CHAPTER — 2

PROBLEMS OF DIESEL OIL ENGINE INDUSTRY IN INDIA

A) Raw Material Problem

B) Technological Problem

C) Financial Problem

D) Marketing Problem

E) Problems of export of oil engines

F) Recessionary demand

G) Change in government policy

H) Conclusions

PROBLEMS OF DIESEL OIL ENGINE INDUSTRY IN INDIA

Introduction :

Diesel oil engine industry in India is suffering from a number of problems related to raw material, marketing, finance, labour, techonology and problems due to frequent changes in policies of government and financial institutions. All these problems are discussed in this chapter.

A) Raw Material Problem :

Raw material is the basic pre-requisite of an industrial enterprise and any programme of industrialisation without adequate and timely supply of required raw material, is not likely to make much progress.

In the initial stages, when the small scale engineering units were few in number, producing items of comparativly simple nature, there was no scarcity of raw material. As the small scale sector in engineering industry expanded rapidly, the raw material requirements of the sector increased manifold; consequently this sector felt the shortage of raw material.

The problem of raw material in oil engine industry is multi-dimensional. There is not only shortage of right type of raw material but also the quality of raw material is poor. Raw material problem has been extremely acute for steel based industries. Various facts of the problem are as below :

1) **Shortage of Raw Material** :

Shortage of right type of raw material is one of the important problems of small scale engineering units. The main requirement of diesel oil engine industry is cast-iron, cast steel and white metal. Main suppliers of casting are local foundries. Foundries require pig-iron to manufacture castings. However, foundries cannot supply castings of required quality and quantity, unless pig-iron is available in adequate quantity. Demand for pig-iron at national level is 17 lakh tonnes per annum. Domestic production is 9 lakh tonnes per annum. Three lakh tonnes of pig-iron is imported to meet this requirement. It means there remains an uncovered gap of five lakh tonnes every year. In 1987-88, when the pig iron requirement was 75 thousand tonnes in Maharashtra, Supply of it was only 12 thousand tonnes[1].

Now 6000 foundries are operating in the country. Their demand for pig iron per annum is 20 lakh tonnes. Till 1994 it will increase upto 27 lakh tonnes. In 1989-90, the difference between actual demand and supply was 6 lakh tonnes.

Due to shortage of pig-iron about 100 foundries are either closed or going to be closed. Alternativly, these foundries buy scrap iron. As a result of this prices of scrap iron are rising by leaps and bounds.

Most of the oil engine manufacturing units are small and because of their smallness and weak financial position they have to utilize services of middlemen to get raw material on credit. Such

an arrangement results in high-cost. Moreover dealers deliberately delay quota certificate and sell the material in the open market at higher prices. As a result of this the entrepreneurs are compelled to purchase defective imported material or scrap metal from local dealers. They are forced to buy these materials at prohibitive prices which upsets their cost calculation.

Prices in open market for mild steel and EN8 round and square bars are 10 percent higher than government prices because private suppliers supply material on credit. Therefore, they charge higher prices.

2) **Uncertain Supply** :

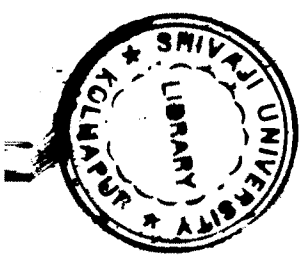
Another problem is uncertain supply of raw material. Some raw materials become scarce at times and become abundent at others and there are wide price variations. Government is also responsible for frequent price variations because of its changing policy frequently as regards supply and price.

Table 2.1

Price of Raw Material Per Tonne (Rupees) Year 1988

Item	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Price variation per centage
1. Pig Iron	4700	4800	4800	4820	4700	4700	4700	4700	4810	4820	4820	4850	3.19
2. Metcoke	2025	2025	2025	2025	2250	2250	2200	2200	2200	2200	2200	2200	8.64
3. B.P.Coke	3150	3100	3100	3100	3100	3150	3150	3150	3150	3100	3150	3150	1.61
4. Scrap	4850	4900	4800	4800	4800	4800	4850	4900	4900	4900	4900	4900	1.03
5. C.R.20 Gauge	18120	18100	18100	18100	18100	18100	18100	18100	13450	13450	13450	13450	37.32

Source : Data compiled from files of Engineering Association, Kolhapur.



frequently as regards supply and price.

Table 2.1 reveals the changes in prices of raw material. Price of pig iron shows an increase of 3.19 percent over the period of twelve months. However of this 2.13 percent increase was experienced in one month only. While the prices of scrap iron which were higher by 3.19 percent than that of pig iron , were steady upto July and rose by 1.03 percent in the next month.

Price of met coke showed an increase of 8.64 percent over the period of twelve months. In the beginning it remained steady for 5 months but suddenly jumped by 11.11 percent in June and fell back by 2.27 percent in next month.

Price of B.P. coke showed an increase of 1.61 percent over a period of twelve months. Price remained steady upto may and rose by 1.61 percent in next month and again came down by 1.61 percent in October.

Price of C.R. 20 gauge changed by 37.72 percent within one year. Price of C.R. 20 gauge remained steady upto August and suddnly fell by 37.73 percent in September.

Fluctuations in prices of raw material create fluctuations in cost of production. However price of diesel engine, does not increase immediatly in the market. As a result, profit is adversly affected. Producers, who earn narrow profit margins, are also denied because of rise in cost.

3) **Poor Quality of Raw Material** :

Sometimes engine manufacturers do not get raw material especially casting of required quality. Quality of raw material never stays constant. There are variations in quality of pig-iron and casting. Quality of casting depends upon quality of pig-iron and methods of processing in foundries which are defective. Poor design of cupolas, absence of sand conditioning concepts, affect the production of internal cumbustion engines.

Conclusions :

From the discussion made in the preceeding paragraphs it can be concluded that :-

1) Problem of raw material in diesel oil engine industry is multi dimensional.
2) There is not only shortage of raw material but quality of raw material is also poor.
3) Prices of raw material frequently fluctuate.
4) There is uncertainly in supply of raw material.

Suggestions to Solve Raw Material Problem :

1) Existing capacity of iron mines should be increased.
2) Government should undertake regular supply of pig iron and and steel in sufficient quantities.
3) Government should increase import of pig iron and other raw materials in sufficient quantities to meet the domestic demand for pig iron.
4) Government should explore possibilities of increasing production of steel plants.

5) In order to avoid the services of middlemen, small units should procure their requirements from open market or directly from producers.

B) Techonological Problem :

Techonological progress is essential for the development of an industry. Modern techonology helps to improve the quality of product, to lower the cost of production, and minimize the westage in production process. It is also essential to remain in the market and to pass on the benifits to customers. Unless industrialist takes to this policy he may find soon squeezed off from the business.

One of the major handicaps of the small diesel engine manufacturers in India has been the absence of the knowledge of latest technology which alone can ensure quality and high rate of productivity. Lack of training and research facilities also create some problems. Adoption of latest technology reduces rate of rejection.

1) Old and Conventional Methods of Production :

In diesel oil engineering units manufacturing methods are old and conventional. Industry with an exception of few units has failed to modernise itself.

Methods of casting in our foundries are very defective. Methods of sand mixing, moulding and core making are defective. Many of these foundries do not have chemical testing facilities, microscopes and carbon equivalant metors. Poor design of cupolas, absence of sand conditioning concepts or sand testing facilities,

Preference for hand and loose moulding are common defective methods in foundries. Due to these defects surface finish of casting becomes rough. This adversly affects the quality of oil engine.

In many manufacturing and oil engine assembly units testing equipments are not used. The testing equipments such as smoke meter, fuel consumption meter, diesel tachnometer, compression pressure taster, air flow measuring equipment, hydraulic dyanameter are very essential to test the quality and soundness of engine. These are not available in small units. In absence of these equipments oil engines are despatched to the market without testing and quality control. Diesel engine industry is unable stand challanges and international competition.

2) **Drawbacks in Indian Diesel Engines** :

When Indian oil engines are compared with foreign engines on certain parameters like weight, power and speed, design and volume, Indian engines are at odds because of high weight, more consumption and look.

a) Weight :

Both 'Lister' and 'Petter' type engines are rather heavy. This means more energy and raw material is used to manufacture them. The Lister type engines particularly suffer more from this defect.

For example, the weight of petter type single cylender engine is about 35 Kg/bhp and Lister type about 40 kgs/bhp. Avarage weight of such engine at international level is 5 Kg/bhp. They are made of Aluminium. This may not be economical in India. The weight

power ratio can be brought down upto 15 kg/bhp, if good quality iron is used to manufacture oil engines. At current level of production, this reduction will save about 40,000 tonnes of cast-iron and 9000 tonnes of steel in India[2].

Use of aluminium requires less machining as well as less energy for machining than cast iron requires.

b) Power and Speed :

The parameter of efficiency of diesel oil engine is bhp/liter. Higher it is, more effective is the design of engine. In foreign countries it is around 10 bhp/liter, where as for Petter type engines it is 9 bhp/liter. The avarage speed of engine in foreign countries (U.S.A., Europe) is about 3000 to 4000 RPM. In case of Indian engines it is either 1500 RPM or 3000 RPM.

By using a higher speed the bhp/liters of displacement volume can be increased with consequent reduction in engine weight and size.

c) Engine design and volume :

Our engines are three times bigger in size than similar engines made in foreign countries. Compactness is another virtue of foreign engines. Scientific efforts have been made by foreign designers to make the engine compact. For example the fuel injection nozzel and holder of recent series of Italian Lombardini engines incorporates a right angled bend in order to reduce the height of the engine.

d) Fuel Consumption :

A petter type new engine consumes 175 to 190 grams of diesel per bhp-h and lister type new engine 190 to 225 grams per bhp-h. The fuel consumption rises to 200 to 300 grans/bhp-h in case of petter type and 250 to 300 grans bhp-h in case of lister type engines due to deterioration caused by use of non standard spare parts and in-correct installation practices.

If it is possible to completely prevent this deterioration with age with respect to fuel consumption; one third of the total fuel consumption is approximatly equal to half the estimated gap between demand and indigeneous supply of high speed diesel oil that can be covered. Thus substantial diesel oil can be saved merely by elimanating or reducing the deterioration in fuel consumption with age.

3) **Lack of Research and Training Facilities** :

Low level of technology in diesel oil engine industry is result of lack of research and training facilities in units. Study conducted by Dr. R. Bandyopadyay (1983) reveals that organisations do not have any engineer. or Specific programmes for providing training to their technical and administrative staff[3]. The small units do not have any engineers. Very few units use training facilities from I.T.I. and P.D.T.C. (Prototype Development and Training Center, Rajkot). This results in low level of techonology.

Conclusion :

Diesel engines manufactured in India are heavy in weight and consume approximatly 30 percent more diesel.

Suggestions to Improve Techonology :

1) **Research and Development** :

In order to improve the efficiency of the diesel oil engine, emphasis should be given on research and development facilities.

2) **Modernisation** :

Existing diesel oil engine producing units should be modernised. Following changes will increase the efficiency of the engine.

a) Forged aluminium connecting rods should be used to reduce weight and to improve reliability.

b) Automic decompression system should be used to make starting easier.

c) Automatic bleeding systems should be used for ease of maintainance.

d) Countra-rotating balancing shafts should be used in engines to reduce variations and improve reliability.

e) Thinner Piston rings in a three ring pack should be used to reduce weight and reduce fuel consumption.

f) Noise reduction is possible by introducing variety of steps including improved designofcumbustion chamber and attention to detail design of parts such as crankcase, gear cover, piston bearings and mechanical arrangements etc.

g) Two stage injection with two springs and two plungers in the nozzle should be used to provide smooth cumbustion, reduced noise and easy startability.

h) Fuel injection pump.& the standard Bosch design should be used to increase efficiency of the engine.

i) The system of thorough and strict inspection should be introduced at all stages of production.

j) Design of existing engines should be changed without much dislocating existing production lines.

3) **Production of Two Stroke Engines** :

As compared to four strok engines, two stroke engines have fewer parts. This will reduce cost of engine and will have less repairing and maintainance cost.

4) **After Sales Service** :

The manufacturers and dealers should pay more attention to provide service after sales. This will lengthen the life of oil engine and enhance confidence of the users.

C) Financial Problem :

Finance is very crucial factor in business. Financial problem is the root cause of most of the problems that small enterprises face. Many a problems concerning production, raw material, quality, marketing are in ultimate analysis, financial one. Adequate finance is a prerequisite for proper and smooth working of an enterprise. Financial problems can be discussed from different aspects as below.

1) **Inadequate Initial Capital** :

Small units face financial problem right from their inception. Small units require capital of two kinds (i) equity or risk capital, (ii) borrowed or loan capital.

Small producers have to raise equity capital from their own sources. The source of raising capital by issue of shares is not open to small producers. They do collect capital from friends and relatives, but it is limitted. Thus, most of the small enterprises are born in anemic condition. Finance received from banks and financial institutions falls short of need in these days of rising prices. Mentioning the financial position of small industry in India, the International Team of Experts (1955) observed that in most of the workshops they visited real finance did not seem to exist at all. There was severe lack of capital as well as credit. Recent studies of small scale industries also show that the situation of finance has not yet changed.

2) **Dependence on Middle Men** :

Owners of small engineering units cannot establish their own distribution network. Therefore, to a great extent, they have to rely on dealers for buying raw material and also for marketing their products. They have very limited capital. They are compelled to sell every days or weeks production to buy raw material in small quantities at retail price and to work to order from the dealers because of shortage of capital. Due to their too much dependence on middlemen for sales, supplies, finance; middlemen are able to drain off substantial

part of their profit that is required for development and expansion of unit. Thus, due to scarcity of capital, small units rely on middle-men and their dependence on middle men creates inadequacy of capital.

3) **Instability of Profit** :

Another cause of inadequacy of internal funds is the instability of profit. One of the important reasons for instability of profit is fluctuations in the cost of raw material and other costs. As a result, profit may not coincide with the requirements of development expenditure or for sustaining a temporary loss. Profit ploughed back is one of the important sources of finance of small units and therefore slight variations in profit disturbs their financial planning.

4) **Payment held by Customers** :

Financial inadiquacy arises because small units are under heavy pressure to extend finance to their customers. Large manufacturers of diesel oil engines delay payment for nearly six to eight months. Thus payments held by customers create difficulties in small units.

5) **Borrowing against Inventeries** :

Small units, as all others, borrow against inventory. But majority of small units have inventeries that are not of standard types, that can be easily disposed off in the market. One unit may be buying components and then assembling them. In another firm, major items of inventory may be semi-manufactures or finished goods produced to specifications of the buyers. Such goods are not eaisily salable in the market.

Excess inventory leads to unnecessary expenses, where as, low inventory interfers with sale to such an extent, that profits are lowered. Most of the small units do not experiment to find out the optimum level of inventory.

6) **Attitude of Banks** :

Banks have been one of the important sources of finance for small units. But commercial banks usually fight shy of undertaking the financing of small units. The main reasons for this state of affairs may be analysed under two heads.

a) Limitations of small industries :

i) Depressed financial conditions of small units are not conducive to the granting of credit.

ii) Present weak structure of typical small industry with production split-up into too many units, each lacking capital of its own and a proper equipment is a great hurdle in taking loan from joint stock banks.

iii) Small enterprises can not offer adequate security for the loans.

iv) The earning capacity of small units is uncertain because of non availability of scarce raw materials, non standardisation of products and unsatisfactory managerial ability.

b) View of Banks :

Banks are reluctant to advance loans to small units due to their own limitations. That are :-

i) The resources at the disposal of banks are limited in relation to actual demand for money in the market.

ii) The failure of several small banks which had invested substantial amounts in small industry has also added to the unwillingness of the bigger commercial banks to provide capital to the small units.

7) **Financing by State** :

The various state governments have rendered financial assistance to small units under state Aid to Industries Act. However there are limitations on financial assistance by the state, due to following reasons.

i) The budget provision for such assistance is usually very small in relation to requirements.

ii) Onerous terms and procedure involved in obtaing loans under these Acts results in decrease in loans granted.

iii) Reluctance of borrowers to have facilities under this Act due to delay involved in obtaining loans under these Acts.

8) **High rate of Intrest** :

As financial institutions are reluctant to advance loans to small units, many oil engine manufacturers turn to private investors and money lenders who charge very high rate of intrest from 20 percent to 50 percent. Due to this substantial part of earning of small unit is used to pay intrest and repay loans. This ultimately disturbs the financial position of small units which is already weak.

Conclusions :

1) Small scale units face financial problems. Inadequacy of capital and finance, is the main cause of financial problem.

2) Inadequacy of finance is mainly due to presence of middle men, instability of profit, late recoveries of bills etc.

3) Attitude of banks and high rate of interest are also problems before small investors in getting loans.

Suggestions to Solve Financial Problem :

A few intra-structural and attitudinalchanges named below; can solve most of the problems in respect of finance.

1) The competitive position of these enterprises should be strengthened by making available non financial aids and facilities. To illustrate, provision of techonological, managerial, marketing, services to small units may improve their standing power.

2) Financial assistance should be provided through institutional channels.

3) Credit institutions should review the types of security that they treat adequate.

The commercial banks should re-orient their ideas about the type of goods that can be accepted as realisable and assess the risk of business on the performance and standing of unit rather than purely on immediate realisability of security.

D) **Marketing Problem** :

Oil engine industry is now suffering from many difficulties and problems in marketing their products, Some of the difficulties are as follows :

1) **Competition** :

Small units, manufacturing diesel oil engines are facing increaing difficulties in marketing diesel engines due to growing competition from their sister concerns. Besides, there are well established large industrial units in organised sector (like Kirloskar, Cooper, Ruston, Batliboy etc.) producing the same product with whom small units have to compete. Large producers have their own marketing network and sophisticated tehcniques against which small producers find difficult to stand.

In fact competition to certain extent helps industries to improve their production. Intense competition, however, creates problems for small units. Due to intense and severe competition, sale of small units, which is already small, is devided among rival units. Reduction in sale results in lower profits. As a result, small weak organisations are squeezed off from markets.

2) **Prices** :

Competition has greater impact on prices. Due to unhealthy competition, small units always suffer from the bad practices adopted by large firms, such as reduction in prices to increase sale. In this situation small units are compelled to sell at uneconomic, unremunerative prices. They incur heavy losses, resulting into compelling the small units to stop their production. A number of small units manufacturing oil engines were thrownout of business due to price reduction policy of large units.

3) **Poor Designing and Poor Quality** :

The success in market depends on the quality of a product and ability of marketing. Small units in diesel engine industry have

failed to improve quality and designs according to consumer needs. Small units find it difficult to obtain right type of raw material. This along with insufficient working capital often results in the end, of product being of poor quality. Moreover, the quality of engines varies due to lack of quality control methods. Hence, where such products are to be used in industrial equipment, customers are unwilling to buy them.

The designs of oil engines in India need many improvements because they are bigger in size and very heavy in weight as compared to engines manufactured in foreign countries. The designs of diesel oil engines are both, inefficient and inasthetic.

a) Lack of Standardisation :

Lack of standerdisation both in two engines and in sucessive batches of a product turned out by a single small unit producing a similar product is frequently a greate obstacle to the expansion of market. Diesel oil engines produced separately by local manufacturers vary in size, weight, efficiency and quality.

b) Lack of Precison :

Due to inadequate equipment and lack of skilled personnel the precison of the product turned out in the small sectors is often below standard. This is common complaint of large scale manufactures who sub-contract production and supply to the small units.

c) Poor Bargaining Power due to Lack of Service after Sales :

After sale service is an important aspect of successful marketing of a product. Dealers or distributors usually contribute to promote

the sales by providing after sales service through their machanics. However machanics employed by the dealers are often not adequately trained in the types of job to be handled. He learns through practice and trial and error. This method is wasteful. Moreover, engines are generally guaranteed for a period of one year for manufacturing defects and spare parts are replaced during this period. However, spare parts are not provided along with engines. Further, spares provided by distributors are not standardised. As a result of this, consumers purchase sub-standard spare parts which reduce life of engine. Sometimes engines are sold in remote places by distributors. In such cases manufacturers and original sellers have no control on quality of after sales services.

4) **Dependence on Few Customers** :

Many units due to their smallness and lack of own distribution channels have limitted contacts; they can reach few customers. This is an unhealthy sign and must be overcome.

5) **Ignorane of Entrepreneurs** :

Many entrepreneurs with good educational and technical background have ideas and skills that are necessary to start an industry and keep it going. But most of them are not market minded or entirely convinced of the crucial role that marketing plays in the success of a unit. They lack market orientation. Success of an industry depends very much upon its capacity to search new market potentials. But small diesel engines manufactures failed to find out new markets.

6) **Business Failures** :

Many newly established units can-not survive for a long time. One of the major causes of their failure is lack of proper feasibility studies of market which include :-

1) Lack of demand assesments,

2) Untimely introduction of product,

3) Lack of consumer orientation,

4) Absence of channels for distribution of product.

Conclusions :

Diesel oil engine industry in India faces marketing problem due to cut-throat competition, price reduction policy followed by large units, poor designing and poor quality, lack of precision, dependence on few customers and ignorance of entrepreneurs.

Suggestions to Solve Marketing Problem :

1) Small scale units alone are not able to solve their marketing problems. Therefore marketing co-operatives should be set up.

2) Government should protect small diesel engine manufacturing units by giving tax concessions and fixing prices of engines to save them from competition from large units.

3) A regional testing and research laboratory should be set up by the government to assist in the improvement of the quality of products, because quality of product and its attractiveness are essential elements in successful marketing. Small units are not able to take effective measures in controlling the quality of product. Establishment

of a research laboratory for tests and guiding the small unit holder will therefore provide much needed aid to the regional industries.

E) Problems of Export of Diesel Oil Engines :

Though the export of diesel oil engine has increased in recent years, diesel engine manufacturers have to face a number of problems in exporting their product. These problems are internal as well as external.

a) Internal Factors :

India in exporting diesel oil engines could not make much progress due to some internal reasons.

1) **Inadequate facilities** ;

Facilities and assistance provided by government and banks for export are very limitted.

a) Cash compensatory support for export of diesel engines and spare parts is only 15 percent of the total cost. It is inadequate to reduce cost and price of oil engines.

b) At present duty drawback facility is available for engine exported below 10 HP capacity only.

c) Warehousing facilities are not developed by government in other countries which would increase export.

d) Export marketing fund facilities are inadequate; these are available for export promotion to developed countries only.

2) **Ignorance of Manufacturers** :

Many manufacturers are not aware of the facilities and assistance provided by banks and government to export engines. This results

in reducing export of engines.

b) **External Factors** :

There are a number of external factors affecting export of diesel oil engines.

1) **Competition** :

Indian diesel oil engine manufacturers have to face stiff competition from Japan and England, because Japanese and British engines are much superior in quality and comparable in price. They produce on large scale. For example Yanmar Company of Japan sold 369000 diesel engines in 1969 which was many times more than the sale of all manufactures in India.

2) **Limited Applicability of Indian Diesel Oil Engines** :

Most of the Indian oil engines are designed for stationary use and not for moobile use. Naturally, demand for Indian engines is limited.

3) **Limited Demand due to Political Changes** :

Asian, Middle East and African Countries are major importers of diesel oil engines from India. Iran-Iraq War, acquistion of Kuwait by Iraq, Internal commotion in Lebanon, ban on import imposed by Egypt all these factors have restricted demand for oil engines and for Indian oil engines too.

Conclusions :

India could not make much progress in exporting diesel oil engines due to internal and external problems.

1) Demand for diesel oil engine is falling due to outdated designs having stationary use, higher prices and lack of adequate supply of good quality engines.

2) Facilities and assistance provided by banks and government to diesel engine manufacturers are limitted.

Suggestions to increase Export of Diesel Oil Engine :

1) New engine designs should be developed which would be useful for construction, power generation, and marine engines.

2) Efforts should be made to manufacture light weight petrol/ kerosene portable engines.

3) Manufacturers should take help of export houses in the beginning of export.

4) Cash compensatery support for diesel oil engines and spare parts should be increased form 15 percent to 28 percent.

5) Cash compensatory support for diesel gensets should be raised from 10 percent to 15 percent.

6) Duty drawback on export of engines above 10 HP should be restored.

7) Warehousing facilities should be developed by government at strategic places such as South, East, Asian countries, European and Latin American countries.

8) Export marketing facilities should be extended to promote export of Indian products to developing countries.

9) Provision should be made in export import policy to permit releas of 10 percent value of net foreign exchange realised by the manufactures, exporters to enable them to import another item required for manufacture of diesel engines. This will help the exporter in meeting prompt dilivery schedules.

F) Recessionary Demand :

Diesel oil engine industry got in trouble due to cyclic demand recession in 1970, and recently in 1985-86. Demand recession was mainly due to rural electrification, over production in diesel engine industry, the emergence of assemblers and ristriction on buying diesel engines made in other states and policies of government to withdraw taccavi loan faciltiy. The recession of 1970 had a severe impact on oil engine manufacturing units. The manufacturers of diesel oil engines were no doubt perturbed by the situation and therefore they started exploring new fields.

To counteract this situation small producers diverisifed from diesel oil engine to components of automobiles, agriultural tractors, printing machinary, leather industry machinery etc.

This industry again faced demand recession in 1985-86. It occured mainly due to overall depression in engineering industry and due to rapid electrification programme launched by state governments. As a result, farmers started using electric motors in place of diesel engines. Electric Motors are preferred to diesel oil engines because of their better efficiency, convenience and low operation costs.

The proportion of use of diesel oil engines and electric motors was 80:20 in 1970, however by 1989 this has come to 50:50. As

a result demand for diesel oil engines in 1987-88 declined by 27 percent[5].

Conclusions

Diesel oil engine industry in India got in trouble due to demand recession of 1970 and 1985.

Suggestions to Solve the Problem of Recession in Demand :

Various remedial measures are recommended to stimulate droupping demand for diesel oil engines. Some important measures put forth by the Indian Diesel Engine Manufacturers Association are :

1) Farmers buying diesel pump sets should be given more subsidy.

2) Nationalised banks should charge intrest at concessional rate to those who borrow to buy diesel generator sets.

3) Defence organisations should make specifications available to indigenous producers for adopting existing/proposed engines for defence applications.

4) Electric power should be reserved and allocated for industrial application and diesel engines should be made available to various demands of agricultural sector.

5) Manufacturers of light commercial vehicles should be pursuaded to indgenise rapidly by utilising existing diesel oil engine manufacturing capacity.

G) Changes in Government Policies and Policies of Financial Institution

Frequent changes in government policies create difficulties in the development and smooth functioning of small units. Oil engine industry is not an exception to this

1) Changes in the Definition of Small Scale Industry :

Government made frequent changes in the definition of small scale industries since Independence. According to first definition all those industries having capital investment of Rs. 7 lakh were small sale units. Then this limit was extended to Rs. 10 lakh for small scale industries and Rs. 15 lakh to ancillary units. Then it was extended to Rs. 20 lakh for small units. According to recent definition small scale industries cover all those units having capital investment of Rs. 50 lakh.

As a result of these changes in definition, industries catagorised as medium scale came under the catagory of small scale industries and created unnecessary competition in existing small units. Moreover, due to change in scope of definition very small and small units get the same treatment. Entrepreneurs investing Rs. 5 lakhs in his debut is equated to entreprenuers investing Rs. 50 lakhs in matter of assistance pattern.

The small units in lowest ladder, need greater protection than the units touching the upper limit of the monetory slab. The extent and quality of aid needed by very small units also differs widely from that of the unit in upper slab. Therefore, it would be rational to sub classify the small industries according to gradually

increasing scale of investment for the purpose of assistance pattern, which must be suitably modified.

Government made changes not only in the definition of small scale industry but also in export import policies and tax structure. In the first five year plan government banned the import of diesel oil engines; which helped the growth of oil engine industry in India. Taccavi loan facility was also given in certain regions which provided impetus to this industry. But subsequently government withdrew this facility. As a result of this, industry received a great set back. Another example of change in government policy is the policy of 'Investment Allownce' which was given to small scale units on their investment. In 1987, government suddenly withdrew this facility and many small units suffered severly.

Government had been allowing till recently a subsidy of 25 percent on the cost of diesel generators to the units installing them, but the same has been stopped. As a result, rate of increase in demand for diesel generators has slowed down.

2) **Complicated Tax Structure** :

Government tax structure is very complicated and cumbersome. The central government have levied exise duties, central sale tax, besides various taxes imposed by state government, such as profession tax, sales tax. There is so much paper work in respect of these taxes that the cost of filing papers and of advice of charactered accountant and tax consultant becomes prohibitive.

3) **Existance of Multiple Agencies** :

During the course of implementation of plans; several aid agencies have been developed. They provide long term and short term financial aid, help in procuring raw material and equipments, arrange training facility, assist in export efforts. Industrial Co-operative Bank State Financial Corporations, National Small Industries Corporation, Small Scale Industries Development Corporation, Trade Development Authority have been assisting the industry under various aid patterns.

However, the existance of multiple agencies in small sector has been a source of confusion to new entrants.

Differing aid patterns and prolonged procedure for obtaing loans, raw material, power and other assistance disappoint new comers. They may get frustated in their efforts.

4) **Failure of District Industries Centres** :

A District Industries Center (DIC) provides all the services and facilities to entreprenuers at one place so that they may setup small units.

Existing schemes of government capital subsidy, seed capital assistance, interest subsidy etc. are now implemented through DICs to the extend necessary help and Guidlines for this purpose have been issued separately for the guidance of State Government.

However, effectiveness of a DIC is limitted, because of its bureaucratic chacacter. Its structure is too heavy and too departmentalised to serve the need of the small entrepreneur. In fact small units do not much require official machinery to solve his many, day

to day problems.

The principal reasons for the failure of the DICs are political and administrative. The success of programing of DICs depends solely on the active support of government and banks.

Conclusions :

1) Small industrialists face problems due to the frequent changes in government policies, complicated tax structure and changes in the definition of small scale industry.

2) New investers get puzzled due the existance of multiple agencies providing assistance.

Suggestions to Government and Other institutions :

1) The definition of small industry needs to be revised. The dividing line between the small units and a large industry which is artificial should be made natural.

2) There should be a single development agency at state level to assist and guide the small units in respect of registration provision of raw material equipment, training facilities etc.

3) The criteria for sanctioning loans to the small units should be liberalised; capital should be advanced against semi-finished and finished goods also, besides fixed assets , raw material and other inventory.

4) The structure of taxation should be revised; the small industry product should not have multiple stages of taxation to protect them from unequal competition against large industry products. Small

enterprises should be subjected to single point single tax.

5) The state policy should be stable and frequent changes should be avoided.

Conclusion :

The discussion done in this chapter indicates that a small oil engine unit has to face a number of problems. Most of these problems are man made and can be removed if a pragmatic approach is taken. Simplification of tax structure, straightlining assistance and facilities mechanism can be done without loss of time. The Central Government should compromise with political ideology and separate business from politicking.

With all these problems, small oil engine units, it is not wonder how they fall sick; it is astonishing how many of them function successfully.

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