

CHAPTER - 4

**PROFILE OF DIESEL ENGINE MANUFACTURING UNITS
IN CLUSTER A**

SECTION A

Introduction

- A) Organisational Setup**
- B) Education**
- C) Machinery**
- D) Raw Material**
- E) Finance**
- F) Cost of Production**
- G) Labour**
- H) Market**
- I) Production and Capacity Utilization**
- J) Future Plans**

SECTION B

- A) Raw Material Problem**
- B) Finance Problem**
- C) Marketing Problem**
- D) Labour Problem**

Profile of units manufacturing diesel oil engines.

Introduction ;

Oil engine industry in Kolhapur can be broadly classified into two types of units.

1) **Manufacturing Units** :

These units are sole manufactures of diesel oil engines. They produce nothing but diesel oil engines. There are 17 such units functioning in Kolhapur. Entrepreneurs in these units started their career as diesel engine manufacturers and still they continue to produce diesel oil engines. All these units constitute cluster.A. Most of the units in this cluster conduct following three technical functions. (1) machining of critical components, (2) assembly, and (3) testing of the engines.

2) **Ancillary Units** :

These units provide components to diesel engine manufactures in Kolhapur as well as outside Kolhapur but within state. These units constitute cluster B.

Both catagories consist of number of different small units having capital investment from Rs. 10,000 to Rs. 30 lakhs. These units conduct (1) manufacturing or production of components and (2) Machining.

This chapter is devoted to economic analysis of manufacturing units at different ladders of capital investment though all units are small scale units.

SECTION AA) Organisational Setup :

Organisational setup of any unit is a crucial factor which affects decisions regarding production, marketing, cost of production and other matters. Small units may be owned and operated by individuals, group of individuals, private companies and co-operative institutions. Survey conducted for diesel oil engine industry, however, reveals that individual and partnership concerns existed in majority.

Table 4:1 shows the organisational setup of manufacturing units in cluster A.

Table 4:1

Organisational setup of diesel engine manufacturing units

Organisation	Proprietary	Partnership	Private Limited	Total
Number of Units	8 (47.05)	7 (41.17)	2 (11.76)	17 (100)

Note: Figures in bracket show percentages to total number of units.

Table 4:1 reveals that the number of proprietary units is about 4 times larger than that of private Limited units and the number of partnership units in relation to private limited units is more than three times.

Government units and co-operative units do not exist in cluster A. (There was only one co-operative engineering unit manufacturing diesel oil engine but it could not succeed. It was closed

due to labour problem).

Out of 17 units, five units were established in the decade of 1951 to 1960. Nine units were established during the decade 1961 to 70. Only three units came into existence in decade 1971 to 80 and two units after 1981 but before 1985. No unit manufacturing diesel oil engine was established after 1985. Two units which were established after 1985 were sister concerns of old units. So we can say that no unit manufacturing diesel oil engine was established after 1980. It was because of recessionary trend in demand for diesel oil engines.

Change in Organisation :

Only two units in this cluster changed their organisation from partnership to proprietary due to internal disputes among partners. No change in organisation from proprietary to partnership or proprietary to private limited was observed.

B) Education :

Another important factor which exerts influence on entrepreneurial ability, skill and attitude is the education of the proprietor. Table 4.2 studies the educational classification of entrepreneur in units in Cluster A.

Table 4.2 exhibits that no private limited firms have been headed by technically qualified entrepreneurs. During survey it was observed that though entrepreneurs in private limited firms are not technically qualified they have technical experts on their staff. The educated entrepreneur had good deal of practical experience.

Table 4.2

Educational Status of Entrepreneurs

Educational Qualification	Proprietary Units	Partnership Units	Private Limited	Total
1. Uneducated	-	1 (14.38) (100)	-	1 (5.88) (100)
2. Primary	-	2 (28.57) (100)	-	2 (11.76) (100)
3. S.S.C.	2 (25) (100)	-	-	2 (11.76) (100)
4. Eleventh Twelfth	1 (12.5) (50)	1 (14.28) (50)	-	2 (11.76) (100)
5. Graduates	2 (25) (40)	1 (14.28) (20)	2 (100) (40)	5 (29.41) (100)
6. Engineering Graduates	-	2 (28.57) (100)	-	2 (11.76) (100)
7. Engineering Diploma	2 (2) (100)	-	-	2 (11.76) (100)
8. I.T.I.	1 (12.5) (100)	-	-	1 (5.88) (100)
Total	8 (100) (47.05)	7 (100) (41.17)	2 (100) (11.76)	17 (100) (100)

Note : 1) Figures in upper bracket show percentages to vertical total and those in lower show percentages to horizontal total.

They have established units before 1960. S.S.C. Qualified entrepreneurs (11.76 percent) had proprietary units having small capital investment (average Rs. 6,75,000/-). They established their units after 1980. There were five graduates in this cluster.

Table 4.2 shows that uneducated and primary educated entrepreneurs are present only in partnership concerns. S.S.C. entrepreneurs own only proprietary concerns, Higher Secondary persons are found in proprietary and partnership concerns. Engineering graduates are present in partnership units only. ITI entrepreneur has a proprietary unit while general graduates have ventured to establish units in all types of organisations.

C) **Machinery** :

Manufacturing units require adequate machinery for various manufacturing operations such as shaping, turning, cutting, drilling, during the course of production.

Units in cluster A use lathes, drilling, milling and shaping machines. Some of them use special purpose machines also, Table 4.3 shows the organisational classification of machinery.

Table 4.3

Details of machines owned by various organisationally
classified units

Machinery	Proprietary	Partnership	Private Limited	Total
1. Lathes	22 (55) (34.37)	29 (53.70) (45.31)	13 (50) (20.31)	64 (50.39) (100)
2. Shaping Machines	4 (10) (30.76)	7 (12.76) (53.84)	2 (7.69) (15.38)	13 (10.23) (100)
3. Drilling Machines	2 (5) (6.66)	12 (22.22) (40)	6 (23.7) (20)	30 (23.62) (100)
4. Special Purpose Machines	9 (22.5) (45)	6 (11.11) (30)	5 (19.23) (25)	20 (15.74) (100)

Note : 1) Figures show number of machines in organisation.

2) Figures in upper bracket show percentages to vertical total and those in lower show percentages to horizontal total.

a) **Lathes** :

Lathes are so indispensable machines that they are used in all concerns. Units in this cluster use, Batala, Kirloskar, H.M.T. and Rajkot Type lathes. Number of lathes used on an average is highest (6) in private limited units. Average 4 lathes are used in partnership units and average two to three lathes are used in proprietary units. Milling machines are used in partnership units only.

b) Shaping Machines :

Shaping machines are used for the job having horizontal movements. Shaping machines are used in all types of organisations. However all units do not have shaping machines. Out of 8 propriatory units 3 (37.5 percent) have shaping machines. Out of 7 partnership firms only one (14.29 percent) unit uses it and one out of two private limited firms uses shaping machines.

c) Special purpose machines :

Out of 17 units 8 units have one or two special purpose machines. Special purpose machines are rarely used for manufacturing operations of oil engines.

Out of 17 units 35.29 percent units are assembly units. They require less machinery than manufacturing units. Study also reveals that average 13 machines are used in private limited firms, Average 8 machines are used in partnership firms and average 5 machines are used in propriatory units. Higher organisation being bigger in size uses more machines.

Table 4.4 shows picture of machines owned by various educationally qualified producers.

It is observed that the uneducated entrepreneur having an assembly unit has no machines. Two primary educated entrepreneurs have average two lathes, one shaping machine. One of them make use of special purpose radial drilling machine. There are two S.S.C. educated who have average three lathes, two drilling machines and one special purpose machine. They don't have shaping machine.

Table 4.4

Details of machines owned by various educationally qualified entrepreneurs.

(Number of machines)

Education	Lathes	Shaping machines	Drilling Machine	Special purpose Machines	Total
1. Uneducated	-	-	-	-	-
2. Primary Educated	4 (6.24) (40)	3 (23.07) (30)	2 (6.66) (20)	1 (5) (10)	10 (7.87) (100)
3. S.S.C.	7 (10.93) (63.63)	-	3 (10) (27.27)	1 (5) (99)	11 (8.66) (100)
4. Eleventh Twelfth	4 (6.24) (44.44)	-	2 (6.66) (22.22)	3 (15) (33.33)	9 (7.08) (100)
5. Graduate	21 (32.81) (52.5)	3 (23.07) (7.5)	10 (33.33) (25)	6 (15) (30)	40 (31.49) (100)
6. Engineering Graduate	20 (31.25) (55.55)	4 (30.76) (11.11)	9 (30) (25)	3 (15) (8.33)	36 (28.34) (100)
7. Engineering Diploma	7 (10.93) (46.66)	2 (15.38) (13.13)	2 (6.66) (13.13)	4 (20) (26.66)	15 (11.81) (100)
8. I.T.I.	1 (1.56) (16.66)	1 (7.69) (16.66)	2 (6.66) (33.33)	2 (10) (33.33)	6 (4.72) (100)
Total	64 (100)	13 (100)	30 (100)	20 (100)	127 (100)

Note : 1) Figures in upper bracket show percentages to vertical total and those in lower show percentages to horizontal total.

Two entrepreneurs of eleventh and twelfth standard have average 2 lathes, two drilling and three special purpose machines.

There are five graduates who use average five lathes; two drilling and one special purpose machine. Graduates have larger partnership and private limited firms than primary S.S.C. and Higher Secondary educated.

Two engineering graduates use on an average ten Lathes, two shaping machines and four drilling machines and one special purpose machine. These engineering graduates have partnership firms of comparatively larger size which are engaged in multiple manufacturing operations. Two diploma holders have also well established proprietary firms having three lathes, one shaping, one drilling and two special purpose machines.

ITI educated entrepreneurs has a small proprietary unit, having few manufacturing operations. He has one lathe, one shaping and one drilling machine.

Graduates and engineering graduates have more machines than others because both of them have comparatively large units having multiple operations. Therefore, it will be farfetched to conclude that education of the entrepreneur has impact on use of machines.

Use of machines depends more on size of unit, and nature of operations than on education and type of organisation.

Raw material

Every industrial unit requires different types of raw material for production. Units in cluster A provide ultimate or final product

i.e. oil engine. Their main requirement of raw material is iron and casting. Table 4.5 shows number of units requiring casting.

Table 4.5
Number of units requiring casting

Raw material	Proprietary	Partnership	Private Limited	Total
Casting	3 (27.27)	7 (63.63)	1 (9.9)	11 (100)

NOTE : Figures in bracket show percentages to total.

Table 4.5 indicates that out of 17 units, 11 (64.70 percent) units make use of casting. It is because 6 units (35.30 percent) are assembly units, they purchase ready made spare parts (such as connecting rods, cylinder head piston ring etc.) from local component suppliers. Therefore they need no raw material. Out of six assembly units 5 (83.33 percent) units are proprietary and one unit is private limited firm.

Raw material requirement of diesel engine manufacturers.

Table 4.6 gives an understanding that casting and mild steel is used on an average in higher proportion in proprietary units than that in partnership and private limited firms. This is because partnership and private limited firms use more readymade parts while proprietary units manufacture entire engine. Private limited firms

Table 4.6

Organisationwise classification of raw material required per month

		(In Kilograms)		
Raw material (In Kilograms)		Proprietary	Partnership	Private Limited
1. Casting		1,16,000 (33666)	1,27,900 (18271)	30,000 (30000)
2. Mild Steel		90,000 (12857)	--	--
3. Sheet Metal		30,000 (1000)	1,53,000 (21858)	--

NOTE: Figures in bracket show averages of raw material used.

produce engines of standard type; spare parts of which are available from local component suppliers.

E) Finance :

Adequate finance is a prerequisite to proper organisation of production. It plays vital role in development and prosperity of an enterprise. Capital requirements of an oil engine unit is met from two sources :

- 1) Equity or risk capital,
- 2) Borrowed capital consisting of
 - i) long term capital for investment in equipment and other capital assets and
 - ii) short term capital for current need of the unit.

Equity or Risk Capital :

In case of this industry equity or risk capital is owned by promoters. It may be supplemented by funds from friends and

relatives in the form of medium term deposits. Bulk of such capital is invested in fixed assets. Such as land, building, plant and machinery.

The study of small manufacturing units reveals that proportion or percentage of equity capital to fixed capital varies from unit to unit from 20 percent to 70 percent.

Borrowed Capital :

Borrowed capital can be classified as 9i) long term capital which is needed for the purpose of expansion of the unit, renovation of the plant and maintenance of machinery. These credits are hardly provided by commercial banks, so small industrialists have to fall back upon the aid of the state government to get funds under State Aid to Industries Act and State Finance Corporation for long term and medium term credit. Many of them depend upon money lenders and indigeneous bankers for short term loans at high rate of interest.

Working capital needs vary from unit to unit. There cannot be a rigid formula or set rules which can be applied to all units.

Table 4.7 connotes that total initial capital invested in propriatory units is greater in percentage (38.58 percent) than that in partnership and private limited units (31.51 percent and 29.91 percent) respectively).

It is observed that average initial capital is higher in private limited units (Rs. 4,25,000) than that in propriatory (Rs. 1,37,062) and partnership unit (Rs. 1,27,857). Initial capital investment in propriatory units varies from Rs. 10,000 to Rs. 5 lakh.

Table 4.7

Initial Capital and Capital at present (organisationwise
classification of capital investment)

Organisation	Initial Capital investment (In Rupees)	Capital at present (1988) (In Rupees)
Proprietary	10,96,000 (38.58)	70,50,000 (35.61)
Partnership	8,95,000 (31.50)	95,50,000 (48.23)
Private Limited	8,50,000 (29.91)	32,00,000 (16.16)
Total	28,41,500 (100)	19,80,000 (100)

Note : Figures in brackets show percentage to vertical total.

Old units established before 1950 had initial capital investment less than Rs. 1,000 and units established after 1980 had initial capital investment of Rs. 5,00,000 and more.

Capital at present include both (i) capital in fixed assets and (ii) capital in current assets. Capital at present also varies from unit to unit depending upon the size and type of organisation of the unit. Average capital at present is higher in private limited units (Rs. 16,00,000) than that in proprietary (Rs. 8,81,250) and partnership units (Rs. 13,64,285). Capital at present in proprietary units varies from Rs. 1 lakh to Rs. 5 lakh. There are two proprietary units having capital from Rs. 1 lakh to 1.5 lakh. Five proprietary

units have capital from Rs. 3 lakh to Rs. 5 lakh and one unit has of Rs. 35 lakhs. This unit is very old, established in 1945 and is a large sized unit.

Present capital investment on an average in partnership unit is Rs. 13,64,285. There is one unit having capital Rs. 1 lakh. Two partnership units have capital Rs. 5 lakh. Three units have capital investment from Rs. 10 to Rs. 15 lakhs and one large unit has capital investment of Rs. 50 lakhs.

Capital at present in private limited unit is Rs. 20 lakhs.

Average Initial capital investment (Table 4.8) of S.S.C. educated entrepreneur is lowest at Rs. 1,000 to be followed by that of uneducated entrepreneur (Rs. 3,000). It is the highest at Rs. 3,40,000 for graduate entrepreneurs. This is because both the S.S.C. educated have proprietary units established after 1980, and the illiterate has partnership unit. Graduate entrepreneurs have all the three types of units. Two have private limited, two partnership and one a proprietary unit.

Table 4.8
Educationwise Classification of Capital Invested

Education	Initial Capital (Rupees)	Capital at present (Rupees)
1. Uneducated	30,000 (1.05)	5,00,000 (2.52)
2. Primary Educated	1,20,000 (4.22)	20,00,000 (10.10)
3. S.S.C.	20,000 (0.70)	6,50,000 (3.28)
4. Elevenen/Twelfth	5,20,000 (18.30)	18,50,000 (9.34)
5. Graduate	17,00,000 (59.82)	54,00,000 (27.27)
6. Engineering Graduates	3,30,000 (11.61)	40,00,000 (20.20)
7. Engineering Diploma	5,15,000 (1.18)	50,00,000 (25.25)
8. ITI	40,000 (1.40)	4,00,000 (2.02)
Total	28,41,500 (100)	1,98,00,000 (100)

Note : Figures in bracket show percentage to vertical total.

Two units run by graduates are assembly units and three are manufacturing units. Two engineering graduates have partnership units. Initial capital investment is Rs. 1,65,000 and present capital is Rs. 10,00,000.

Table 4.10 shows the sources of finance. It is observed that finance is raised from three sources.

Table 4.10

Sources of Capital in Percentage

Source	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	Total
1. Own	1 (6.26)	1 (6.26)	2 (33.33)	1 (6.26)	2 (33.33)	1 (6.26)	1 (6.26)	1 (6.26)	-	6 (12.5)	16 (94.11)
2. Bank	1 (9.09)	2 (18.18)	1 (9.09)	1 (9.09)	3 (27.27)	1 (9.09)	1 (9.09)	1 (9.09)	-	-	11 (64.70)
3. Other Institutions	1 (16.16)	2 (33.33)	2 (33.33)	-	1 (16.16)	-	-	-	-	-	6 (32.29)
Total	3 (17.64)	5 (29.41)	5 (29.41)	2 (11.76)	6 (32.29)	2 (11.76)	2 (11.76)	2 (11.76)	-	6 (35.29)	33 (100)

NOTE : 1) Figures in column indicate number of units.

2) Figures in brackets give percentage to total units.

a) Own Capital :

Many entrepreneurs raise capital from their own accumulated funds. The percentage of own funds to total fund varies from unit to unit. Out of 17 units 16 (94.11 percent) units accumulated finance from own resources.

It is observed that proprietary units raised 40 to 80 percent of their capital from own accumulated funds. Partnership units have 10 to 40 percent of capital from own sources and in private limited firms 40 to 60 percent capital is subscribed by share holders. Proprietary units are more dependent on own resources than partnership and private limited units. Educationwise classification of resources reveals that S.S.C. educated and higher secondary educated entrepreneur were more dependent on own capital than others.

b) Banks :

Commercial banks are also an important source of finance for units in cluster A. All nationalised banks extend loans to small units. State Bank of India is leading in extending loans. Proprietary units have raised 10 to 50 percent of their finance from banks; whereas partnership units collect 40 to 80 percent from banks and private limited units have borrowed 30 to 50 percent of capital from banks. Graduates and higher secondary educated depend more on banks than others.

c) Other Institutions :

Very little portion of total finance comes from other institutions. In proprietary units borrowing did not exceed 10 percent of capital investment. Three partnership units borrowed 10 to 50

Table 4.11

Cost of production as related to various components of cost given in percentage

Components of cost	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	Total
1. Raw Material	-	-	-	2	1	4	4	6	-	-	17 (100)
				(11.76)	(5.88)	(23.52)	(23.52)	(32.29)			
2. Labour	9	8	-	-	-	-	-	-	-	-	17 (100)
	(52.94)	(47.5)									
3. Machining	12	1	-	-	-	-	-	-	-	-	13 (76.47)
	(70.58)	(5.88)									
4. Transport	13	-	-	-	-	-	-	-	-	-	13 (76.47)
	(76.47)										
5. Overheads	12	-	-	-	-	-	-	-	-	-	12 (70.58)
	(70.58)										
6. Sundry	17	-	-	-	-	-	-	-	-	-	17 (100)
	(100)										
7. Advertisement	17	-	-	-	-	-	-	-	-	-	17 (100)
	(100)										
8. Profit	9	8	-	-	-	-	-	-	-	-	17 (100)
	(52.94)	(47.05)									

Note : 1) Figures show number of units.

2) Figures in bracket show percentages to total units in Cluster A.

percent of their capital from other sources. The share of other institutions in the finances of private limited companies was 10 to 30 percent of total investment.

F)_ Cost of Production :

Cost of producing a commodity consists of various expenses such as expenses on raw material, machinery, labour, energy, advertisement, transport, stationery and other sundry items. Cost incurred on production in relation to various factors of production varies from unit to unit. This is evident from table 4.11

a) Raw Material :

Units in cluster A purchase ready made spare parts from other units and some of them manufacture parts themselves. Those who manufacture parts require cast iron, sheet metal and forged steel. Expenses incurred on purchase^{of}/raw material varies from 31 percent to 80 percent of total cost of production. There are two small proprietary units which incurred less than 50 percent of cost on raw material. Cost incurred by them on labour and machine is higher (20 percent and 15 percent respectively) than that of other units.

Out of four units which spend 51 to 60 percent on raw material, one unit is private limited, one is partnership and two of them are proprietary units. Out of four units spending 61 to 70 percent on raw material two are proprietary and rest of them are partnership units.

Graduate producers spend 70 percent to 80 percent on raw material. Engineering graduate entrepreneurs spend 75 to 80 percent

of total cost on raw material. Primary educated spend 40 to 50 percent of total cost on raw material. Out of six units, spending 70 to 80 percent on raw material. Three units are proprietary and three are partnership units.

b) Labour Charges :

Labour charges account for 5 to 20 percent of the total cost. Table 4.11 shows that 9 units (52.94 percent) pay upto ten percent of the total cost on wages. These units include 5 proprietary units; 3 partnership units and one private limited company. Four graduates and two engineering diploma holders spend 5 to 10 percent on labour, while two SSC educated spend less than 5 percent on labour because they have assembly units. Eight units spend 11 to 20 percent on labour. (Table 4.11) These units include four proprietary, three partnership and one private limited unit.

c) Machining Charges :

Machining charges account for 3 to 20 percent of the total cost. All units do not spend on machining charges. Units which have their own machines have not to pay charge for machining. Only 13 units (76.41 percent) spend on machining charges. Out of these units two units are private limited. They spend 6 to 10 percent of total costs on machining. These units are run by graduates. Two proprietary units spend less than 5 percent. These units are assembly units having very few machines. Therefore, whenever they want to manufacture they depend on other units having machines. As a result their machining charges are higher.

d) Transportation :

The share of cost incurred on transportation is negligible. It accounts for 1 to 3 percent of the total cost. Transport cost is about two percent of the total cost in respect of private limited big units. In small units cost incurred on transportation is $\frac{1}{2}$ to 1 percent of total cost.

e) Sundry Expenses :

These expenses include gifts given to officers, dinners, gift to postman or it also includes expenses on sundry items such as rags etc. These expenses do not exceed 2 percent. All units spend on sundry expenses.

f) Advertisement :

All units spend some amount on advertisement. Large units in proprietary and partnership firms spend 3 to 4 percent of total cost on advertisement. Small proprietary and partnership firms spend 1 to 2 percent on advertisement.

g) Profit :

Profit varies from 4 to 15 percent. It is 6 to 8 percent in private limited units, 7 to 15 percent in partnership units and 5 to 10 percent in proprietary units.

G) Labour :

Labour is the backbone of an industry. It is an essential independent ingredient of production process, besides raw material and capital.

All manufacturing units employ skilled, semi skilled and unskilled labourers. All of them are sufficiently available. The main source of skilled labour in Kolhapur is government technical institute. Semi-skilled and unskilled labour usually come from lower strata of society.

Table 4.12 shows the number of labourers employed in various organisations.

Table 4.12
Number of labourers employed according to
organisation of unit

Organisation	Number of skilled labourers	Number of of semi-skilled labourers	Number of of unskilled labourers	Total
Proprietary	55 (27.63) (41.66)	61 (39.35) (46.21)	16 (30.48) (12.12)	132 (32.43)
Partnership	79 (39.69) (59.39)	39 (25.16) (29.32)	15 (28.30) (11.27)	133 (32.67)
Private Limited	65 (32.66) (45.77)	55 (47.41) (38.93)	22 (41.50) (15.49)	142 (34.88)
Total	199 (100) (48.89)	155 (100) (38.08)	53 (100) (13.02)	407 (100)

Note : Figures in upper bracket show percentage to vertical total and in lower bracket percentage to horizontal total.

Almost all units manufacturing diesel oil engines make use of skilled, semi-skilled and unskilled labourers. However, private

limited and partnership units require more skilled labourers (average 32.5 persons) than partnership (average 11.28 persons) and proprietary units use the least (6.81 persons). This is because engines produced by private limited units are technologically advanced and need more accuracy and precision. Partnership units are larger in size with higher productive capacity. They are engaged in multiple engineering and manufacturing activities. Most of these units have costly high quality automatic lathes, milling and shaping machines and therefore need workers who have handled such machines.

Proprietary units make equal use of skilled and semi-skilled labourers (on an average 6 and 7 labourers respectively). Unskilled labourers are used only in 4 units (50 percent). All partnership firms also use skilled and semi-skilled labourers. However, 3 out of 7 partnership units employ unskilled labourers.

Graduates make more use of skilled workers (average 23 labourers) than others. It is because graduates own comparatively big private limited companies and partnership units which require precision and skill in their manufacturing operations.

The number of skilled labourers employed by graduate proprietors is on an average 8, that by S.S.C. qualified is 20; by engineering graduate owners it is 11, by engineering diploma holders it is 5 and ITI trained producer, it is one. S.S.C. qualified owners employed on an average 20.5 skilled workers followed by graduates employing 16; and engineering graduates and uneducated 8 each.

Table 4.13
Educationwise classification of different types
of labourers employed

Educational status of entrepreneurs	Skilled labourer	Semi-Skilled labourer	Unskilled labourer	Total
1. Uneducated	8 (4.02) (32)	8 (5.16) (32)	9 (16.38) (36)	25 (6.14)
2. Primary educated	-	12 (7.74) (100)	-	12 (2.94) (100)
3. S.S.C.	-	41 (26.45) (97.61)	1 (1.88) (2.38)	42 (1.81) (100)
4. Eleventh/ Twelfth	1 (0.50) (14.28)	-	-	-
5. Graduate	114 (57.28) (51.35)	79 (50.97) (35.99)	29 (54.71) (13.06)	222 (54.54) (100)
6. Engineering Graduate	49 (24.62) (74.24)	10 (6.45) (15.15)	7 (13.20) (10.60)	66 (16.21) (100)
7. Engineering Diploma	27 (13.56) (87.09)	-	4 (7.54) (12.90)	31 (7.61) (100)
8. ITI	-	1 (0.64) (50)	1 (1.88) (50)	2 (0.49) (100)
Total	199 (100) (48.89)	155 (100) (38.08)	53 (100) (13.02)	407 (100) (100)

Note : 1) Figures in upper brackets are percentages to vertical total and that in lower bracket are percentages to horizontal totals.

Unskilled labourers are preferred by small proprietors. The number of unskilled labourer used on an average was 6 in units run by graduates. It was 3 and 2 in units run by S.S.C. educated and primary educated entrepreneurs respectively.

Table 4.14
Labour to Machine Ratio

Organisation	Number of labourers	Number of Machines	Labour to Machine ratio
1. Proprietary	199	40	5:1
2. Partnership	155	54	3:1
3. Private Limited	53	26	2:1

a) **Labour to Machine Ratio :**

Table 4.14 reveals that the ratio of labour to machine is higher i.e. 5.1 in proprietary units; in partnership it is 3.1 and in private limited concerns it is 2.1. That means proprietary concerns use more labour intensive technique. It is because proprietary units are smaller in size having less funds. They are unable to invest more funds in machinery. Use of labour is convenient because it is flexible factor of production which can be reduced or increased according to requirements.

b) **Wages paid to Labourers :**

Wages given by employers to same kind of labour differ from unit to unit. Private Limited firms give higher wages to all types of labourers than that given by either proprietary or partnership

firm. It is because they are financially sound. Moreover trained experienced, skilled labourers are not easily available. A lot of time and money is otherwise required to be wasted to train a skilled labourer. Therefore, to attract the skilled worker, private limited firms pay wages from Rs. 1,000 to Rs. 1,500 per month to skilled workers, Rs. 800 to Rs. 1,000 to semi-skilled workers and Rs. 400 to Rs. 1000 to unskilled workers.

Partnership units pay Rs. 900 to Rs. 1200 per month to skilled workers and Rs. 400 to Rs. 500 per month to semi-skilled and Rs. 300 to Rs. 400 to unskilled workers.

Proprietary units pay Rs. 800 to Rs. 900 per month to skilled, Rs. 600 to Rs. 700 to semi-skilled and Rs. 300 to Rs. 400 to unskilled workers.

It was observed that wages are not given as they are prescribed by Wage Board. There is no uniform system of wage payment. In most cases wages are fixed by personal negotiations depending upon the skill of the worker, his experience and urgency of the worker.

c) Increments :

Annual increments are given by 90 percent of the partnership and private limited firms. Proprietors hesitate to give annual increments. Annual increments in wages depend upon conditions in labour market, profitability of the unit and behaviour of the worker. Out of 17 units studied 11 (64.71 percent) units give increments to senior workers.

d) **Bonus** :

Generally bonus is given at the time of Diwali. Fourteen units (82.35 percent) give bonus at the rate of 8.33 percent of annual wage of worker. Those workers who remain present for maximum days get higher bonus than others. Bonus may vary according to the profit of the unit. Large firms give bonus upto 20 percent of the annual wage of the worker.

e) **Facilities. Extended to the Workers** :

Private limited firms give group incentive to workers. For example Rocket Engineering Corporation gives group incentive to those workers who make maximum pieces of oil engines within given time. 'Sales Promotion Schemes' are also extended to staff on their sale achievements. Apart from these monetary emoluments these units extend certain benefits to their workers such as free medical aid, clothes or bicycles. However, all units do not provide all these facilities.

Organisationally both partnership and proprietary units give maximum benefits and partnership units are liberal in this respect than proprietary units.

H) **Market** :

Marketing is a very crucial area. The real test of an enterprise is in the market. It is the market forces that guide and decide the fate of an enterprise. Therefore the understanding of the current market forces; immediate policy decision and appropriate prompt action in pursuance of that decision to match those forces are the essential elements of marketing management.

External as well as internal factors affect marketing operations of an enterprise. The business environment changes constantly. Market size, scope and nature undergoes a change continuously. In this changing context, the strategy and policy of the enterprise must also change correspondingly and promptly. Such a dynamic approach is possible if the personnel looking after the marketing functions are conscious and perspective as well as responsive and receptive to customer expectations and market forces.

Many units operating in oil engine industry are closed down because of their failure to understand changing market conditions, shift in demand. They didn't realise the need for adoption of new techniques of production. Those units which adopted new technology and made changes in design, size and volume of engine according to consumer needs become successful. The law^{of} survival of the fittest is applicable in this industry too.

The very purpose of manufacturing concern is to produce what the consumer wants at a price he is willing to pay. It has been observed during survey that partnership and private limited firms are more conscious about changing market conditions. It can be judged by their rising sales.

a) Nature and Structure of Oil Engine Market :

Market for oil engine is highly competitive and imperfect. Oil engines produced by different units show wide range of variety. They are not homogeneous and identical to each other. They differ in size, design, volume and prices. Eleven units (64.71 percent) out of seventeen produce 5 H.P. to 10 H.P. vertical engines. Some

of them (30 percent) are water cooled while seventy percent produce aircooled engines.

Horizontal engines are less popular as they are heavy and bulky hence most of them manufacture better type vertical engines. Nine units (52.94 percent) manufacture quality mark vertical engines and four units (23.53 percent) manufacture ISI mark vertical engines from 5 H.P. to 20 H.P.

b) Prices of engines :

Prices of oil engines of similar capacity and types are not similar. Higher prices are charged for ISI mark engines than quality mark engines. Customers of Quality mark engines are demanded by small and marginal farmers from adjoining villages. Whereas, ISI mark engines have wide and scattered market all over the country. ISI market engines are sophisticated engines and their customers are rich land lords. Customers of different engines come from different strata of society. Thus, there are markets within the market for each type of engine.

As engines differ in size, design, quality and prices, market for diesel engine is scattered and segmented.

Some of the partnership and private limited units have created new markets for their product by adopting new techniques of production and introducing new designs which are superior to old engines. Some of these units supply their major production to Kolhapur market to small and marginal farmers while some others supply at state and national level. Very few (namely four, 23.53 percent) of them export their engines.

c) Sale of Oil Engines of the Units in Cluster A :

Total sale of all seventeen units in cluster A in 1988-89 was Rs. 10,23,03,000 giving an average of the value of Rs. 60,17,825.50. Average sale of proprietary units in 1988-89 was Rs. 32,93,750. Average sale of partnership units in 1988-89 was Rs. 47,03,285 and average sale of private limited firms in 88-89 was Rs. 2,15,15,000.

Average size of sale of a private limited company, thus was 6.53 times the average sale of a proprietary unit, while that of a partnership unit was only 1.43 times of the average sale of a proprietary unit.

It is clear from table 4.15 that majority of the units (12) sell diesel engines at state, national level and in Kolhapur. These units supply very small fraction of their produce to Kolhapur Market. Sale within Kolhapur varies from 1 to 10 percent to 21 to 30 percent. Only one small partnership unit sells 60 to 70 percent of its product in Kolhapur market. Out of seventeen units only four units (23.52 percent) sell at all four levels.

Table 4.15
Market Sale outlet by Region

Percentage of total sale	Kolhapur	State Level	National Level	Export	Total
1 - 10	5 (41.66)	1 (6.66)	-	-	6 (14.63)
11 - 20	2 (16.66)	1 (6.66)	4 (40)	2 (50)	9 (21.95)
21 - 30	4 (33.33)	1 (6.66)	1 (10)	1 (25)	7 (17.07)
31 - 40	-	-	1 (10)	1 (25)	2 (4.87)
41 - 50	-	-	1 (10)	-	1 (2.43)
51 - 60	-	1 (6.66)	1 (10)	-	2 (4.87)
61 - 70	1 (8.33)	2 (13.33)	-	-	3 (7.31)
71 - 80	-	7 (46.66)	1 (10)	-	8 (19.51)
81 - 90	-	1 (6.66)	1 (10)	-	2 (4.87)
91 - 100	-	1 (6.66)	-	-	1 (2.43)
Total	12 (100)	15 (100)	10 (100)	4 (100)	41 (100)

Note : 1) Figures in bracket give percentage to vertical totals.

Table 4.16
Organisationwise Classification of Market Sale by region

Percentage	Within Kolhapur			State Level			National Level			Export		
	Pro.	Part- ner ship	Pvt. Ltd.	Pro.	Part- ner ship	Pvt. Ltd.	Pro.	Part- ner ship	Pvt. Ltd.	Pro.	Part- ner ship	Pvt. Ltd.
1 - 10	3 (50)	1 (20)	1 (100)	-	1 (14.28)	-	-	-	-	-	-	-
11 - 20	1 (16.66)	1 (20)	-	-	1 (14.28)	-	4 (66.60)	-	-	-	2 (100)	1 (50)
	-	-	-	-	1 (14.28)	-	1 (16.66)	-	-	-	-	1 (50)
21 - 30	2 (33.33)	2 (40)	-	-	-	-	-	-	-	-	-	-
31 - 40	-	-	-	-	-	-	-	-	-	-	-	-
41-50	-	-	-	2 (40)	-	-	1 (16.66)	-	-	-	-	-
51 - 60	-	-	-	-	-	-	-	-	-	-	-	-
61 - 70	-	1 (20)	-	-	1 (14.28)	-	-	-	1 (50)	-	-	-
71 - 80	-	-	-	3 (60)	3 (42.85)	-	-	-	1 (50)	-	-	-
81 - 90	-	-	-	-	-	1 (100)	-	-	-	-	-	-
91 - 100	-	-	-	-	-	-	-	-	-	-	-	-
Total	6 (100)	5 (100)	1 (100)	5 (100)	7 (100)	1 (100)	6 (100)		2 (100)		2 (100)	2 (100)

Note : 1) Figures show number of units.

2) Figures in bracket show percentage to vertical total.

Table 4.16 exhibits that 6 proprietary units (75.50 percent) out of eight units have sale within Kolhapur. Proprietary units sell 41 to 80 percent of their produce at state level (Ratnagiri, Bombay, Pune, Dhule, Jalgaon, Nagpur etc.)

About seventy percent of partnership units sell 10 to 30 percent of their produce within Kolhapur. Only one partnership concern sells seventy to eighty percent of its output in Kolhapur. One private limited company sells its oil engines in Kolhapur. Thus, proprietary, partnership and private limited units sell very small fraction of their total output within Kolhapur. These units supply 70 to 80 percent of their output at state level.

Partnership and private limited companies show higher percentage (70 to 80 percent) of sale at national level; while proprietary units sell only 11 to 30 percent of their produce at national level. Table 4.16 also reveals that only partnership and private limited concerns have some export. Proprietary units do not have export.

d) Distribution Channels for Diesel Engines :

There are a number of channels to reach the product in the market. They are :

- 1) Direct Sale,
- 2) Sale through agents,
- 3) Sale through dealers and stockists and,
- 4) Sale through marketing co-operatives.

For any small unit, the important problem is the choice of right type of trade channel. If consumers are limited in number

and are concentrated in a small area and if product requires special service one may do well to establish a direct link of contact with the customer. If, on the other hand, customers are very large in number and scattered over wide area, it is not possible for the manufacturer to reach them directly. In this case, some distribution link has to be established. In case of oil engine industry in Kolhapur, the distribution channels are mostly in the hands of private traders and one has to look for the reputation of a particular trading firm, its experience, the commission, its arrangements for after sales service etc. before selecting it for distribution purpose.

Table 4.17
Proportion of sale by different distribution Channels

Distribution Channels	Percentage of Sale								
	10-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Agent	4 (57.12)	1 (12.5)	2 (50)		1 (25)		2 (33.33)		-
Dealer	1 (14.28)	2 (25)	1 (25)	1 (50)	1 (25)		2 (33.33)		-
Direct	2 (28.57)	5 (62.5)	1 (25)	1 (50)	2 (50)		2 (33.33)		3 (100)
Total	7 (100)	8 (100)	4 (100)	2 (100)	4 (100)		6 (100)		3 (100)

Note : 1) Figures show number of units.

2) Figures in bracket show percentage to vertical totals.

Table 4.17 reveals that more than half units sell their product through agents (58.82 percent.). It is observed that out of 17 units 8 (47.06 percent) sell their product through all the three channels. Ten units (58.82 percent) sell their output through agent as well as directly.

Proprietary units have 37.5 percent direct sale. They also sell through agents (75 percent) they have very little sale through dealers (12.5 percent).

Partnership units are also more dependent on dealers (85.91 percent) and on agents. They have little direct sale.

Private limited firms sell 71 to 80 percent of their produce directly and 10 to 20 percent through agents.

Graduate entrepreneurs have little direct contacts with customers. Hence they sell more through agents and dealers (75 percent).

Most of the engineering educated entrepreneurs of Kolhapur producing diesel oil engines have direct contact with buyers. In fact farmers from Kolhapur and adjoining districts and states used to and still come directly to buy diesel oil engine. It is much so because these items are manufactured to the specifications and tastes of the buyers.

Entrepreneurs without technical education, excepting illiterate, use different marketing outlets as against technically trained ones, who preferred to limit themselves to direct contact with customers. Primary educated did not rely solely on direct contacts with customers. They utilize agency and dealership channels too.

Table 4.18
Percentage & total sale directly and
through agents and dealers.

Type of Unit	Direct sale	Sale through agents	Sale through dealers
Units in	52.64	20	27.35

NOTE : Figures show percentage of total sale.

Table 4.18 shows the distribution of sale through various channels. Direct sale accounts for 52.65 percent which is the highest share in sale. It is so because majority of the units have direct contacts with customer 27.35 percent of diesel engines are reached in market at remote places through dealers.

Share of total sale through agent is very few (20 percent).

I) Production and Capacity Utilization :

The ultimate aim of any productive enterprise is to get maximum production with available resources. Quality of production depends upon capacity utilization of that enterprise.

Table 4.19 shows growth in production of diesel oil engines from 1970.

Table 4.19
Production of Diesel Oil Engine

Year	Number of Diesel oil engines produced	Rate of change over previous year (Percent)
1970	17,585	-
1975	13,447	- 23.53
1980	25,629	90.55
1985	24,114	- 5.89
1986	22,272	7.63
1987	21,610	2.97
1988	24,985	15.61

Source : Data compiled from questionnaires.

Table 4.19 shows that production of diesel oil engine rose from 17,585 pieces in 1970 to 24,985 pieces in 1988. However this growth in production is not continuous. Though, production of diesel engine rose it was noticed during survey that there were two trends regarding production of diesel oil engines.

1) Production of diesel oil engine showed declining trend in case of small proprietary and partnership units. These units curtailed 20 to 30 percent of their production.

2) On the contrary production in large partnership units and private limited units increased substantially, because these units found new markets and reached global market.

Total production in all 17 units in 1988-89 was Rs. 85,831,000 and average production in proprietary unit was Rs. 38,32,142 and average production in private limited unit was Rs. 2,01,51,000.

a) Capacity Utilization :

Better capacity utilization is regarded as a pre-condition for accelerating the tempo of industrial growth. It refers to the maximum and rational utilization of machines, men, material and management. An entrepreneur is expected to produce maximum at minimum cost to achieve maximum capacity utilization. The year 1987-88 was a normal year for engineering industry. Average capacity utilization for year 1987-88 was calculated as under.

$$\text{Average Production per day} = \frac{\text{Value of output in 87-88}}{\text{Number of working days in 87-88}}$$

$$\text{Average Capacity (percentage)} = \frac{\text{Average production per day}}{\text{Installed Capacity}} \times 100$$

- i) Capacity utilization below 50 percent was considered bad capacity utilization.
- ii) Between 51 to 70 percent was regarded 'generally good' and
- iii) Above 70 percent was regarded generally very good. Capacity utilisation^{of}/oil engine industrial units in cluster A is discussed below through different angles.

Table 4.20

Organisationwise Classification of Capacity Utilization

Organisation	Percent Capacity Utilization									
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
	Bad Capacity Utilisation				Good Capacity utilisation		Very good capacity utilisation			
1. Proprietary	1 (50)		2 (66.66)		2 (66.66)			1 (50)	1 (33.33)	
2. Partnership	1 (50)		1 (33.33)	1 (100)			1 (50)	1 (50)	2 (66.66)	1 (100)
3. Private Limited	-		-		1 (33.33)	1 (50)			-	-
Total	2 (100)		3 (100)	1 (100)	3 (100)	2 (100)	2 (100)	2 (100)	3 (100)	1 (100)

Note : 1) Figures in columns show number of units.

2) Figures in bracket show percentages to vertical totals.

Table 4.20 conveys that six units (35.29 percent) show bad capacity utilization. All these units are very small in size, manufacturing non-standardised diesel engines. The main reason for bad capacity utilization in these units are drop in demand and inadequacy of capital.

Capacity utilization is less in greater proportion (50.00 percent) among proprietary units; it is marginally less (42.86 percent) in case of partnership units. All private limited companies have good capacity utilization; They are followed by proprietary units (25.00 percent). Partnership units have very good capacity utilization in greater proportion (54.14 percent.) Twenty five percent proprietary units are in this category but no private limited company could achieve this status.

Table 4.21
Educationwise Classification of Capacity Utilisation
Percent capacity utilisation

Educational Qualification	Bad Capacity Utilisation					Good		Very Good		
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	90-100
1. Uneducated	-	-	-	-	-	-	1 (50)	-	-	-
2. Primary	-	1 (100)	-	-	1 (100)	-	-	-	-	-
3. S.S.C.	-	-	-	2 (66.66)	-	-	-	-	-	-
4. Eleventh Twelfth	-	1 (50)	-	-	-	-	-	-	1 (53.33)	-
5. Graduate	-	-	-	-	-	3 (100)	-	-	2 (66.66)	-
6. Engineering Graduates	-	-	-	-	-	-	-	1 (50)	-	1 (100)
7. Engineering Diploma	-	-	-	1 (33.33)	-	-	1 (50)	-	-	-
8. I.T.I.	-	-	-	-	-	-	-	1 (50)	-	-
Total		2 (100)		3 (100)	1 (100)	3 (100)	1 (100)	2 (100)	3 (100)	1 (100)

Note : 1) Figures show number of units

2) Figures in bracket show percentage to vertical totals.

Table 4.21 shows that graduates and engineering graduates showed very good performance in respect of capacity utilization. Engineering diploma holders showed good performance. These entrepreneurs are working in partnership and private limited firms.

There are many reasons for under utilization of capacity such as

- i) shortage of raw material and of skilled labour.
- ii) Frequent interruption in supply of electricity.
- iii) Difiency on the part of entrepreneurs to manage the unit.

However inadiquacy of demand and inefficient management by entrepreneurs were observed to be the main causes of under utilization of capacity. Under utilization of capacing due to shortage of raw material and skilled labour was rarely observed.

b) Export :

Export trade is a complex and specialised activity involving, technical know how which is beyond the easy reach of small industrialists. Moreover, the difficulties experienced by the entrepreneurs in our country in matters of raw material, plant and equipment and technical know how deter them from entering into export.

All the matters, that are required for export are beyond the capability of small firms for the reason of their mearge resources, both personnel and financial. Therefore, no wonder that very few firms in Kolhapur export their engines to foreign countries.

Table 4.22
Export of Diesel Engines by Various Companies
(1988-89)

Name of the unit	Production	Places where engines are exported	Annual Value of export (Rs.)	Percentage to total sale
1) Rocket Engineering Corporation	Vertical oil Engines	Middle East Far East Countries	52,72,000	54.16
2. Gadre Industries	Diesel Oil Engines	Middle East and Far East Countries	25,00,000	25.68
3. Laxmi Industries	Diesel Oil Engines	Egypt, Iran, Iraq Saudi Arabia Syria, Bagala Desh	17,22,000	17.69
5. S.M. Karajgar & Company	Diesel Oil Engines	Honduras, Humburg, Monoria	2,40,000	2.47
Total			97,34,000	100.00

J) Future Plans :

Entrapreneurs are always concious about changing conditions of industrial atmosphere. They forecast future trends on the basis of their readings and prepare schemes for future development of the unit. Out of seventeen units, fourteen units (82.35 percent) have plans of enhancement of capacity in search for new market and change or diversification of production. Out of these 14 units 6 units (42.86 percent) ^{are} partnership and 6 are proprietary and two (14.28 percent) are private limited units.

It was observed during survey that entrepreneurs at all educational levels have future plans. Only uneducated and ITI qualified

entrepreneurs have no plan for future development.

Table 4.23 shows the organisation-wise classification of future plans.

Table 4.23
Organisationwise Classification of Future plans

Organisation	Capacity enhancement	New Market	Change in production	Total
Proprietary	2 (28.57)	3 (42.86)	3 (42.56)	8 (38.10)
Partnership	3 (42.86)	3 (42.86)	3 (42.86)	9 (42.86)
Private Limited	2 (28.57)	1 (14.28)	1 (14.28)	4 (19.4)
Total	7 (100)	7 (100)	7 (100)	21 (100)

Note : 1) Figures in columns show number of units.

2) Figures in bracket show percentages to vertical total.

Table 4.23 shows that all types of concerns have plans of capacity enhancement.

It was observed that 3 units have both plans ^{of} capacity enhancement and new market. All units which have plan of capacity enhancement manufacture standard engines. They supply engines outside state and they also export. There is a good demand for their diesel engines and due to increasing demand their existing capacity is utilized fully, hence they require to enhance existing capacity. Among them 28.57 percent proprietary, 42.86 partnership and all private limited

concerns want to increase their capacity.

Seven units out of 17 were in search of new market. Those units which had capacity inhanement plan had plans to find out new market.

Seven units (41.17 percent) wanted to change production. These are the manufacturers of either quality mark engines or non-standardised engines. As they found falling demand for their engines due to intese competition they prepared plans to diversify or change production.

Table 4.24
Educationwise classification of future plans

Education of producer	Capacity enhancement	New Market	Change in production	Total
1) Uneducated	1 (14.28)	-	-	1 (4.76)
2) Primary Educated	-	2 (28.57)	1 (14.28)	3 (14.28)
3) S.S.C.	-	-	-	-
4) Eleventh/ Twelfth	1 (14.28)	-	1 (14.28)	2 (9.52)
5) Graduate	3 (42.85)	3 (42.85)	3 (42.85)	9 (42.85)
6) Engineering Graduate	2 (28.57)	1 (14.28)	1 (14.28)	4 (19.04)
7) Engineering Diploma	-	1 (14.28)	1 (14.28)	2 (9.52)
8) ITI	-	-	-	-
Total	7 (100)	7 (100)	7 (100)	21 (100)

NOTE : Figures in bracket show percentages to vertical totals.

It is observed from table 4.24 that 60 percent of graduates, engineering graduates, all uneducated were in favour of capacity enhancement. All of them are manufacturers of standard engines. Change in production was favoured by 7 units. These producers own small proprietary and partnership units, producing non standardised engines.

It was observed that producers have not all three plans. But they implement one or two plans. Only graduate producers have all three plans.