

CHAPTER III

THE RESEARCH DESIGN

- The Nature of the Study
- The Formation of Universe
- Selection of Observational Units
- Selection of Respondents.
- Distribution of Characteristics of Chosen Respondents
- The Instruments used for the Collection of Data.
- The Statistical Tools Employed for the Analysis of Data.

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## THE RESEARCH DESIGN

### Nature of the Study:

The present study is both comparative as well as correlational study. Comparisons from each other among three sectors of Sugar Industry, i.e. in between, public sector vs. private sector sugar mills, public sector vs. cooperative sugar mills and private sector vs. cooperative sector sugar mills, have been made with regard to four variables under study, viz. organisational effectiveness, managerial effectiveness, centralization and formalization (the latter two constitutes properties of organisational structure). Also, correlation coefficients among managerial effectiveness (overall) and its various factors, formalization (overall) and its various factors, centralization (overall) and its various factors and organisational effectiveness on overall as well as on factor wise basis are computed for sugar industry as a whole and its three segments, viz., public, private and cooperative. Further, correlational studies can be relationship studies or predictive studies or both. The present study is both correlation as well as predictive. The prediction includes, organisational effectiveness (overall) and its various dimensions as criterion variables and managerial effectiveness, centralization and formalization as predictor variables.

## UNIVERSE:

Ours is basically a comparative study of three important wings of industrial enterprises of India, viz., public, private and cooperative. But keeping in view the constraints of an individual researcher regarding resources we have reluctantly confined it to the sugar industry of India which comprises all the three sectors, viz., public, private and cooperative. The sugar industry in India is spread over through out the length and width of our country. The socio-geographic conditions in our country, particularly, in the matter of minimum price of sugar cane, per acre yield of sugar cane, varieties of cane grown, levy and free quota sale of sugar are so different that the sugar industry operating in northern part of our country can hardly be compared with that of southern part. So we have confined our study to the sugar units operating in the northern part of India, which comprises the states of Jammu and Kashmir, Himachal Pradesh, Haryana, Punjab, Uttar Pradesh and Rajasthan as well as Union territories of Delhi and Chandigarh. The sugar industry happens to be one of the oldest and traditional industries of India. The first sugar unit came into existence as early as in 1901 and since then it has been progressing leap and bound. The newly established sugar units enjoy certain rights / privileges from the Govt. on account of their being at nursing/protecting stage which the old units do not. However, for the sake of bringing about a fair comparison

among various sectors of sugar industry, all those units which are at their nursing/protecting stage have been left out in this study. Similarly old units which are virtually at the verge of collapse have also been left out. So our universe comprises those units only which have come into existence during the period 1933 to 1980. Moreover, all the sugar units are not on the same footing from the view point of their size. The size has been measured in terms of crushing capacity of cane per day by a mills. The cane crushing capacity of mills ranges from a meagre 100 MT per day to a Giant capacity of 5000 MT or more per day. Our universe comprises those mills only whose crushing capacity lie in between 1250 MT to 2500 MT per day. Sugar industry as such is basically a mass production industry, however, difference lies in the matter of application of technology. For instance, while, some plants depend for their processing activity on double sulphitation cum double carbonization technology, others would like to apply only double sulphitation technology. However, these two different methods of productions would bring about a substantial difference in the quality and cost of sugar produced by them. We have included in our universe only those mills which use double sulphitation technique in their processing. As regards location, most of the sugar units are situated in rural area. There is hardly any sugar mills which we found to be located within Municipal limits.

Having resolved the above points of differences, particularly in the matter of socio-geographic conditions,

age, size, technology, location of plant, a homogenous group was found. There were 364 sugar mills in the country as whole on 30 Sept. 1986 (Table 3.1). Of these, the respective share of public, private and cooperative sector was 66, 104 and 194. The sugar units in northern part of our country were 122 only (36% of the total units). Again, out of these, 35 were in public sector, 45 in private sector and 42 were in co-operative sector. If the differences on account of age, size, technological conditions are wiped out, we are left only with 66 sugar mills which we can reasonably call homogeneous group. So these 66 sugar mills constitute our universe/population. Out of these 66 sugar mills, 14 lie in public sector, 17 in private sector and 35 in cooperative sector.

#### Selection of Sample:

As the number of mills in all the three sectors are not same, the quota sampling method has been applied. Only 20% of the total number of 66 mills (universe/population) have been sampled out. Thus our sample consists of 14 sugar mills only, of which 3 are in the public sector, 4 are in the private sector and 7 are in the cooperative sector (Table 3.2). All these mills have been selected on random sample basis. Thus, apart from our sample being a random sample, it also fulfills the characteristics of a strata cum quota sampling.

TABLE 3.1 STATE WISE DISTRIBUTION OF EXISTING SUGAR MILLS  
IN INDIA AS ON 30th SEPTEMBER 1986.

| S.No. | States         | Public Sector | Private Sector | Co-op. Sector | Total |
|-------|----------------|---------------|----------------|---------------|-------|
| 1     | 2              | 3             | 4              | 5             | 6     |
| 1     | West Bengal    | 1             | 1              | -             | 2     |
| 2     | North Bihar    | 12            | 14             | -             | 26    |
| 3     | South Bihar    | 3             | -              | -             | 3     |
| 4     | East U.P.      | 16            | 19             | 7             | 42    |
| 5     | West U.P.      | 7             | 10             | 6             | 23    |
| 6     | Central U.P.   | 9             | 12             | 15            | 36    |
| 7     | Punjab         | 2             | 2              | 6             | 10    |
| 8     | Haryana        | -             | 1              | 7             | 8     |
| 9     | Andhra Pradesh | 7             | 7              | 18            | 32    |
| 10    | Tamil Nadu     | 3             | 10             | 11            | 24    |
| 11    | Maharashtra    | -             | 10             | 82            | 92    |
| 12    | Gujrat         | -             | -              | 16            | 16    |
| 13    | Orissa         | -             | 1              | 2             | 3     |
| 14    | Madhya Pradesh | 2             | 3              | 3             | 8     |
| 15    | Kerala         | -             | 1              | 2             | 3     |
| 16    | Rajasthan      | 1             | 1              | 1             | 3     |
| 17    | Karnataka      | 1             | 11             | 15            | 27    |
| 18    | Assam          | 1             | 0              | 1             | 2     |
| 19    | Pondicherry    | -             | 1              | 1             | 2     |
| 20    | Nagaland       | 1             | 0              | -             | 1     |
| 21    | Goa            | -             | -              | 1             | 1     |
| Total |                | 66            | 104            | 194           | 364   |

Source: List of Sugar Mills in India, Bangladesh and Pakistan (1986).  
Indian Sugar Mills Association, Sugar House, New Delhi (3).

TABLE 3.2

LIST OF SUGAR MILLS SAMPLED OUT

| S.No. | Name of the Factory                          | Owner-ship | Location                    | Installed daily cane crushing capacity | Process of Mfg. | Year of first crush sugar |
|-------|--|------------|-----------------------------|--|-----------------|---------------------------|
| 1     | 2  | 3          | 4                           | 5                                      | 6               | 7                         |
| 1.    | Balrampur Chini Mills Ltd.                   | Pvt.       | Balrampur (Gonda)           | 2500                                   | DS              | 1933-34                   |
| 2.    | Tulsipur Sugar Co.Ltd.                       | Pvt.       | Tulsipur (Gonda)            | 1700                                   | DS              | 1936-37                   |
| 3.    | Motinagar Sugar Mills Ltd.                   | Pvt.       | Motinagar (Faizabad)        | 2000                                   | DS              | 1947-48                   |
| 4.    | U.P.State Sugar Corp. Ltd., Unit-Amroha      | Pub.       | Amroha (Moradabad)          | 1925                                   | DS              | 1946-47                   |
| 5.    | The Ajudhia Sugar Mills Ltd.                 | Pvt.       | Rajaka Sahaspur (Moradabad) | 1700                                   | DS              | 1940-41                   |
| 6.    | The Kisan Sehkari Chini Mills Ltd.           | Coop.      | Satha (Aligarh)             | 1250                                   | DS              | 1976-77                   |
| 7.    | The Kisan Coop. Sugar Factory Ltd.           | Coop.      | Sarsawa (Saharanpur)        | 1500                                   | DS              | 1962-63                   |
| 8.    | The Kisan Sehkari Chini Mills Ltd.           | Coop.      | Nanauta (Saharanpur)        | 1250                                   | DS              | 1979-80                   |
| 9.    | The U.P.State Sugar Corp. Ltd.               | Pub.       | Sakhoti Tanda (Meerut)      | 1500                                   | DS              | 1933                      |
| 10.   | U.P.State Sugar Corp. Ltd. Unit-Mohiuddinpur | Pub.       | Mohiuddinpur (Meerut)       | 1500                                   | DS              | 1933                      |
| 11.   | Ramala Sehkari Chini Mills Ltd.              | Coop.      | Ramala (Meerut)             | 1250                                   | DS              | 1978-79                   |
| 12.   | The Kisan Sehkari Chini Mills Ltd.           | Coop.      | Anoop Shahr (Bullandshar)   | 2000                                   | DS              | 1977-78                   |
| 13.   | The Sonapat Coop. Sugar Mills Ltd.           | Coop.      | Sonapat (Sonapat)           | 1250                                   | DS              | 1976-77                   |
| 14.   | The Patiala Co-op. Sugar Mills Ltd.          | Coop.      | Rakhra (Patiala)            | 1250                                   | DS              | 1980-81                   |

Pub 3  
 Priv 4  
 Coop 7  
 Tot. 14

Selection of Respondents:

Our respondents constitute managers working in sampled out sugar mills. The total strength of managers from top to the bottom level in a mediocre sugar mills ranges from 20 to 25. A sugar unit seems to have four hierarchy levels of management. At top of the hierarchy, there is managing director, who represents the Board of Directors or Govt. as the case may be. In Government or cooperative run mills, he generally happens to be a member of provincial civil services. Most of the decisions of routine nature he is capable to take himself and also entirely responsible for getting the decisions implemented taken by the board of directors. The senior middle level management comprises functional heads, such as, Chief Engineer, Chief Chemist, Chief Accounts Officer, Cane Development Manager. These departmental heads carry the weight of their respective departments and their work is coordinated only through the linking pin of Managing Director. This level also comprises Deputy Chief Chemist/Chemists and Deputy Chief Engineer/Engineers, numbering one to three in each case. The junior middle level management consists of Chemists (3 to 5), Engineers (3 to 6). Accounts Officer(1), Personnel Officer (1), Labour Officer (1), Cane Officer (1) and in some cases Marketing Officer (1). It can be further explained here that the Engineering Deptt. has two types of duties:(i) repairs and maintenance (ii) Electrical. The positions which we have just mentioned above relate to the



repairs and maintenance department only. Apart from these positions, there are two or three Electrical Engineers in the electrical deptt. The Electrical Engineers also work under the direct control of Chief Engineer who heads the repairs and maintenance section as well. The Jr. middle level managers are to carry out such duties as their heads, deputy heads ask them to do so. At the lower level of management, there are Supervisors/Foremen (2), Assistant Accountant (1), Cane Inspector (2), Store Incharge (1). They have to follow the instructions of senior middle level managers as well as junior middle level managers of their respective departments. A simple organisation structure chart depicting these positions is shown on the following page (Fig. 3.1).

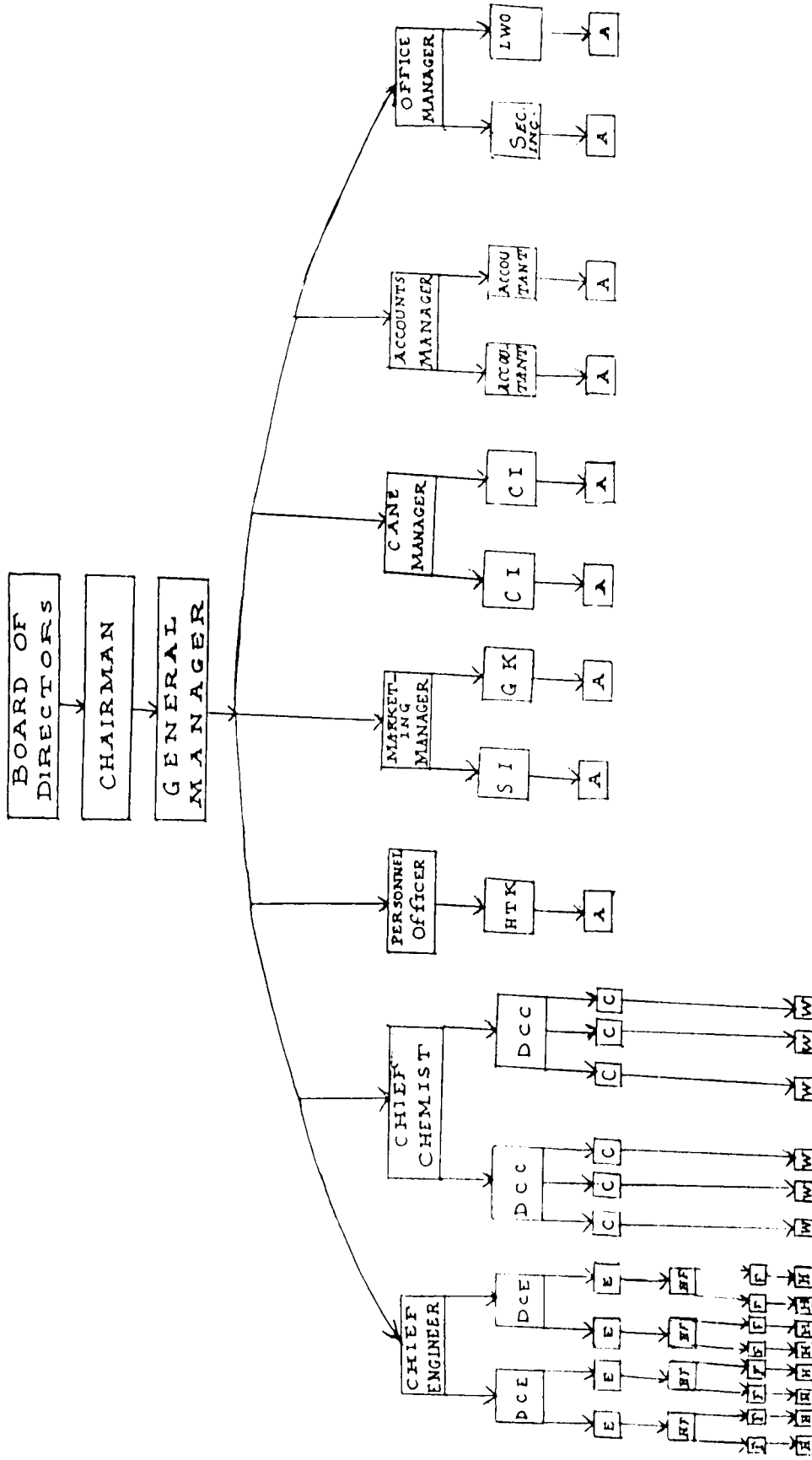
We desired to get our questionnaires filled up from 280 managers, on an average of 20 managers from each firm. But on account of managers' reluctance or business or absence from duty for a long period of time, we succeeded in getting only 165 questionnaires filled up by them. Further, the minimum number of questionnaires filled up by a firm was 9 and maximum number of questionnaires filled up by a firm was 15. The distribution of managers as regards age, qualification, position, experience, functions and hierarchy is explained in the following pages.

#### Distribution of Managers as Regards Age:

The Table 3.3 shows eight classes of age wise distribution, the class in the beginning is of 20-25 age group and the class in the end is of 55 to 60 age group, the

# ORGANIZATION STRUCTURE OF A MODORE SUGAR MILLS

Figure 3.1



ABBREVIATION CHART.

|     |                       |      |                        |
|-----|-----------------------|------|------------------------|
| DCE | Deputy Chief Engineer | C    | Chemist                |
| E   | Engineer              | W    | Workers                |
| HF  | Head Fitter           | HTK  | Head Time keeper       |
| F   | Fitter                | A    | Assistants             |
| H   | Helper                | SI   | Sale Incharge          |
| DCC | Deputy Chief Chemist  | G.K. | Godown Keeper          |
| CI  | Cane Inspector        | LWO  | Labour Welfare Officer |

TABLE 3.3 DISTRIBUTION OF MANAGERS AS REGARDS AGE

| Age   | Public Sector | Private Sector | Co-op.Sector   | Total          |
|-------|---------------|----------------|----------------|----------------|
| 1     | 2             | 3              | 4              | 5              |
| 20-25 | -             | -              | 3<br>( 4% )    | 3<br>(1.80%)   |
| 25-30 | 5<br>(12.5%)  | 7<br>(14%)     | 14<br>(18.67%) | 26<br>(15.74%) |
| 30-35 | 8<br>(20%)    | 9<br>(18%)     | 21<br>(28%)    | 38<br>(23.03%) |
| 35-40 | 10<br>(25%)   | 8<br>(16%)     | 15<br>(20%)    | 33<br>(20%)    |
| 40-45 | 6<br>(15%)    | 8<br>(16%)     | 8<br>(10.67%)  | 22<br>(13.33%) |
| 45-50 | 7<br>(17.5%)  | 9<br>(18%)     | 9<br>(12%)     | 25<br>(15.15%) |
| 50-55 | 4<br>(10%)    | 6<br>(12%)     | 5<br>(6.66%)   | 15<br>(9.09%)  |
| 55-60 | -             | 3<br>(6%)      | -              | 3<br>(1.80%)   |
| Total | 40<br>(100%)  | 50<br>(100%)   | 75<br>(100%)   | 165<br>(100%)  |

other six classes lie in between. However, we can further limit these classes to merely 3 only, whereas young age group can be represented by those persons who are below 30 years of age, the middle age group by those who are 30 or more than 30 but below 50 years of age and lastly the old age group by those who are 50 years or more than 50 years of age. This more elaborative classification suggests that in public sector 5 out of a total of 40 (12.5%) belongs to young age group, 4 out of 40 (10%) belongs to old age group, whereas, 31 out of 40 (77.5%) belongs to middle age group. Thus a substantial number of managers belong to middle age group, that is, they are neither too young nor too old. In private sector, the young age group percentage is a little more (14%), also old age group percentage is a little more (18%) only, and the rest, as high as (68%) belong to middle age group. Thus, in private sector also most of the managers fall in middle age group.

As regards cooperative sector, the young age group managers are only 3 out of 75 (4%), old age group managers are 5 out of 75 (6.66%) and middle age group managers are 67 out of 75 (89.34%). This shows that cooperative sector is slightly different from private and public sectors in which only a negligible percentage of managers come from young and old age groups, otherwise most of the managers fall in the category of middle age group. We can say that all the three sectors give more weight to middle age group managers, however, this inclination is slightly more in case of cooperative sector.

Distribution of Managers as Regards Qualifications:

An examination of table 3.4 shows that there are seven classes in all, however, we can further limit these classes to four only, viz., those with Matric, and Intermediate qualifications can be considered as lowly qualified, those who are graduates/diploma holders can be considered mediocre qualified, those with post-graduate academic qualifications or professional degree in Engineering can be considered highly qualified and lastly those who are CA, MBA, M.Tech. may be regarded as very highly qualified. In public sector, low qualified managers are only 3 out of 40 (7.5%), mediocre qualified 21 out of 40 (52.5%), highly qualified 15 out of 40 (37.5%) and very highly qualified 1 out of 40 (2.5%). This shows that a substantial percentage of managers is either mediocre qualified or high qualified. Managers with low qualifications or with very high qualifications are only a few. In private sector, managers with low qualifications are 4 out of 50 (8%), with mediocre qualifications 24 out of 50 (48%), with high qualifications 16 out of 50 (32%) and with very high qualification 6 out of 50 (12%). Here too a substantial percentage of managers is either mediocre qualified or high qualified. People with low qualifications are not too many, however, there is a good percentage of managers with very high qualifications.

As regards cooperative sector, manager with low qualification is 1 out of 75 (1.33%), with mediocre

TABLE 3.4 DISTRIBUTION OF MANAGERS AS REGARDS QUALIFICATION

| Qualifications                           | Public Sector | Private Sector | Coop. Sector   | Total          |
|--|---------------|----------------|----------------|----------------|
| 1  | 2             | 3              | 4              | 5              |
| Matric/<br>Intermediate                  | 3<br>(7.5%)   | 4<br>(8%)      | 1<br>(1.33%)   | 8<br>(4.84%)   |
| Graduate(B.A./<br>B.Sc./B.Com.)          | -             | -              | 8<br>(10.66%)  | 8<br>(4.84%)   |
| Post-Graduate<br>(M.A./M.Sc./<br>M.Com.) | 5<br>(12.5%)  | 6<br>(12%)     | 8<br>(10.67%)  | 19<br>(11.55%) |
| Diploma in<br>Engineering                | 11<br>(27.5%) | 8<br>(16%)     | 10<br>(13.33%) | 29<br>(17.57%) |
| Degree in<br>Engineering                 | 10<br>(25%)   | 10<br>(20%)    | 15<br>(20%)    | 35<br>(21.21%) |
| Diploma in<br>Sugar Technology           | 10<br>(25%)   | 16<br>(32%)    | 28<br>(37.33%) | 54<br>(32.72%) |
| Others(C.A./<br>CS/M.B.A./<br>M.Tech.)   | 1<br>(2.5%)   | 6<br>(12%)     | 5<br>(6.67%)   | 12<br>(17.27%) |
| Total                                    | 40<br>(100%)  | 50<br>(100%)   | 75<br>(100%)   | 165<br>(100%)  |

qualifications 46 out of 75 (61.37%), managers with high qualifications 23 out of 75 (30.67%), and with very high qualifications 5 out of 75 (6.67%). Here also most of the managers are either mediocre qualified or high qualified. The mediocre percentage is more in this case. The low qualified managers' percentage is very negligible. Managers with high qualifications are reasonable. All the three sectors are more or less on same footing so far as their low qualified managers are concerned, however, cooperative sector fares a little better than those of public and private sectors. Again, a very high percentage of managers is either mediocre qualified or high qualified in all the three wings. However, mediocre people are somewhat high in cooperative sector. The private and cooperative sectors are reasonably represented by people with very high qualifications, nevertheless, the public sector seems hesitated in appointing persons with very high qualifications.

#### Distribution of Managers as Regards Total Experience:

The table 3.5 shows that there are eight classes in total ranging from below 5 years experience to 35-40 years experience, however, we limit them to four classes only. People with less than 10 years experience can be considered as low experienced, with 10 years or more but less than 20 years can be considered good experienced, people with 20 years or more but less than 30 years can be regarded as high experienced, and people with 30 or more years can be

TABLE 3.5 DISTRIBUTION OF MANAGERS AS REGARDS TOTAL EXPERIENCE

| Total Experience (Years) | Public Sector | Private Sector | Co-operative Sector | Total          |
|--------------------------|---------------|----------------|---------------------|----------------|
| 1                        | 2             | 3              | 4                   | 5              |
| Below 5                  | 9<br>(22.5%)  | 6<br>( 12% )   | 12<br>( 16% )       | 27<br>(16.36%) |
| 5-10                     | 8<br>( 20% )  | 9<br>( 18% )   | 28<br>(37.33%)      | 45<br>(27.27%) |
| 10-15                    | 7<br>(17.5%)  | 6<br>( 12% )   | 16<br>(21.33%)      | 29<br>(17.57%) |
| 15-20                    | 5<br>(12.5%)  | 11<br>( 22% )  | 6<br>( 8% )         | 22<br>(13.33%) |
| 20-25                    | 7<br>(17.5%)  | 6<br>( 12% )   | 10<br>(13.33%)      | 23<br>(13.93%) |
| 25-30                    | 3<br>( 7.5% ) | 7<br>( 14% )   | 3<br>( 4% )         | 13<br>(7.87%)  |
| 30-35                    | 1<br>(2.5%)   | 3<br>(6%)      | -                   | 4<br>(2.42%)   |
| 35-40                    | -             | 2<br>(4%)      | -                   | 2<br>(1.21%)   |
| Total                    | 40<br>(100%)  | 50<br>(100%)   | 75<br>(100%)        | 165<br>(100%)  |



considered as very high experienced persons. In public sector, 17 out of 40 (42.5%) are low experienced, 12 out of 40 (30%) are good experienced, 10 out of 40 (25%) are highly experienced and 1 out of 40 (2.5%) is very highly experienced. In private sector, 15 out of 50 (30%) are low experienced, 17 out of 50 (34%) are good experienced, 13 out of 50 (26%) are highly experienced, and 5 out of 50 (10%) are very highly experienced people. In cooperative sector: 40 out of 75 (53.3%) are low experienced, 22 out of 75 (29.33%) are good experienced, 13 out of 75 (17.33%) are highly experienced, and none is very high experienced person. It appears that a substantial percentage of managers is low experienced, however, private sector is slightly better than those of public and cooperative sectors. Again, a fairly good percentage of managers also belongs to good experienced class in all the three wings, however, private sector is slightly better, whereas the other two sectors are identical.

#### Distribution of Managers as Regards Hoerarchy:

The table 3.6 shows that broadly, there are 4 hierarchy levels of management in sugar industry, viz., top level management, senior middle level management, junior middle level management, and lower level management. While top level management includes General Manager only; senior middle level managment includes Chief Accountant, Chief Chemist, Chief Engieer, Cane Manager, Deputy Chief Chemists and Deputy Chief Engineers; the junior middle level

TABLE 3.6 DISTRIBUTION OF MANAGERS AS REGARDS HIERARCHY

| Hierarchy Levels    | Public Sector | Private Sector | Co-operative Sector | Total          |
|---------------------|---------------|----------------|---------------------|----------------|
| 1                   | 2             | 3              | 4                   | 5              |
| Top level           | -             | 2<br>( 4% )    | 1<br>( 1.33% )      | 3<br>(1.82%)   |
| Senior Middle Level | 13<br>(32.5%) | 27<br>( 54% )  | 30<br>( 40% )       | 70<br>(42.42%) |
| Junior Middle Level | 20<br>( 50% ) | 16<br>( 32% )  | 37<br>(49.33%)      | 73<br>(42.42%) |
| Lower level         | 7<br>(17.5%)  | 5<br>( 10% )   | 7<br>( 9.34%)       | 19<br>(11.57%) |
| Total               | 40<br>(100%)  | 50<br>(100%)   | 75<br>(100% )       | 165<br>(100%)  |

management includes, Accountant, Chemists, Engineers, Labour Welfare Officer, Sales Incharge. Now, in our study there are 13 out of 40 (32.5%) senior middle level managers, 20 out of 40 (50%) junior middle level managers, 7 out of 40 (17.5%) lower level managers, and none from top level in the public sector; there are 27 out of 50 (54%) senior middle level managers, 16 out of 50 (32%) junior middle level managers, 5 out of 50 (10%) lower level managers and 2 out of 50 (4%) top level managers in the private sector; there are 30 out of 75 (40%) senior middle level managers, 37 out of 75 (49.33%) junior middle managers, 1 out of 75 (1.33%) top level manager and 7 out of 75 (9.34%) from lower level in the cooperative sector. We want to emphasise here that percentages as high as 82.5% (33/40), 86% (43/50), 89.34% (67/75), 86.86% (43/165) belong to middle level managers in the public, private, cooperative sectors and the sugar industry as a whole respectively, our study may basically be considered as middle level managers' study.

#### Distribution of Managers as Regards Functions:

The chief function of sugar industry is to produce sugar from sugar cane. The other functions which facilitate production activity are: marketing (purchasing), personnel, financial, official/secretarial, sales and stores. Most of the managers are found to be employed in the production department. The table 3.7 shows that there are 31 out of 40 (77.5%) production managers, 2 out of 40 (5%) financial managers, 4 out of 40 (10%) marketing managers, 3 out of 40 (7.5%)

TABLE 3.7 DISTRIBUTION OF MANAGERS AS REGARDS FUNCTIONS

| Functions                  | Public        | Private      | Cooperative    | Total           |
|----------------------------|---------------|--------------|----------------|-----------------|
| 1                          | 2             | 3            | 4              | 5               |
| Personnel                  | -             | 3<br>(61%)   | -              | 3<br>(1.83%)    |
| Production                 | 31<br>(77.5%) | 37<br>(74%)  | 54<br>(72%)    | 122<br>(73.93%) |
| Financial                  | 2<br>( 5% )   | 3<br>( 6% )  | 6<br>( 8% )    | 11<br>( 6.67%)  |
| Marketing                  | 4<br>( 10% )  | 4<br>( 8% )  | 10<br>(13.33%) | 18<br>(10.90%)  |
| Official/<br>Secretarial   | -             | -            | 1<br>(1.34%)   | 1<br>( 0.61%)   |
| Any other<br>(Store/Sales) | 3<br>( 7.5%)  | 3<br>( 6% )  | 4<br>( 5.34%)  | 10<br>( 6.06% ) |
| Total                      | 40<br>(100%)  | 50<br>(100%) | 75<br>( 100% ) | 165<br>( 100% ) |

stores and sales managers in the public sector; there are 37 out of 50 (74%) production managers, 3 out of 50 (6%) financial managers, 4 out of 50 (8%) marketing managers, 3 out of 50 (6%) personnel managers, 3 out of 50 (6%) sales and stores managers in the private sector; there are 54 out of 75 (72%) production managers, 6 out of 75 (8%) financial managers, 10 out of 75 (13.33%) marketing managers, 1 out of 75 (1.33%) office incharge, and 4 out of 75 (5.34%) store and sales managers in the the cooperative sector. We, again want to emphasise here that because, percentages as high as 77.5% (31/40), 74% (37/50), 72% (54/75), 77.93% (122/165) belong to production level managers in the public, private, cooperative sectors and sugar industry as a whole respectively, our study may virtually be considered as production level managers' study.

#### Data Collection:

We have to collect both the types of data as per our study requirements. The primary data was needed to measure behavioural dimensions of organisational effectiveness, managerial effectiveness, organisational structure variables, viz., formalization and centralization. The secondary data was , however, required to confirm whether behavioural measurements of OE conform to objective measurements of OE.

### Collection of Primary Data:

The primary data was collected through a questionnaire administered on managers of selected sugar manufacturing units, the details of which are given as under:

Section I: This section was meant to collect personal and professional informations about factory managers regarding their age, qualifications, total experience, experience of the present mill in which they are working, functions with which they are associated, positions held by them and their hierarchy level in the mills.

Section II: This section has been used to measure the managerial effectiveness. For this purpose we used the Role Efficacy Scale developed by Dr. Udai Pareek(1). The Role Efficacy Scale measures the effectiveness of a manager in terms of ten behavioural dimensions as to how he perceives his role in the organisation. These ten dimensions are explained as under:

1. Integration Vs. Distance: When a manager perceives that the role he occupies and the skills and capabilities he possesses are combined, such perception is referred as integration of self with role. On the other hand, manager's perception that his talents are not utilised in the role, is referred as distance between self and role. The integration of self and role increases effectiveness of a manager. The distance does not .

2. Proactivity Vs. Reactivity: When a manager takes initiative and does something on his own, this is his proactive behaviour. On the other hand, if he merely responds to what others expect him to do, he shows reactive behaviour. The proactive behaviour increases effectiveness of a manager, the reactive behaviour does not.

3. Creativity Vs. Routinity: When a manager perceives that he does something new or unique in his role, this is his creative behaviour. On the other hand, the manager's perception that only routine tasks are done by him, such perception will be considered as non creative or routine behaviour. The creativity increases effectiveness, the routinity does not.

4. Confrontation Vs. Avoidance: Problems often arise in the business. A manager's liking to confront the problem in order to seek solution of it will increase his effectiveness. On the other hand a manager's inclination to avoid the problem will diminish his effectiveness.

5. Centrality Vs. Peripherality: The manager's perception that more central (important) his role is in the organisation, will enhance his effectiveness. If the manager deprecates his role or sees it as not much important, his effectiveness will be lower.

6. Influence Vs. Powerlessness: The feeling that he is able to exercise influence in his role increase his effectiveness. The influence may be in terms of decision

making, implementation of policies, advice or problem solution. On the contrary, the feeling that he is powerless in his role, decreases his effectiveness.

7. Growth Vs. Stagnation: When a manager perceives that the role provides him opportunities for his personal growth/professional development, his effectiveness will be high. On the other hand, his perception that the role deprives him of opportunities of personal growth, will lower his effectiveness.

8. Linkage Vs. Isolation: If the manager perceives interdependency of his role with other roles, his effectiveness will be high. On the contrary, the feeling that his role is not related with other roles, will decrease his effectiveness.

9. Helping Attitude Vs. Hostility: The perception that help should be given and received as and when required increases effectiveness. However, the feeling of interpersonal hostility decreases effectiveness.

10. Superordination Vs. Deprivation: The manager's perception that he is contributing to something beyond his own ; he is serving the society; is contributing to knowledge building etc., enhances his effectiveness. However, if he perceives deprivation of this sort in his role, his effectiveness will be lower.



### SECTION III

This section has been used to measure OE. The scale to measure OE has been developed by Dr. N.Dixit, Professor of Organisation behaviour, I.I.M., Lucknow. This is a tried and validated scale. We have used the scale in its original form (Appendix-B(iii)). The OE has been measured in terms of 8 behavioural dimensions. These eight dimensions are explained as under:

1. Flexibility: This is the ability of an organisation to change, adjust itself according to changes in external conditions and demands put on it by External Environment.
2. Acquisition of Resources/Growth: This is the ability of an organisation to expand its resources.
3. Planning : The organisation believes in setting goals and these goals are clearly understood by organisational members.
4. Productivity: The ratio of output to input is high, volume of output is high.
5. Availability of Information/Communication: People are kept well informed about the things that affect their work through effective channels of communication.
6. Stability: The continuity and smooth functioning of operations is maintained in the organisation.
7. Cohesive Work Force: The employees trust, respect and work well with each other in the organisation.
8. Satisfied Work Force: The employees feel satisfied, meaning thereby that employees needs in the sense of Maslow's definition of need hierarchy are satisfied.

SECTION -iv

This section has been used to measure two important dimensions of organisational structure, viz., centralization and formalization. For this purpose two separate scales have been used which are tried and validated scales. The original scales are given in appendices B(iv), and B(v). We have modified the scale according to our suitability and Indian conditions.

Centralization: The following three aspects of centralization have been measured:

- 4.1 The top level management's intervention in routine decisions or day to day working of organisation.
- 4.2 The middle level managers' decision making power in regard to appointments, promotions, framing budget proposals/new projects and purchasing materials/equipments concerning their units/sections.
- 4.3 The lower level managers' decision making power in the matter of appointments, promotions, framing budget proposals/new schemes and purchasing materials/equipments concerning their units/sections.

Formalization: The following three aspects of formalization have been measured:

- 4.4 The enforcement of rules and regulations on operating class employees.
- 4.5 The enforcement of rules and regulations on managerial class employees.
- 4.6 The extent to which rules and regulations are put in writing.

Collection of Secondary Data: For the collection of secondary data we have largely depended on the memorandum,

articles, brochures, annual reports and extracts from the books of account of selected sugar mills(2). We abundantly found helpful the books, handbooks, yearly books, directory monthly journals, brochures, other material published by Indian Sugar Mills Association, New Delhi; National Federation of Cooperative Sugar Mills, New Delhi and The Sugar Technologists Association of India, Kanpur(3).

Scoring Pattern:

Section-II: There are ten dimensions of managerial effectiveness which we intend to measure. Now each one of the ten dimensions has two sets of statements given at different places (such as 1,11; 2,12; 3,13; 4,14; 5,15; 6,16; 7,17; 8,18; 9,19; 10,20). Each one of the two sets has got three statements. The three statements have been recorded in such a manner that one of the three statements is positive, one is negative and one lies in between (between positive and negative, a mediocre view). The marking of the statement which is positive scores 2, the marking of the statement which is negative scores -1 and the marking of the statement which lies in between (mediocre view) scores + 1. Since there are 10 dimensions in all, so we have got 20 sets of statements,  $(10 \times 2) = 20$ . The maximum score of a manager can be  $(20 \times 2) = 40$ . The minimum score =  $(20 \times -1) = -20$ . Thus the range of score of a manager is between -20 to + 40.

Section III: This behaviourally oriented scale comprises eight items/factors. Now each one of the eight

items/factors has got three statements placed at different places (such as 1,9,17; 2,10,18; 3,11,19; 4,12,20; 5,13,21; 6,14,22; 7,15,23; 8,16,24. One statement has been given five choices on the pattern of Likert's five point scale (ascending order). On one particular statement the score will range from 1 to 5. There are in all 24 such statements (8x3). So the minimum score can be  $(24 \times 1) = 24$ , the maximum score can be  $(24 \times 5) = 120$ . The range of score is 24 to 120 for one manager.

Section IV: 4.1 to 4.3

There are 13 statements in all. Each statement has been given 5 choices, on the pattern of Likert's five point scale (in ascending order). So the minimum score can be  $(13 \times 1) = 13$ , the maximum score can be  $(13 \times 5) = 65$ . The range of score is 13 to 65 for one manager.

Section IV: 4.4 to 4.6

There are three statements in total and each statement provides 5 choices on the pattern of Likert's five point scale (in ascending order). So, the minimum score can be  $(3 \times 1) = 3$ , the maximum score can be  $(3 \times 5) = 15$ . The range of score is 3 to 15 for one manager.

### Statistical Tools Applied

Keeping in view the objectives as well as nature of the study descriptive, correlational, inferential, and predictive statistics were used for analysis of the data. Means and standard deviations for each of the variables were computed. Karl Pearson's co-efficients of correlation were computed among different variables of managerial effectiveness, centralization, formalization and organisational effectiveness in the three segments of sugar industry as well as in sugar industry as a whole. 't' test has been used to test the significance of observed correlation coefficients; as also of the difference between the means of two samples. Regression analysis has been used to predict organisational effectiveness through three independent variables, viz., managerial effectiveness, centralization and formalization.

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