started affecting imports from countries like Hong Kong and South Korea, which have been categorized as "highly developed" although they would apparently qualify for quotas on many products.

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193 The access each exporting country has to EEC markets varies with products involved. To be categorized as "highly developed": a country must have a relatively high GNP per head, be relatively advanced and have a record of significant exports to the EEC for the GSP product concerned.

194 According to the Commission "The first level is a quota system for highly developed countries exporting to the EEC, on a country by country basis, inside the EEC. The second level is a joint ceiling for all other suppliers, so that the less developed countries in this category can sell their product wherever
Similarly, India has been categorized as "highly developed" in one or two cases.

The new GSP system is an effort to streamline its operations and to increase surveillance on products emanating from the third world would base itself on a list of products to be imported on a month by month basis. Special monthly monitoring of countries such as Brazil, Mexico and China would effectively help in forming a 'cordon sanitaire' against third world products.

Rising protectionism in the EEC especially against third world imports however would not be able to retard the spread of production capacity to the LDCs, for today the traditional view, that market proximity greatly influences the location of chemical production capacity does not hold good. This is because of the importance being attached to the question of feedstocks. According to R. Ballance, "with variable costs (mainly feedstocks and fuel) determining up to three-fourths of production costs, the significance of low cost inputs becomes crucial. Such trends

they can find a buyer in the EEC, rather than in specific countries. The third level is a non-published list which dictates which country can sell which products." For details see, ibid., p. 65.
may eventually favour production in LDCs. 195

Even then protectionism practised by the EEC countries would be selective. In contrast to the stepmotherly treatment meted out to the Third World, the United States would be favoured by both European and North American firms for investment. This may reflect investor's opinion that fast expansion of European chemical markets in the 1960s and 1970s will slow down in the 1980s. This investment commitment has tempered the attitude of several European countries on the question of new protectionist measures.

If both the EEC and United States fail to resolve their conflict over chemicals, it would eventually pave the way for Japan to penetrate into LDC (especially Asian) markets. Already in Japan there is a shift towards products of higher quality and greater value added content rather than bulk chemicals. However rationalization of its domestic industry is only one aspect of Japan's latest strategy. What is more important is its active participation

195 The comparable share of variable costs as a component of production costs was 44 per cent in 1974. For details see, The Economist, 7 April 1975, p. 18.
in joint ventures with energy abundant LDCs. The factors spurring internationalization of Japan's chemical industry are (i) relatively high costs of pollution control, and (ii) its desire for access to capacity located in countries where feedstock costs are less than costs of Japan's imports of oil and naptha. In the coming years we might see the struggle between Japanese and Western chemical firms for supremacy in Middle East markets intensifying. The Japanese firms are bound to come into conflict with European transnationals, for the latter would like to pioneer as many joint ventures as possible and would also attempt to moderate the impact of Middle Eastern petrochemicals upon the European market.

Concluding this discussion we might say that if Europe has to maintain its competitive edge in chemicals, it should discard the illusion that chemical industry is merely being troubled by cyclical recession and that

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196 Saudi Arabia has signed an agreement for Chiyoda-Petrostar, a joint Japanese-Saudi venture to build a petrochemical plant following withdrawal of Dow chemical. According to Sabic, the agreement covered the design, engineering procurement and construction of an ethane cracker to be built for an affiliate Petrokemya in Jubail. For details see, International Herald Tribune (Singapore), 30 December 1982.

short-term ad hoc subsidization or protectionist policies can restore it to its former robust health. Once this is realized, long-term structural adjustments will take place as production and trade structures are altered to be in tune with the pattern of international comparative costs.

197 Only lately, the European Commission has started cracking down on state investment subsidies. It has banned Dutch Government aid for four projects in the petrochemicals sector. The cases concern the 'additional premium' for big projects', payable under the Dutch WIR investment subsidy scheme. The projects involved are DSM's 1dPE plant at Geleen, an extension to the Shell Laboratories in Amsterdam, and a 230,000 tonne/year Shell aromatics solvent plant at Pernis. For details see, European Chemical News, vol. 37, no. 1000, 28 September 1981, p. 8.