

CHAPTER VINDIVIDUAL LOCATIONAL AND DEVELOPMENT FACTORS - MATERIAL

In this and the next Chapters, the impact of each of the major location factors on the industrial units is assessed separately. If in the previous Chapter, their combined treatment was helpful in providing a picture of the general behaviour and situation of the industrial units, their separate treatment undertaken here is hoped to provide direct insight into the role of these factors in the origin and growth of industries. By virtue of this direct relationship established here, it may be easy and authentic to assign the appropriate role to each of them in the regional development - - policies.

I Raw Material

Raw materials, particularly, the extractive raw materials, have a tendency to identify the location of industries based on them with the place of their origin. It is because they are generally regional in character in the sense that they are subject to the frictions of mobility that are both great and variegated. Generally such materials are weight losing, perishable and their source of availability dispersed and undeveloped in regard to transport. Because of their space consuming nature they provide poor market for the complementary activities of any other sectors and as a result, the densities of the latter that would have provided better conditions of pooling and transit, are low. These are the general characteristics that attend individually or in groups on the extractive raw materials, thereby rendering them tied down

to the place of their origin. So they tend to be very regional in character. Nor is their availability uniform over all regions, being determined as they are by inherently varied and strongly deterministic geographic conditions. In consequence, they are as a rule wedded to the twin regionalisation forces of immobility and differentiation.

Apparently the role of the extractive raw materials in the context of balance development is wellnigh pivotal. The fact that they are regional and are confined mostly to areas with low industrial activity, provides enchanting promises for furthering the ends of inter-regional balance as they easily aid the growth of relatively more backward regions. If their volumes speak of the potentiality of growth, their regional-ity, the certainty of localised processing quite obviously the augmentation of the replaceable extractive raw materials like agricultural and forest products and enhancing the conditions of exploitation of both replaceable and irreplaceable raw materials, would go a long way in widening and strengthening the industrial base of the less developed regions, potential in regard to such raw materials. It has also been established earlier that particularly in the initial stages of growth, when competitive advantages in other locational -- features are lacking, extractive raw material base almost exclusively carries the day.

The material orientation in the location of the surveyed units has been on the whole highly pronounced (Table 1) <sup>1</sup>

Consideration of raw material proximity had bearing on 55 per cent of the total units. Obviously, the Primary Processing dealing as it does with relatively more immobile raw materials, felt the influence in such a large proportions as in 84 per cent. For the Subsequent, it is relatively low, though not absolutely insignificant, at 31 per cent. According to the size of the units, no significant variation is discernible. But along the size of the locality the reporting percentage steadily

<sup>1</sup> All references to major items of behaviour in each of the major sections of this Chapter will be to the respective basic Tables of the Sections.

Raw Materials

Classification	Cause of Inadequacy Local vs Imported Total			of change in loss of material Percent Detraction			Size of plant	Date of Installation	Problem
	1	2	3	4	5	6			
I Primary	(26.3) <sup>26</sup>	(21.8) <sup>17</sup>	(57.1) <sup>43</sup>	(16.3) <sup>8</sup>	(14.1) <sup>11</sup>	(41.0) <sup>22</sup>	(24.4) <sup>19</sup>	(44.9) <sup>25</sup>	
Subsequent	(61.1) <sup>32</sup>	(22.2) <sup>8</sup>	(83.3) <sup>30</sup>	(6.7) <sup>6</sup>	(16.7) <sup>6</sup>	(66.7) <sup>24</sup>	(41.7) <sup>15</sup>	(63.9) <sup>23</sup>	
II Small	(9.5) <sup>4</sup>	(21.4) <sup>9</sup>	(30.9) <sup>13</sup>	(4.8) <sup>2</sup>	(11.9) <sup>5</sup>	(19.0) <sup>8</sup>	(9.5) <sup>4</sup>	(25.6) <sup>12</sup>	
Medium	(25.0) <sup>10</sup>	(25.0) <sup>10</sup>	(50.0) <sup>20</sup>	(4.0) <sup>4</sup>	(12.5) <sup>5</sup>	(46.0) <sup>16</sup>	(27.5) <sup>11</sup>	(40.0) <sup>16</sup>	
Large	(35.3) <sup>6</sup>	(27.6) <sup>3</sup>	(52.9) <sup>9</sup>	(5.9) <sup>3</sup>	(23.7) <sup>4</sup>	(47.0) <sup>8</sup>	(37.3) <sup>6</sup>	(52.9) <sup>9</sup>	
Less than 100	(23.1) <sup>16</sup>	(22.8) <sup>13</sup>	(56.9) <sup>29</sup>	(5.8) <sup>5</sup>	(15.8) <sup>9</sup>	(42.1) <sup>24</sup>	(29.7) <sup>17</sup>	(43.9) <sup>25</sup>	
100-200	(57.8) <sup>7</sup>	(23.1) <sup>3</sup>	(76.9) <sup>30</sup>	(15.4) <sup>2</sup>	(7.7) <sup>1</sup>	(53.0) <sup>7</sup>	(7.7) <sup>2</sup>	(53.8) <sup>7</sup>	
200-300	(37.3) <sup>3</sup>	(12.3) <sup>1</sup>	(50.0) <sup>4</sup>	(14.5) <sup>1</sup>	(12.5) <sup>2</sup>	(12.5) <sup>2</sup>	(12.5) <sup>2</sup>	(37.5) <sup>3</sup>	
Above 300	(47.6) <sup>10</sup>	(29.0) <sup>4</sup>	(66.7) <sup>14</sup>	(14.3) <sup>2</sup>	(9.5) <sup>2</sup>	(38.1) <sup>8</sup>	(9.5) <sup>2</sup>	(47.6) <sup>10</sup>	
III Rural	(69.2) <sup>9</sup>	(23.1) <sup>3</sup>	(98.3) <sup>22</sup>	(10.8) <sup>4</sup>	(15.4) <sup>2</sup>	(61.5) <sup>8</sup>	(46.1) <sup>6</sup>	(69.2) <sup>9</sup>	
Town	(62.5) <sup>10</sup>	(18.7) <sup>3</sup>	(81.2) <sup>13</sup>	(5.0) <sup>3</sup>	(25.0) <sup>4</sup>	(68.8) <sup>11</sup>	(37.5) <sup>6</sup>	(68.7) <sup>11</sup>	
Non City	(65.6) <sup>19</sup>	(20.7) <sup>6</sup>	(86.2) <sup>25</sup>	(7.6) <sup>8</sup>	(20.7) <sup>6</sup>	(65.6) <sup>19</sup>	(41.4) <sup>12</sup>	(69.0) <sup>20</sup>	
City	(28.3) <sup>6</sup>	(31.8) <sup>7</sup>	(59.1) <sup>13</sup>	(36.4) <sup>8</sup>	(18.2) <sup>4</sup>	(36.4) <sup>8</sup>	(22.7) <sup>5</sup>	(36.4) <sup>8</sup>	
Bengaluru	(3.7) <sup>1</sup>	(14.8) <sup>4</sup>	(18.5) <sup>5</sup>	(3.7) <sup>1</sup>	(3.7) <sup>1</sup>	(18.5) <sup>5</sup>	(7.4) <sup>2</sup>	(25.9) <sup>7</sup>	
Other	(14.2) <sup>7</sup>	(22.4) <sup>11</sup>	(36.7) <sup>18</sup>	(14.2) <sup>5</sup>	(16.2) <sup>5</sup>	(26.5) <sup>13</sup>	(14.3) <sup>7</sup>	(30.6) <sup>15</sup>	
Urban	(26.1) <sup>17</sup>	(21.5) <sup>14</sup>	(47.7) <sup>31</sup>	(2) <sup>4</sup>	(13.9) <sup>9</sup>	(36.9) <sup>24</sup>	(20.2) <sup>13</sup>	(40.0) <sup>26</sup>	

declines from 92 per cent at rural areas to a mere 19 per cent in Bangalore. The changing pattern of the Primary Subsequent balance in the industrial mix of different localities has shaped this trend. Firms capable of overcoming the raw material restraints seem to move to larger complexes. Tautologically, the larger locations have been sought after as markets or as centres from where markets are accessible, and the industrial mix of the larger complexes may display a pattern, biased in favour of the firms to whom raw material restraints are relatively less compared with their market attraction. Just as the location cause of a majority of the rural industries is raw material, the success of industrialization of the rural areas at least in initial stages will depend on the endowment of raw material resource, as these locations generally do not have competitive location advantages in other development factors. Besides, it also speaks of the sure method by which a highly regional factor paves the way for the industrialization of the region in which it is available. A breakdown of the causes of raw material orientation into perishability, freight and procurement adds to the above analysis. There are not many industries in - - this group subject to perishability constraint. About 8 per cent of the total units and 14 of the material oriented - - units had anything to do with perishability restraints and all of them were quite conceivably of the Primary processing. The influence tends to taper off with the increasing size of the locality where the proportion of the Primary is very low.

TABLE 1.1

## Industrial Raw-materials

## Proximity Postulates of Industrial Reporting.

Classification.	Proximity Postulates of Industrial Reporting.		Industrial Raw-materials		Others.
	1	2	3	4	
All.	43 (55.14)	6 (7.69)	21 (26.92)	26 (33.33)	1 (1.28)
I Primary.	30 (83.34)	6 (16.67)	15 (41.67)	18 (50.00)	-
Subsequent.	13 (30.94)	-	6 (14.28)	8 (19.04)	1 (2.38)
II Below 50.	20 (50.00)	1 (2.5)	8 (20.00)	13 (32.50)	1 (2.5)
51-100.	9 (52.92)	3 (17.64)	4 (23.52)	8 (47.04)	-
Below 100.	29 (50.86)	4 (7.02)	12 (21.05)	21 (36.83)	1 (1.75)
101 and big.	10 (76.90)	1 (7.69)	5 (38.45)	5 (38.45)	-
Big.	4 (50.00)	1 (12.5)	4 (50.00)	-	-
101 and Above.	14 (66.67)	2 (9.52)	9 (42.86)	5 (23.81)	-
III Rural.	12 (92.28)	2 (15.38)	5 (38.45)	8 (61.52)	-
Upto 1,00,000.	13 (81.25)	2 (12.50)	9 (56.25)	7 (43.75)	-
Non City.	25 (86.25)	4 (13.80)	14 (48.30)	15 (51.75)	-
Above 1,00,000.	13 (59.10)	2 (9.09)	6 (27.28)	9 (40.91)	-
Bangalore.	5 (18.52)	-	1 (3.70)	2 (7.41)	1 (3.70)
City.	18 (36.74)	2 (4.08)	7 (14.29)	11 (22.45)	1 (2.04)
Urban.	31 (47.71)	4 (6.16)	16 (24.62)	18 (27.70)	1 (1.54)

Raw material freight consideration affected the location of about one fourth of all the units and one half of the units to whom raw material was an important location consideration

Besides, scarcity conditions, dispersed source of origin, intense competition and unorganised nature of the market that characterise the raw material position may necessitate the establishment of the manufacturing activity in the neighbourhood of the sources of material to render the task of procurement convenient. Among the proximity postulates of raw material sources, the convenience of procurement appeared to be, by far the most important, while it mattered to not less than one third of the total units. It did not fail to attend on as much as two thirds of the material oriented units and 50 per cent of all the primary units. But importance tends to taper off with the size of locality ending up in mere 7 per cent in Bangalore. This is accounted for mainly by the higher proportion of subsequent units in the larger localities. The question of procurement, it seems, is almost exclusively a problem of the Primary who had to pool from dispersed sources. Particularly under scarcity situation the problem has assumed greater magnitudes.

An analysis of the sources of raw materials that figured in the location considerations, highlights the predominance of the agro-based industries and the regionality of extractive raw materials at once. The extractive raw materials are responsible for 84 per cent of material orientation and agricultural raw materials alone accounted for 47 per cent (Table 1.2 )

## Origin of Location Determined by Raw-Materials :

Classification	Reporting, 1	Agricultural 2	Forest, 3	Mineral, 4	Industrial, 5	Others, 6
ALL.	<sup>43</sup> (55.12)	<sup>20</sup> (25.64)	<sup>9</sup> (11.54)	<sup>7</sup> (8.97)	<sup>4</sup> (5.13)	<sup>3</sup> (3.85)
I Primary.	<sup>30</sup> (83.34)	<sup>16</sup> (44.45)	<sup>7</sup> (19.45)	<sup>4</sup> (11.11)	-	<sup>3</sup> (8.33)
Subsequent.	<sup>13</sup> (30.94)	<sup>4</sup> (9.52)	<sup>2</sup> (4.76)	<sup>3</sup> (7.14)	<sup>4</sup> (9.52)	-
II Below 50.	<sup>20</sup> (50.0)	<sup>11</sup> (27.50)	<sup>4</sup> (10.0)	<sup>1</sup> (2.5)	<sup>2</sup> (5.0)	<sup>2</sup> (5.0)
51-100.	<sup>9</sup> (52.92)	<sup>4</sup> (23.52)	<sup>3</sup> (17.64)	<sup>1</sup> (5.88)	<sup>1</sup> (5.88)	-
Below 100.	<sup>29</sup> (50.86)	<sup>15</sup> (26.31)	<sup>7</sup> (12.28)	<sup>2</sup> (3.51)	<sup>3</sup> (5.26)	<sup>2</sup> (3.51)
101 and Btg.	<sup>10</sup> (76.90)	<sup>4</sup> (30.76)	<sup>1</sup> (7.69)	<sup>3</sup> (23.07)	<sup>1</sup> (7.69)	<sup>1</sup> (7.69)
Btg.	<sup>4</sup> (50.00)	<sup>1</sup> (12.5)	<sup>1</sup> (12.5)	<sup>2</sup> (25.0)	-	-
101 and Above.	<sup>14</sup> (66.67)	<sup>5</sup> (23.81)	<sup>2</sup> (9.52)	<sup>5</sup> (23.81)	<sup>1</sup> (4.76)	<sup>1</sup> (4.76)
III Rural.	<sup>12</sup> (92.28)	<sup>8</sup> (61.52)	<sup>3</sup> (23.07)	-	<sup>1</sup> (7.69)	-
Upto 1,00,000.	<sup>13</sup> (81.25)	<sup>7</sup> (43.75)	<sup>1</sup> (6.25)	<sup>4</sup> (25.0)	-	<sup>1</sup> (6.25)
Non City.	<sup>25</sup> (86.25)	<sup>15</sup> (51.75)	<sup>4</sup> (13.80)	<sup>4</sup> (13.80)	<sup>1</sup> (3.45)	<sup>1</sup> (3.45)
Above 1,00,000.	<sup>13</sup> (59.10)	<sup>3</sup> (13.64)	<sup>5</sup> (22.73)	<sup>2</sup> (9.09)	<sup>1</sup> (4.55)	<sup>2</sup> (9.09)
Bergalore.	<sup>5</sup> (18.52)	<sup>2</sup> (7.41)	-	<sup>1</sup> (3.70)	<sup>2</sup> (7.41)	-
City.	<sup>18</sup> (36.74)	<sup>5</sup> (10.21)	<sup>5</sup> (10.21)	<sup>3</sup> (6.12)	<sup>3</sup> (6.12)	<sup>2</sup> (4.08)
Urban.	<sup>31</sup> (47.71)	<sup>12</sup> (18.47)	<sup>6</sup> (9.23)	<sup>7</sup> (10.77)	<sup>3</sup> (4.62)	<sup>3</sup> (4.62)

Contribution to Changes in Locality Conditions

The factors responsible for location do not cease to be significant after the unit has once been established. They do continue to govern the operational environment though with varying significance over time. Forty per cent of the units reporting deterioration and 12 per cent of the total unit are affected by the raw material position getting worse since their birth while the Primary was led to face such a situation mainly due to the changes in crop pattern declining yield or competition from the local or distant producers. The -- Subsequent units find themselves confronted with such a situation due mainly to Government controls and partly to the transmission of scarcities experienced by the Primary processing who incidentally also constitute the source of material supplies to the Subsequent. Improvement in the situation has been reported by an equal number of units. The improvement has been mostly in the Primary processing and is confined exclusively to the rural and town locations. The experience still warrants a more concerned look into the supply position, because development is as much an addition of new sectors and higher productivity techniques to the existing system as the addition of new units to the existing sectors. When the scope of providing other development factors is limited and the rate slow, under-developed economies would do well to exploit the advantages of resource balance. At least this front could not be allowed to weaken anywhere.



Raw material as a determinant of size

Considerations of raw material availability have been brought to bear on the size delimitation of 41 per cent of the total units. Despite its absolute importance, it was led by both market and finance. Coming to the Primary processing, however, raw material leads again all the rest far and away. It affected equal percentages in all size classes except the Big where technical considerations have carried the day. The influence of raw material steadily declines with the size of locality touching the 10-15 per cent in Bangalore. An opposite tendency of the market behaviour displayed in the determination of the size will be a helpful contrast. Its importance reigned supreme for the subsequent processing. Though the variation according to size was not significant, with the size or locality it, however, showed steady and fairly rapid up-trend, reflecting the relative freedom from raw material due to the subsequent biased industrial mix and the increasing attraction of the market. It may be reiterated that raw material particularly agricultural, are the mainstay of rural locations and the fate of rural industrialization may very well be shaped decisively by their resource structure.

As a restriction to expansion

Raw material seems to be a consideration colossus at every segment of the analysis of the experience of the units. It again comes to the fore in a big way as the major detriment for expansion of production. General features of

its bearing on expansion are more or less similar to that of its manifestation as a problem. The Primary processing, two small size classes, and the rural and town locations are relatively more handicapped in their respective clarifications. On the whole, raw material scarcity, experienced in current operation and for future expansion plans, is relatively more widespread than any other factor, perhaps, except market which, however, seems to rival. But market difficulty<sup>18</sup> is partly a description of the structure and partly a reflection of the industrialists' capacity and to a very small extent it is due to actual slump.

#### As a Problem of Operation

The raw material problem is on all counts acute enough to envelope the vigour of industrial activity. It impedes current operation, holds up expansions and causes to stray off the future additions. It is confronted by as much as 45 per cent of the total units and a half of the units reporting to have confronted with any problem whatsoever. The raw material problem thus easily led the rest of the category.

The impact is very heavy on the Primary, affecting nearly two thirds of the total. The problematic impact on the Subsequent, though relatively low, is not inconsiderable as the percentage figure stood at 23. Among units of different sizes the impact was somewhat uniform, with slight traces of relief for the Pig units. But the rural and the town locations are the worst hit, perhaps due to the pre-

dominance of the Primary processing in general and agro-based industries in particular. Around 70 per cent of the total units and an almost equal percentage of the units reporting any problem whatsoever, labour under the pressure of raw material scarcity in these locations. Though city locations fared relatively better, the percentage for all units did not come below 30.

Raw material scarcity particularly around resource based industries augurs ill to the state economic structures. There is no exact assessment of the surplus capacity resulting from primary resource scarcity. Moreover, primary resource availability is in itself an incentive and a base for the prospective industrial activity. That hardly allows for any state of complacency regarding the strength of the primary base and no capacity could be excess at this stage. The raw materials of the Subsequent processing units have been in scarcity due either to import restrictions or scarce supplies from the primary level. The causes of inelastic supply from the primary level may be directly traced to this inadequate performance or to any of operational frictions. Import difficulty is, however, understandable against the development context where characteristically precarious - exchange situation operates as a severe constraint on the imported supplies. For instance, in the supply of non-ferrous metals for which India's position is one of import dependency, there is a schedule of chronic deficiency.

Non-ferrous metals position (In tons)

	Requirement in 1961	Total avail- able from domestic pro- duction and import in 1961	Estimates of demand in 1965-66	Import re- quired to supplement domestic production in 1965-66
	1	2	3	4
Aluminium	55,000	35,857	115,000	35,000
Copper	85,000	73,812	145,000	110,000
Lead	35,000	32,547	59,000	50,000
Zinc	85,000	86,234	185,000	167,000
Tin	7,000	4,998	15,000	15,000

The situation in regard to a wide range of chemicals or of ferrous alloys is in no way better. A good deal of these scarcity is attributed directly or indirectly to inevitable exchange difficulties. Even the exclusively domestic sources could not as yet be geared satisfactorily to satiate the industrialisation needs.

Looking into the comprehensive bearing of the raw materials, particularly the extractive ones and their regionalities, it is apparent that for regional growth State policies of primary and secondary sector development may have to be more closely integrated at the level of identified areas to ensure a balanced development of the raw materials and the manufactures, as <sup>the needed</sup> complementaries of a single development process. Integration, particularly of

extractive raw materials, at regional level is essential mainly due to the preponderant regionality they display and the generally backward areas in which they originate. The raw material production and potentiality and its future policy in each of the regions of the State will be analysed in Part III.

## II Market

In the context of regional location planning, market may be defined as the accessibility for sales. It is apparently among the most regional location factors as it reflects a specific quality of a particular area materially concerning an industrial unit in question. It is a dominant feature influencing the industrial units which they can neither ignore nor alter. Because of this attribute, availability or growth of a market is among the foremost causes of discriminatory regional growth. Particularly at the advanced stages of regional growth, it plays a very decisive and also a very comprehensive role.

### As a cause of location

Because of the accessibility definition of market, great difficulty envelops the task of separating market and transport factors in the location decisions. Alignment of market and transport preferences particularly in marginal cases, calls for a separate and yet inter-dependent approach to each of them. As a matter of fact, in the absence of the other, each would have appeared more significant than when they are together. So also the true significance of each cannot be grasped independent of the behaviour of the other. It may be essential to carry this qualification through the

analysis of both the market and transport factors

Market was a cause for the location of 39 per cent of the total units (Table 2). It was a decisive cause for 31 per cent, indicating that wherever it figured it was generally decisive. On either count market comes second only to raw material so far as all units are concerned. Among the Subsequent, the market cause, however, tells a different story. Having been a decisive cause for 41 per cent and a general cause for 57 per cent, it leads all the rest of the locational causes far and away. The Subsequent units thus seem to display a strong tendency to emancipate themselves from the tenacious grip of inputs, particularly material inputs, to end up finally in the location at, or favourable to -- market itself. Among the Primary, market was important for no more than a meagre 17 per cent. Market quite obviously reproduces the opposite pattern displayed by raw material.

Market again featured conspicuously for the small units, having influenced 57 per cent. The influence declined with the unit size to zero for the Big units. A clear ascendancy of influence is discernible among the size of the locality. On the whole, it is suggestive of the fact that the Subsequent processing and the Small urban units are primarily market oriented just as the Primary processing (smaller) rural units are predominantly raw material oriented. The market orientation is very well marked for the smaller units. They usually deal with specialised jobs involving high value addition, which are often associated with the manufacturing to specification, and delivery with after-sale services. The

T A B L E  
M A R K E T

Classification	Caus of Location	Cause of change in Location Situation		Size Determinants	Detrimnt. to Expansion	to Problem		
		Improvement	Deterioration					
	Decis	Importance	Total					
	1	2	3	4	5	6	7	8
All	22 (28.2)	8 (10.3)	30 (38.5)	12 (15.4)	3 (3.9)	39 (50.0)	15 (19.2)	8 (10.3)
I Primary	5 (13.9)	1 (2.8)	6 (16.7)	3 (8.3)	2 (3.8)	8 (22.2)	4 (11.1)	1 (2.8)
Subsequent	17 (40.5)	7 (16.7)	24 (57.1)	9 (21.4)	2 (4.8)	31 (73.8)	11 (26.2)	7 (16.7)
II Small	15 (37.5)	6 (15.0)	21 (52.5)	6 (15.0)	1 (2.5)	21 (52.5)	12 (30.0)	4 (10.0)
Medium	6 (35.3)	-	6 (35.3)	3 (17.6)	1 (5.9)	9 (52.9)	2 (11.8)	4 (23.5)
Less than 100	21 (36.8)	6 (10.5)	27 (47.4)	9 (15.8)	2 (3.5)	30 (52.6)	14 (24.6)	8 (14.0)
Large	1 (7.8)	2 (15.4)	3 (23.1)	3 (21.1)	1 (7.7)	6 (46.1)	1 (7.7)	-
Big	-	-	-	-	-	3 (37.5)	-	-
Above 100	1 (4.8)	2 (9.5)	3 (14.3)	3 (4.3)	1 (4.8)	9 (42.8)	1 (4.8)	-
III Rural	1 (7.0)	-	1 (7.7)	-	-	3 (23.1)	1 (7.7)	2 (15.4)
Town	-	2 (12.5)	2 (12.5)	2 (2.5)	1 (6.3)	5 (31.3)	1 (6.2)	-
Non City	1 (3.0)	2 (6.9)	3 (10.3)	2 (6.9)	1 (3.5)	8 (27.6)	2 (6.9)	2 (6.9)
Other City	8 (36.0)	2 (9.1)	10 (45.5)	3 (13.6)	1 (4.6)	12 (54.6)	4 (18.2)	1 (4.6)
Bangalore	13 (48.0)	4 (14.8)	17 (63.0)	7 (25.9)	1 (3.7)	19 (70.3)	9 (33.3)	5 (18.5)
City	21 (42.0)	6 (12.3)	27 (55.1)	10 (19.4)	2 (4.1)	31 (62.2)	13 (26.5)	6 (12.2)
Urban	21 (32.0)	8 (12.3)	29 (44.6)	12 (18.5)	3 (4.7)	36 (55.3)	14 (21.5)	6 (9.2)

market is narrow and localised. Scale also being small, they can hardly maintain a specialised marketing organisation away from their location. As a result, they tend to drift towards market. To be true market attracts them not that, say, raw material prompts them.

#### Determinant of Unit Size

Market had a say in determining the size of operation of 50 per cent of the units. While in the Primary it did not matter to more than 22 per cent, it affected 74 per cent of the Subsequent. It seems that what raw material is to the Primary, market is to the Subsequent here as in many other instances. While raw material is a determinant for 67 per cent of the Primary, it is so for only 19 per cent of the Subsequent. It is not unlikely, then, that the growth of the Subsequent and the Primary units will be determined largely by the market capacity and raw material supplies, respectively, though the Subsequent and the Primary processing are in a way, two points of the same series. Then again, the market influence on size determination rises both steadily and rapidly along the size of locality. As a matter of fact market grows with the size of locality. Yet market appearing as a restraint for greater proportions in larger areas, may appear a paradox to a casual look. A feeling of restraint is largely a reflection of the need. With such a large number of market oriented locations the dominance of market as a size determinant is understandable.

#### Detriment to Expansion

Along with raw material market claims to be a fairly important detriment to expansion. Apart from competition



dereliction and decline of market beset a small number of units. In general market restraint was relatively more on the Subsequent, just as it influenced their location and determined their size. Coming to the size classification of the units, the restraint is confined almost exclusively to small units indicating that they may grow with the demand. And again, in rural and town locations, the manifestation is less marked while it is impressive in larger centres. The same market orientation that shaped the pattern of their location seems to attend in different forms on their experience and behaviour at several points.

#### As a Problem

Market as a problem is primarily bi-dimensional. It may imply merely a difficulty of sale in the face of competition, or an absolute impossibility to sell the required amount due to inadequate demand. Though these two factors cannot be clearly distinguished from each other, they have been separated for examining whether there is no demand at all or there is only competition, explaining the market structure. Though competition turned to be a major problem as reported by 28 per cent, marketing was a problem for a meagre 10 per cent confined almost exclusively to the Subsequent small units spread out in all locations. In all, there is no great concern over this factor.

So the importance of market as a location factor springs mainly from its regionality in the sense that it is unevenly dispersed could not be easily achieved by individual units.

and for all of them it is of material consequence. It is a potential cause of location, a major determinant of size and a great detriment to future expansion. Its influence is - - moreover relatively very heavy on the subsequent units and in larger locations. However market situation as a current problem is not bad, as only 10 per cent of the units, almost all in the small size groups, are confronted with the problem. This may not appear consistent with the fact that market determined the size of a larger number of units. It seems the units have adjusted themselves perfectly to their size when once it is hit upon. At any rate the way it affects such a large number of units at various phases of their origin and operation and the fact that it is highly regional, confirm the theoretical delineation that growth of market is a sure and very effective method of regional growth. However this strategy may be generally available after the region attains a particular level of growth. But in the initial stages it is largely the transport strategy in the form of accessibility that should compensate and connect the markets.

### III Transport

From the point of view of regional growth, transport service is among the most regional of location factors. Because of the differences in the available modes, cost, frequency, general convenience, accessible area etc. it is capable of altering the condition of the dependent area. The impact of these variations on almost all firms is of live consequence in their location and operation. Nor is it possible always to render them uniform over regions or compensate for the differences through

other measures without incurring a heavy cost. So in the discriminatory policy of industrial development, transport becomes a very deterministic factor. At certain deficient levels and for certain units transport may even assume the form of a technical factor. The deficiency of this regional factor will be felt at its worst here. Industries may abandon the region altogether and not until the conditions of transport get across the critical minimum that they would at all begin to consider such locations. Therefore, because of its regionality and importance to almost all the units, transport is capable of shaping the inter-regional growth process quite deterministically. Moreover, it has also been found that the influences of market factor is largely derived from transport.

#### As a Cause of Location

The experience of the investigated units bear abundant testimony to the mammoth influence transport is capable of wielding on various phases of their operation and consequently on the general growth prospect of a region. Thirty-two per cent of the units reported transport as a location consideration and it has been a decisive factor for nine per cent and merely important for 23 per cent (Table 3). For the Subsequent and the Primary, its numerical importance is next only to market, but for all units it is a somewhat close third. While the Primary and the Subsequent reported market and raw material respectively in meagre percentages, they did not fail to retain transport

## TRANSPORT

Classification	Cause of Location.		Cause of changes in location situation.		Problem.
	Decisive.	Important.	To al.	Improvement.	
	1	2	3	4	5
All.	7 (9.0)	18 (23.1)	21 (32.1)	9 (11.5)	7 (9.0)
I Primary.	4 (11.1)	5 (13.9)	3 (25.0)	4 (11.1)	6 (16.7)
Subsequent.	3 (7.1)	13 (30.9)	11 (38.0)	5 (11.9)	1 (2.4)
II Small.	4 (10.0)	7 (17.5)	11 (27.5)	5 (12.5)	3 (7.5)
Medium.	( - )	4 (23.5)	4 (23.5)	1 (5.9)	1 (5.9)
Less than 100.	4 (7.0)	11 (19.3)	15 (26.3)	6 (10.5)	4 (7.0)
Large.	3 (23.1)	3 (23.1)	6 (46.1)	2 (15.4)	2 (15.4)
Big.	-	4 (50.0)	4 (50.0)	1 (12.5)	1 (12.5)
Above 100.	3 (14.3)	7 (33.3)	10 (47.6)	3 (14.3)	3 (14.3)
III Rural.	-	-	-	2 (15.4)	4 (30.8)
Town.	2 (12.5)	4 (25.0)	6 (37.5)	1 (6.3)	1 (6.2)
Non City.	2 (6.9)	4 (13.8)	6 (20.7)	3 (10.4)	4 (13.8)
Other City.	3 (13.6)	5 (22.7)	8 (36.4)	1 (4.6)	2 (9.1)
Bangalore.	2 (7.4)	9 (33.3)	11 (40.7)	5 (18.5)	-
City.	5 (10.2)	14 (28.6)	19 (38.8)	6 (12.3)	2 (4.1)
Urban.	7 (10.7)	18 (27.7)	25 (38.5)	7 (11.8)	3 (4.6)

consistently in the second place. Transport in this regard claims greater uniformity among the two classes of processing than other members of the great triumvirate.

Its importance seems to grow with the size of the units. As a matter of fact, for the bigger units, presumably relying on distant markets, transport seems to be more important than the market. For small units catering generally to local needs, the importance of transport might be felt very lightly. For them market and raw material were of almost equal importance and transport a poor third. The reporting percentages among the size of the localities moved in a narrow groove<sup>o</sup>. Though the trend is less pronounced, the importance of transport seems to have increased a little with the size of the locality that generally marks better transport relations.

Specific factors involved in the gross term 'transport considerations', are quite varied. They include mainly the postulates of freight, convenience, time and diversity. For industries dealing in quantity hauls and subject to less time restriction, cheap transport will be alluring though transport cost for most of the industries is very small<sup>3</sup>. Only 3 per cent of the total units and 8 per cent of the units reporting transport consideration had to give serious consideration to cost aspect (table 3). Though the percentage reporting

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<sup>3</sup> "Transport rates as a rule are not a large part of the total costs. It may work out around 4-5% of the delivered cost" - Harris, Op cit, p 262

cost consideration for all units remains very small, among the Primary units it is significant at 22. Dealing as they are with raw materials of high material index and in-put coefficient, the phenomenon is quite understandable. Insignificant reporting under the postulate of transport cost seems to question the conventional notion regarding the importance of transport cost. Here the industrialist seems to be merely a transmission belt who passes on every item of cost. There is no cost incidence on him so long as the total cost remains competitive and does not prejudice his total revenue due to adverse price elasticities of demand.

Diversity of transport is an important postulate. It enhances primarily accessibility with all its beneficial consequences on scale, cost and revenue. It also ensures operational stability by helping to do away with the necessity of reliance on a narrow input or product market. And the firms keenly susceptible to these factors by no means form a small percentage.

For over three fourths of the transport oriented units, diversity postulate was a concern. It alone accounted for more than half of the total postulates of transport considerations. The Subsequent, however, reported in a still greater measure. The size of the units which at least roughly -- reflects the spatial dimensions of the market, also shows increasing importance of the diversity postulates with growing unit size. The tendency seems to persist along the size

POSTULATES OF TRANSPORT ORIENTATION :

Classification,	Reporting, 1	Diversity, 2	Low Cost, 3	Other Conveniences, 4
All.	25 (32.1)	9 (21.4)	2 (2.6)	15 (19.2)
I Primary.	9 (25.0)	5 (13.9)	2 (5.6)	6 (16.7)
Subsequent.	16 (38.1)	14 (33.3)	-	9 (21.4)
II Below 50.	11 (27.5)	6 (17.0)	1 (2.5)	7 (17.5)
51-100.	4 (23.5)	4 (23.5)	-	1 (5.9)
Below 100.	15 (26.3)	10 (17.5)	1 (1.8)	8 (14.0)
101 and big.	6 (46.1)	6 (47.1)	1 (7.7)	3 (23.1)
Big.	4 (50.0)	3 (37.5)	-	4 (50.0)
101 and Above.	10 (47.6)	9 (42.9)	1 (4.8)	7 (33.3)
III Rural.	-	-	1 (7.7)	1 (7.7)
Upto 1,00,000.	6 (37.5)	2 (12.5)	-	3 (18.7)
Non City.	6 (20.7)	2 (6.9)	1 (3.5)	4 (13.8)
Above 1,00,000.	8 (36.4)	6 (27.3)	1 (4.5)	5 (22.7)
Bangalore.	11 (40.7)	11 (40.7)	-	6 (22.2)
City.	19 (38.8)	17 (40.7)	1 (2.0)	11 (22.5)
Urban.	25 (38.5)	19 (9.3)	1 (1.5)	14 (21.6)

of the locality also. That many a firm seek after a transport centre for enjoying the better accessibility easily explains this situation. In Bangalore which apart from other things, is a good transport centre, all reporting units cited diversity.

But Convenience of Transport is a different story altogether and it takes a little more subtlety to distinguish it from others. Convenience comprises a heterogeneous mixture to which is also added the consideration of time in this survey, as it could not in many cases be disentangled from other elements of convenience. It included the transit time and the frequency of transport as well. Transport seems to ensure for industries a sense of liquidity in their operation and the high premium placed on this factor does not appear to be unjustified if it is recalled that the entrepreneur is concerned more with the required flow than with the mere cost of the flow. Sixty per cent of the reporting units cited the postulate of convenience. For the Primary the percentage is a little higher than that for the Subsequent. Though uniform importance seems to have been felt irrespective of the size of the units and that of localities, the rural units, having neglected this requirement by the very choice of such a location, did not figure at all under this issue.



Contribution of transport to Changing Location Situation

Viewed against the dynamic setting, transport is a class by itself. On the whole it tends to improve, with insignificant, if any, instances of deterioration in the course of time. The way it obeys the law of increasing returns seems to explain the tendency for sustained improvement, and the scant possibilities of its obsolescence ensures stability in the spatial relationship it establishes. Among the units reporting net improvement in their location features 29 per cent reported transport, a number equal to that reporting raw material and they bracketed the claim for numerical supremacy among the factors rendering any of the locational features better over time. Nowhere did transport relation deteriorate.

Though the impact of transport improvement on the units reporting net improvement has been somewhat uniform among all the classes of reporting units, the percentage is sharply higher for the small units and rural locations. That does not, however, point to any inverse tendency, because, in Bangalore, the percentage is not much lower. Moreover, for city and non-city locations, the percentages are close enough. But among all units reporting changes in either direction the impact of transport improvement appears to be more uniform. Even here transport is a class by itself in the sense that its impact is one of flawless beneficence, while others have worked both ways with 'Competition' tending to go merely to the worse.

General Access to Transport

Possibly there cannot be a factory worth the name without access to road. But the accessibility to rail was claimed by about 85 per cent of all the units (Table 3.2). It is a little surprising against the context of the fact that the State scores poorly in regard to the railway mileage. The existing locations seem to have had irresistible affinity with the railway network. An industrial map of the State superimposed on the railway map clearly brings out the fact that the almost entire industrial development has been largely along or around the railway accessibility. Whether there is an inverse or direct relation between locational affinity of the firms and the railway mileage is a matter for conjecture. Other component variables too may influence the relationship. May be, railroad just sporadically coincided with other requirements of location and the attribution of the motive force entirely to railway may be improper. However, the enquiry should go further to find out whether railway is the cause of manifestation of a host of locational requirements that together attracted the industries. A detailed history of the growth of all locations may alone answer. It may be possible moreover that despite the attractions of other areas railway as a single force was able to overcome all other forces and monopolise to itself the majority of locations. But the fact that railways followed the industrial or for that matter - - potentially industrial areas, cannot be admitted.

## MODES OF ACCESSIBLE TRANSPORT

Classification	Road 1	Rail 2	Sea 3	River/Coastal 4
All	78	66 (84 61)	8 (10 26)	8 (10 26)
I Primary	36	25 (69 45)	6 (16 67)	6 (16 67)
Subsequent	42	41 (97 58)	2 ( 4 76)	2 ( 4 76)
II Below 50	40	29 (72 5 )	4 (10 0 )	4 (10 0 )
51-100	17	16 (94 08)	1 ( 5 88)	1 ( 5 88)
Below 100	57	45 (78 93)	5 ( 8 77)	5 ( 8 77)
101 and big	13	13 (100 0)	3 (23 07)	3 (23 07)
Big.	8	8 (100 0)	-	-
101 and Above.	21	21 (100 0)	3 (14 29)	3 (14 29)
III Rural	13	4 (30 76)	-	-
Upto 1,00,000	16	13 (81 25)	1 ( 6 25)	1 ( 6 25)
Non City	29	17 (58 65)	1 ( 3 45)	1 ( 3 45)
Above 1,00,000	22	22 (100 0)	7 (31 82)	7 ( 1 82)
Bangalore.	27	27 (100 0)	-	-
City	49	49 (100 0)	7 (14 29)	7 (14 29)
Urban	65	62 (95 42)	8 (12 31)	8 (12 31)

against the historical background of the railway development in the State. Therefore, it is more appropriate to conclude that directly or indirectly railway has played a deterministic role in drawing a greater part of the industrial map of the State hitherto. And perhaps for several years to come the existing, together with the current pattern of railway net work, may continue to play a more or less equally deterministic role in moulding the spatial - - structure of the industrial economy and of the state economy in general. Railway transport in the present setting thus seems to be the most dominating force among the locational factors, particularly when other general conditions of location like market and more particularly raw material advantages are assured. The suggestive implications for the policies of regional development are too obvious to need elaboration.

A higher reporting of accessibility therefore need not necessarily reflect adequacy of the railway mileage. It may even reflect the opposite of it. If accessibility is found unrelated to the degree of adequacy and on the contrary if it reflects the causal relationship between accessibility and the origin of firms, the importance of the railway as a revolutionary force in the formation of the industrial structure will definitely be thrown into bold relief. That seems to be the case at least in the formative phase of industrialisation. Conditions all over India are more or

less similar <sup>7</sup>

If railway is the immediate or the remote cause, so long as it remains a principal factor, the extension of railway is to lead to highly beneficial results in promoting - - industrialisation. Yet it remains to be examined after the operational history, whether the attraction will continue unabated even after the intensive fabrication of the railway system. It seems not unlikely. For, the question of competitive advantage may still weigh large in the location considerations and, to this end, railway definitely has abundance of allurements. Moreover, the course of railway may also mark the availability of other locational requirements. This constellation of locational factors may continue to attract industries to the zones of railway accessibility rendering other areas progressively less suitable as competitive locations. Yet viewed against the historical experience of the

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7 A recent study of the dispersion of industries among all the districts of India has discovered this significant relationship: "When the map (of location quotients) is superimposed on the map of railway accessibility, the areas of industrial development broadly conform to transport accessibility and the areas of underdevelopment are marked by low railway accessibility" Sastry and Others Regional Concentration of Industries in India Applied Economic Papers, March 1962, p 47,

The position in Mysore State is not different. "The - - general picture", observes Learmonth, "is of considerable industrial activity along the Bangalore-Poona railway zone and to a less extent along the Raichur-Shorapur line the Hubli-Bellary and the Gadag-Shorapur lines." Mysore State, A Regional Synthesis, Op cit, p 95

the advanced countries, and that of India itself, the prognostication appears to be of dubious validity. Railways have always displayed a tendency to give way gradually to roads as development proceeds. It has been in terms of freight carriage, and location is a different matter. Since a single location may have access to both rail and road at once, it is not unlikely that future locations may continue to be railroad aligned, taking for granted road as an ubiquity and unfailing supplement.

#### Transport Conditions as a Current Problem

Transport difficulty has usually been reported in respect of access to important markets. Yet the total units reporting were just 9 per cent. Among all classes it remained low with the solitary exception of rural units where it is reported by 31 per cent.

There is no room for denying the fact that transport structure of the State both in its adequacy and efficiency leaves much to be desired. From their origin the industries have accepted the existing structure in projecting the spatial pattern of their supply and commodity markets. Indeed the structure is being continually bettered and the conveniences are fast improving. There is, as a result, no scope for them to complain of transport problem against the background of their original expectations. Even the current transport crisis of the country is mainly in regard to the movement of coal which, owing to its low value and long haul, trucks cannot economically handle. In the rest of the fields the contribution of trucks is splendid enough.

But the problem of transport is not merely what the industrialists consider as a problem; it comprises a wide range of imperatives of qualitative and quantitative changes that are essential to the required rate of change in the socio-economic fields of development. Efficiency of transport in the development context is not merely the inverse of frictions. Its efficiency as a positive aid in operation and its inducement as a pre-condition for the origin are to be looked into. Instances where it fails to be a pre-condition occasion losses that can be properly worked out only along a scheme of meta-calculus, having regard to the fact that economic change is a process in time. The satisfaction of the industrialists who have established themselves in places which they thought would be satisfactory is no indication of the general satisfactory transport situation of a developing State.

Detailed examination of the transport conditions in the State and the evolution of a normative scheme of development could be undertaken only after identifying the conditions of various regions of the State. Therefore, details of transport planning are incorporated in Part III.

#### IV POWER

Power policy for locational planning may have to start from the basic assumption that for a large number of industries power is more likely to be a technological datum than economic though in view of the alternate technological possibilities, with attendant homogenous cost impact techno-

logical and economic data cannot so easily be distinguished from each other. The absence of power exerts an absolute inhibiting force on the development of industry just as its presence throws open objective possibilities of initiation. With lopsided power development, most of the prospective industries in under-developed areas are concerned with these alternate situations. Power is a regional factor in a specific sense. Among regions where it is available there is very little to choose. For one thing, the geographical cost difference of power is insignificant and for another, in a large number of industries, power cost forms a very small proportion in the total selling cost. Still it helps improve the industrial climate in a big way. It could be a great help in location planning. Therefore the momentous potentiality that power possesses in restoring the regional balance through positive development of backward, but resource rich or strategic regions could not be gainsaid and this necessitates ranking power plan among the most important pre-conditions of development.



Yet the fact that its absence is a negative force of  $\angle$  while its presence is not so impressive a force seems to explain that the power situation would weigh more frequently on promotion decisions that could not be materialised rather than on materialised decisions. For this reason power made but a lone entry among location considerations of all industries, while it weighed large as a problem in current operation. Since locations mostly with power are sought after, power ceases to be a regional factor and thereby ceases to be a cause of location also. And for most of the units under study power cost was not significant in the total cost. Its contribution to changes in the location situation too have been absolutely nothing. Immediate environmental changes do not influence it. Even though scarcity is a factor which has been of subsequent experience, entrepreneurs do not seem to contribute it to any developments in their locality. They seem to harbour an instinctive presumption that the source of power is too big to ascribe any changes in its situation to local influence. Even Bangalore could not get rid of this idea. The notion, all the same, does not appear either an illusion or a mistake.

Moreover, it has not been possible to record power as a detriment to expansion. Scarcity of power has become such a chronic and established phenomenon that the entrepreneurs have largely come to accept it as a long run technical data. They seem to refuse to consider further on anything of expansion when they know too well that it <sup>is</sup> impossible to -- contemplate a move of expansion with power situation expected

T A B L E 4  
P O W E R :

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Classification.	Cause of Location		Problem.
	Important 1	Total. 2	
All	1 (1 3)	1 (1 3)	25 (32 1)
I Primary.	-	-	12 (33 4)
Subsequent	1 (2 4)	1 (2 4)	13 (30 9)
II Small	-	-	10 (25 0)
Medium	1 (5 9)	1 (5 9)	8 (47 0)
Less than 100	1 (1 8)	1 (1 8)	18 (31 6)
Large.	-	-	4 (30 8)
Big.	-	-	5 (37 5)
Above 100.	-	-	7 (35 3)
III Rural	-	-	4 (30 8)
Town.	-	-	5 (31 2)
Non City.	-	-	9 (31 0)
Other City	1 (4 5)	1 (4 5)	10 (45 5)
Bangalore	-	-	6 (22 2)
City.	1 (2 0)	1 (2 0)	16 (3- 7)
Urban.	1 (1 5)	1 (1 5)	21 (3- 3)

to remain what it is. Most of the expansion plans are held up due to power scarcity. But even if power available there may be other obstacles which the entrepreneurs have not -- seriously thought over. In effect, it becomes extremely difficult to demarcate between genuine and fake complaints. But to characterise power as the only obstacle were to hit upon a dangerous half truth as just <sup>as</sup> to ignore its bottle-neck the denying of reality.

It is as a 'problem' that power finally made a characteristic entry to the formal schema. Nearly a third of the industries are hit. Among the total cited problems too, power accounted for a little over a third. It is a close second to raw material, but while raw material problem hovered largely around the Primary processing, power swept over with equal force on almost all the strata, whether they be of processing, size or locality. The only exceptions are the 51-100 group where it affected more than a half of the total units, and city locations, where too it affected an almost equally large proportion. While the former is for no understandable reasons, the latter is likely to be a pointer to the rapid growth of the cities, with lagging amenities among which power finds a place. Paradoxically, Bangalore, the largest of the cities, fared better than any of the centres <sup>11</sup> without prejudice to the claims and the poten-

<sup>11</sup> Incidentally Baldwin's observation regarding the location attraction of Bangalore that, "The two chief locational advantages of Bangalore for new industry were the availability of electricity (although supply still lagged somewhat

tiality of Bangalore for further growth, it may be said that a reversal trend should have been observed if the situation could be pronounced conducive to balanced growth. Not that Bangalore should grow worse but in such basic facilities like power, the provision of which also does not involve significant geographical cost differential the lesser locations should have been permitted a clear advantage, if quicker dispersion were to materialise. May be, such a balance may not lead to an ideal pattern of dispersion. But its absence is not unlikely to lead to the hazards of concentration. If not for the positive objects of dispersion, at least to avoid the abhorrent blights and congestion, balance of power situation under general scarcity conditions should change in favour of lesser locations. The power plan for the State is taken up in Part III

Foot note 11 contd

behind demand) and the relative abundance of skilled labour\*, testifies to the relatively favourable power situation found here

Baldwin, Op cit , p 316