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INDUSTRIES OF KHOPOLI : AN ANALYSIS OF RAW MATERIAL AND MARKET LINKAGE

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ABSTRACT : Location of industries in backward areas is considered to be a powerful tool in reducing spatial imbalances in development. It is, however, observed that such experiments often fail to establish industries in backward areas primarily due to constraints of lack of infrastructure. Even where the industries prosper they fail to generate growth impulse in the surrounding area. The authors, with the help of a case study, bring out one of the causes of such failure viz. lack of material and market linkage with the local or regional economy. It is suggested that unless some of the industries at the centre have linkage with the economy of the region, such industrialization is not likely to benefit the region.

INTRODUCTION

Industrialization breeds economic development and is often considered a panacea for all ills of underdevelopment (Myrdal, 1956). It is indispensable even in those regions where the development is clustered around non-manufacturing sectors such as agriculture. For the industrialization to be more purposeful and effective in stimulating development in other sectors of the economy, however, industries must develop forward and backward linkage with the regional economy; it would only then be organically linked with the region. Developing countries seem to have ignored this principle and appear to superimpose industrialization from outside in order to skip over some of the stages in the development process.

Being committed to socialistic pattern of development, these countries are engaged in reducing regional imbalances in their development. One of the measures adopted by the Indian Planners for achieving regional convergence is in the form of attracting industries to backward areas while simultaneously detracting them from developed regions, particularly metropolitan cities (Mathur, 1977). The First Five Year Plan acknowledged this by stating 'greater attention will have to be paid to the development of those states and regions which have so far remained backward' (Planning Commission, 1952, p. 442). Some progress in this regard was achieved after the Industrial Resolution of 1956.

Dispersal of industries and their location in backward areas was expected to

bring about ripple effects through utilization of local raw materials and manpower. Such strategies have not, however, yielded expected results (Misra, 1971; Kemp, 1983). The study by UNIDO (1978) notes that the failure of such efforts is due to lack of close relationship between industrial structure and local or regional economy. The CSDI Report (1980) brings out differences in the impact of the industries at Chandrapur and Nashik and stresses the role of industrial structure in shaping it. It has warned that industrialization dominated by large scale, capital intensive industries and controlled by those in Bombay-Pune region might give rise to several limitations; in the long run it would prove to be more costly than that characterised by small scale resource oriented industries.

Sengupta and Phadke (1984) in their study of Dhatav Industrial Estate also find a weak relationship between industries in the estate and economic activities of the surrounding area. Since the process of spill-over is slow by nature (Richardson, 1976), the absence of intra-regional linkage found in the above-mentioned study of Dhatav could probably be the result of relative infancy of the industrial estate. In the light of this it was felt necessary to take up the case of a relatively old centre like Khopoli, as such a linkage is expected to become strong with the passage of time.

The present paper is, therefore, concerned with understanding the nature and extent of spatial linkage that industries of Khopoli have developed. It attempts to appreciate the nature of backward spatial linkage through use of raw materials by industries and forward linkage in the form of destination of finished products.

DATA BASE AND METHOD OF ANALYSIS

There is very little data on linkage in secondary form. Information available with the Bureau of Economics and Statistics, Government of Maharashtra, relates only to nature of the industry and employment. Data for the present study was, therefore, collected with the help of a questionnaire addressed to industrialists. The key questions related to sources of raw materials, the volume and the value of the raw materials from different sources and the destinations of the finished products along with the volume and value reaching each of them. The data so collected was tabulated and mapped for the purpose of analysis. Differentiation was made on the basis of type, scale and source regions. All the 30 industrial units in Khopoli industrial area have been considered for analysis.

HISTORY OF INDUSTRIALIZATION AT KHOPOLI

Khopoli originally functioned as a halting point on Bombay-Pune highway (Fig. 1). The seeds of industrialization were sown when the Tatas moved into this area in 1915 and established hydel power station. The power station brought in its wake other infrastructural advantages and the site attracted industries. The process was initiated with the establishment of a small pulp and paper unit in 1942, but got real momentum in the second half of 1950s. Chemical industries first moved in because of their water and power intensive nature but heavy engineering industries soon appeared on the scene. Opportunities created by these industries resulted into the launching of a co-operative industrial estate and small scale industries also came up, though with a slow pace. The placid hamlet of Khopoli soon lost its tranquility and became a busy industrial centre.

INDUSTRIAL STRUCTURE

The break-up of industries at Khopoli (Table 1) reveals that out of the 30 units, nearly one third are of the large scale type

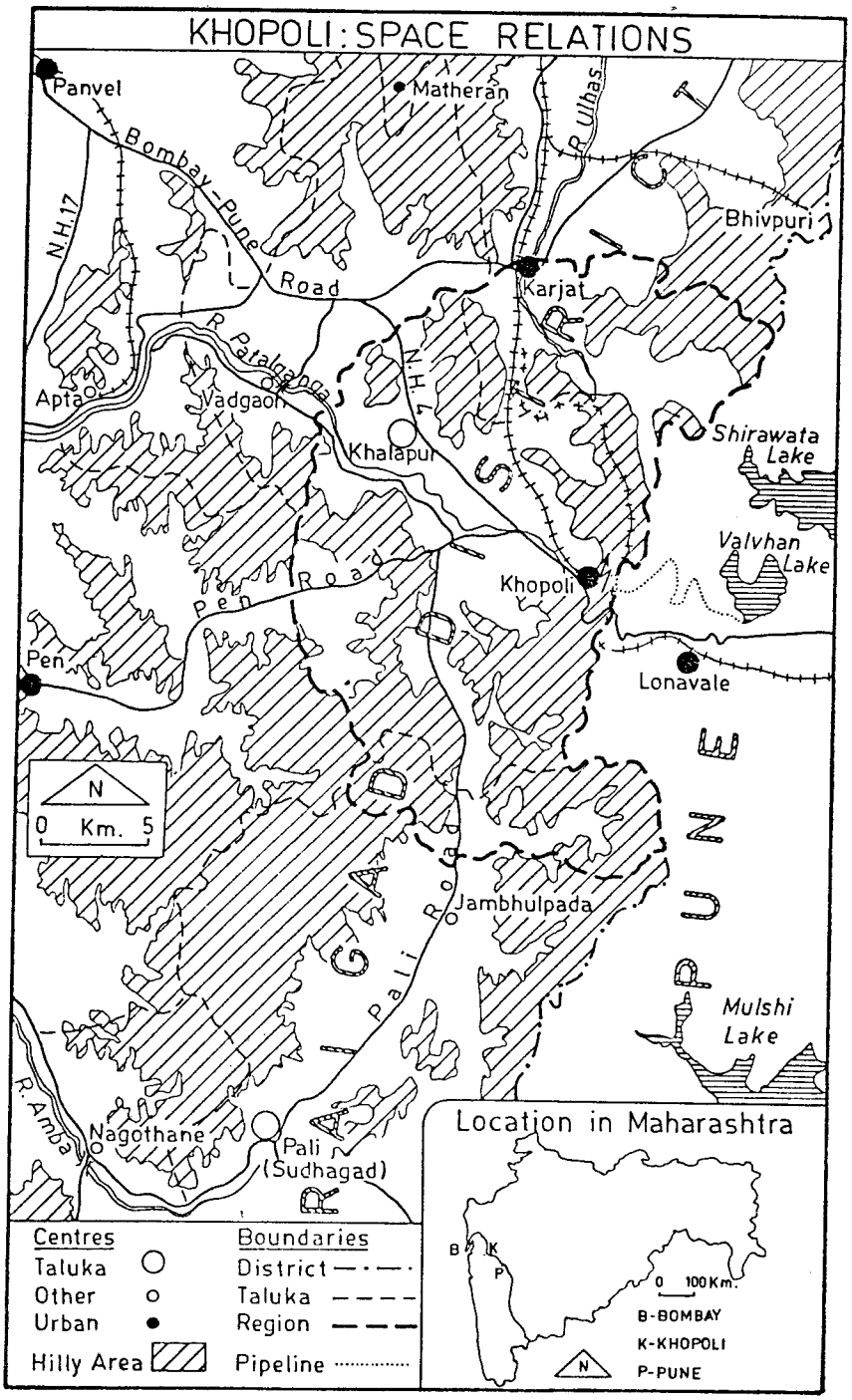

Fig. 1

and over two-thirds, of the small scale type. The engineering and paper units do not show any specific bias to the scale of operation. In the chemical industries, however, there is

a tendency for plants to be larger. The only brewery unit is in the large scale sector, while flour mills and saw mills are found exclusively in the small scale sector.

On the whole, it appears that though industrialization initially emerged around paper manufacture, engineering and chemical industries have come to dominate the scene, probably because they were the fast growing industries at the time of their establishment. Of the small scale industries, while some are directly related to large scale units, others such as saw mills are oriented to consumer demand.

TABLE 1 : RELATIVE SHARE OF INDUSTRIES IN DIFFERENT CATEGORIES BASED ON SCALE OF OPERATION AND PRODUCT

Scale of Manufacturing Industry	Type of Industry	No. of Units	Percentage to total of each Size Category
Large	1. Engineering	3	33.33
	2. Chemical	4	44.45
	3. Paper	1	11.11
	4. Brewery	1	11.11
	Total :	9	100.00
Small	1. Engineering	6	28.57
	2. Chemical	3	14.29
	3. Paper	2	09.52
	4. Saw Mills	3	14.29
	5. Flour Mills	4	19.04
	6. Others	3	14.29
	Total :	21	100.00

SOURCES OF RAW MATERIALS AND THEIR RELATIVE CONTRIBUTION

The sources of raw materials for the industries have been categorised into seven different types depending on their distance from Khopoli – geographical and hierarchical (Table 2).* Bombay has been treated separately because of its dominance in industrialization of the neighbouring districts as revealed in the previous study (Sengupta and Phadke, 1984). Break-up of raw materials from different sources is given in the form of percentage by volume.

* Following codes are used for sources of raw materials and destination of finished products throughout this paper.

1. Overseas Centres
2. Bombay
3. National Centres other than Bombay
4. Regional Centres outside Maharashtra
5. Regional Centres inside Maharashtra
6. Villages within 15 kms. radius of Khopoli
7. Khopoli

TABLE 2 : PERCENTAGE SHARE OF DIFFERENT AREAS IN RAW MATERIALS TO INDUSTRIAL UNITS BY VOLUME

Scale of Unit	Industry	Unit No.	Sources of Raw Materials						
			1	2	3	4	5	6	7
Large	Engineering	1	15.02	59.99	–	24.99	–	–	–
		2	–	–	–	100.00	–	–	–
		3	–	100.00	–	–	–	–	–
	Chemical	1	22.00	43.00	26.25	8.75	–	–	–
		2	–	68.00	14.00	14.00	–	–	4.00
		3	10.00	43.00	11.26	3.74	30.00	–	2.00
		4	–	60.40	31.68	7.92	–	–	–
	Paper	1	–	35.43	12.52	22.83	27.83	0.28	1.11
	Brewery	1	0.006	0.014	–	65.61	1.57	–	32.80
Small	Engineering	1	–	75.00	–	–	–	10.00	15.00
		2	–	100.00	–	–	–	–	–
		3	–	100.00	–	–	–	–	–
		4	–	100.00	–	–	–	–	–
		5	–	55.04	44.96	–	–	–	–
		6	–	100.00	–	–	–	–	–
	Chemical	1	–	100.00	–	–	–	–	–
		2	–	64.36	–	–	–	–	35.64
		3	–	70.00	–	30.00	–	–	–
	Paper	1	–	100.00	–	–	–	–	–
		2	–	100.00	–	–	–	–	–
	Saw Mills	1	–	–	–	–	75.00	25.00	–
		2	–	–	–	–	80.00	20.00	–
		3	–	–	–	–	74.00	26.00	–
	Flour Mills	1	–	60.00	–	–	38.00	–	2.00
		2	–	60.00	–	–	38.00	–	2.00
		3	–	60.00	–	–	38.00	–	2.00
		4	–	60.00	–	–	38.00	–	2.00
	Others	1	–	7.00	25.34	10.80	56.80	–	–
		2	–	60.00	40.00	–	–	–	–
		3	–	100.00	–	–	–	–	–

Khopoli supplies raw materials to 10 out of 30 units. Its share, however, varies from 1.11% to 35.64%. It is generally 2% for small scale units; an engineering and a chemical unit are the exceptions. In the case of the former, the raw material used is scrap, and in the latter it is kerosene which, however, is not strictly local. The flour mills, on the other hand, derive only a small proportion of the raw material viz. wheat from this source; the operation is on a commercial scale contrary to earlier impression and quota allotted to Khopoli is limited. For large scale units, the percentage generally varies between 1.11 and 4.00. The brewery is an exception to the general rule; nearly one third of its raw materials come from local sources. But even here, it must be remembered that the raw material viz. sugar provided by local agencies is not a local product. It actually comes from regional centres in the State such as Shrirampur, Kopargaon or Kolhapur and hence its inclusion in the local source category is rather illusive. Thus all the industrial units have mainly to rely on external sources for the raw material supplies and local supplies are limited.

Only 5 out of 30 units benefit from the villages within 15 kms. radius of Khopoli and the share of this source of raw materials is generally small. It mainly caters to the needs of saw mills and the share in this case is substantial. A small scale engineering unit also gets the raw materials from this source, but the volume is small. The large scale units do not depend on this source, with the exception of the paper mill; its share is very marginal i.e. 0.28%.

Bombay is the principal source of raw materials for almost all the units; 4 out of 9 large scale units secure over 55% of their raw materials from Bombay and 8 out of 21 small scale units secure 100% from this source. This confirms the metropolitan dominance of Bombay over industries in the neighbouring districts (Sengupta and Phadke, 1984). Most of these are engineering and chemical units. Both the small scale paper units derive all their raw materials from Bombay.

The percentage share of national centres, other than Bombay is substantial. This is not a general influence, however, and is found to be industry specific. The chemical units from the large scale group are the major dependents on this source, deriving between 11.26% and 31.68% of their raw materials; the major supplier is Calcutta. Some small scale units also depend on these centres for their raw materials; they secure raw materials ranging between 25.34 and 44.96%. The major beneficiaries are an engineering and a ceramic unit depending for specialized products on centres such as Calcutta, Delhi and Ahmedabad.

The share of the centres in Maharashtra other than Khopoli and Bombay is substantial; however, this share is also industry specific. Two large scale industries i.e. a chemical and a paper unit, derive over 25% of their raw materials from this source. For the former they are chemicals from Rasayani and for the latter, it is waste paper from Pune. Saw mills mainly depend on this source for supplies of wood, and flour mills derive a part of their wheat supplies from Alibag. The only other industry to benefit is the electro-ceramics unit bringing clay from Nagpur.

Regional centres outside Maharashtra supply raw materials mainly for large scale industries. However, chemical industries seem to be less dependent on this source compared to the engineering, paper and brewery units. Raw materials are in the form of steel, pulp or malt the production of which is not concentrated in centres of national importance because of the pull of

raw materials. Small scale units are not generally dependent on this source; only a chemical unit viz. Universal Container depends on Vadodara for synthetic beads. Eventhough the number of industries benefitting is restricted, the proportion of raw materials from this source is significant.

Only some of the large scale industries purchase raw materials from overseas sources. Chemical industries appear to be prominent in this respect; the percentage is also substantial and these are the basic ingradients not available indigenously.

The analysis so far suggests that the raw materials used by industrial units only marginally come from the local environment. The large and small scale units behave in a similar fashion although the latter are more dependent on Bombay. The basic difference lies between industrial units like saw mills which are geared to local supplies and others which depend on semi-processed materials from elsewhere. Here engineering, chemicals and paper industries rely generally on Bombay; their materials are either base metals, basic chemicals or pulp (Table 3). Brewery, however, depends on material which comes from other areas. Benefits going to the surrounding areas from the purchase of raw materials are limited. It is happy to note, however, that very few units rely on imported raw materials.

An analysis of the value of raw materials from different sources suggested the same basic pattern as that by volume. However, the materials purchased from Bombay or in overseas centres were found to be more costly.

SPATIAL LINKAGE PRODUCED BY RAW MATERIALS

When the spatial pattern of the sources is analysed, cartographically (Fig. 2) additional light is thrown on actual spatial linkage. Villages located along the local roads or railway line are the major local sources. Bombay predominates in Maharashtra and other important centres are also in the vicinity of Bombay. Pune is another noteworthy centre outside this belt, and the influence of other areas is limited. If we consider the sources of raw materials in

TABLE 3 : PERCENTATE SHARE OF DIFFERENT AREAS IN RAW MATERIALS TO DIFFERENT INDUSTRIAL GROUPS BY VOLUME

Industrial Group	Sources of Raw Materials						
	1	2	3	4	5	6	7
Engineering	01.69	76.67	04.98	13.88	–	01.11	01.67
Chemical	04.57	64.11	11.88	09.21	04.28	–	05.95
Paper	–	78·48	04.17	07.61	09.28	00.09	00.37
Breweries	0.006	0.014	–	65.61	01.57	–	32.80
Saw Mills	–	–	–	–	76.33	23.67	–
Flour Mills	–	60.00	–	–	38.00	–	02.00
Others	–	55.69	21.78	03.60	18.93	–	–
Small Scale Unit	–	65.30	05.25	01.94	28.85	03.87	02.39
Large Scale Unit	05.23	45.54	10.63	27.54	06.60	00.03	04.43
All Units	02.61	55.43	07.94	14.74	13.72	01.95	03.61

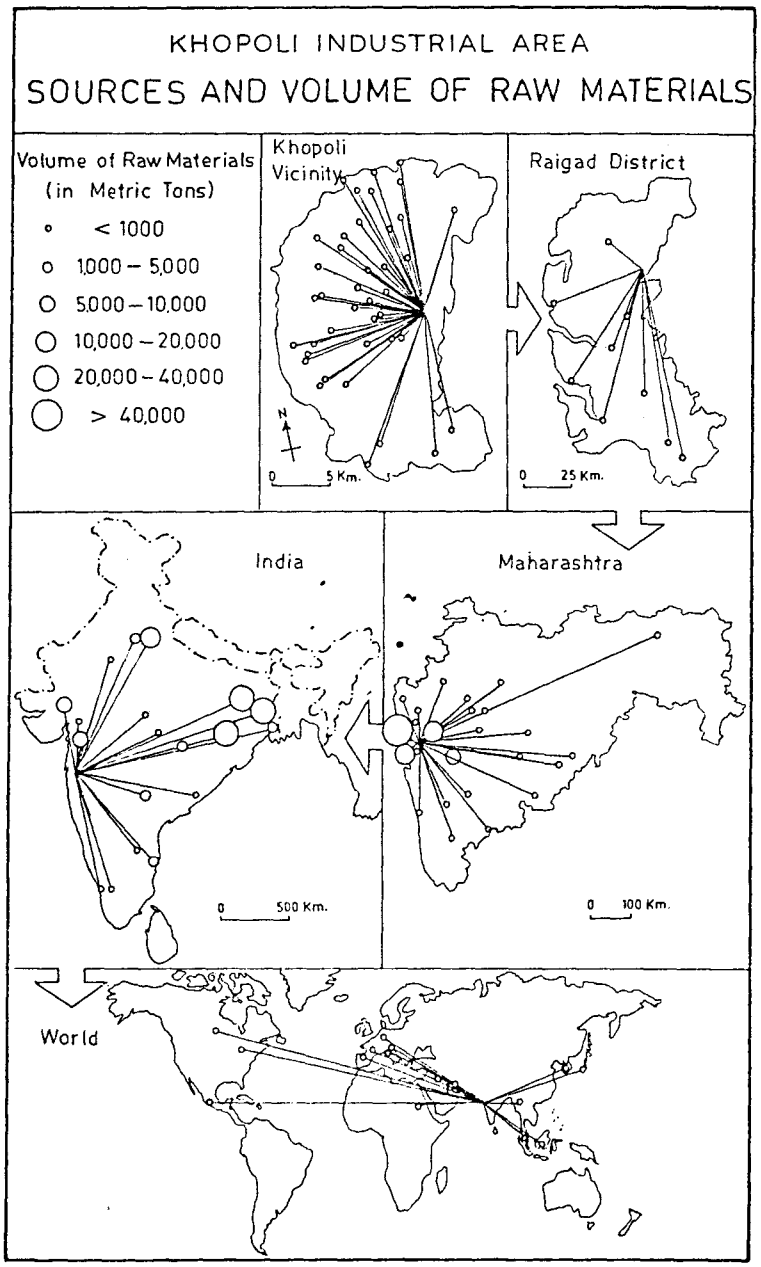

Fig. 2

India outside Maharashtra, the north-eastern peninsula clearly dominates the scene. Areas around Delhi and mainland of Gujarat are the other supplying areas. Among the overseas sources developed countries predominate probably for quality materials while the countries of the Middle East contribute certain chemicals. Countries of Latin America, Africa and Oceania are significant by their absence.

Spatial pattern by volume was replicated when value of raw materials was taken into account. The only difference observed was that the contribution of local sources reduced while that of distant sources increased.

DESTINATION OF THE FINISHED PRODUCTS FROM KHOPOLI

Destination of the finished products provides a clue to forward spatial linkage developed by industries and hence the analy-

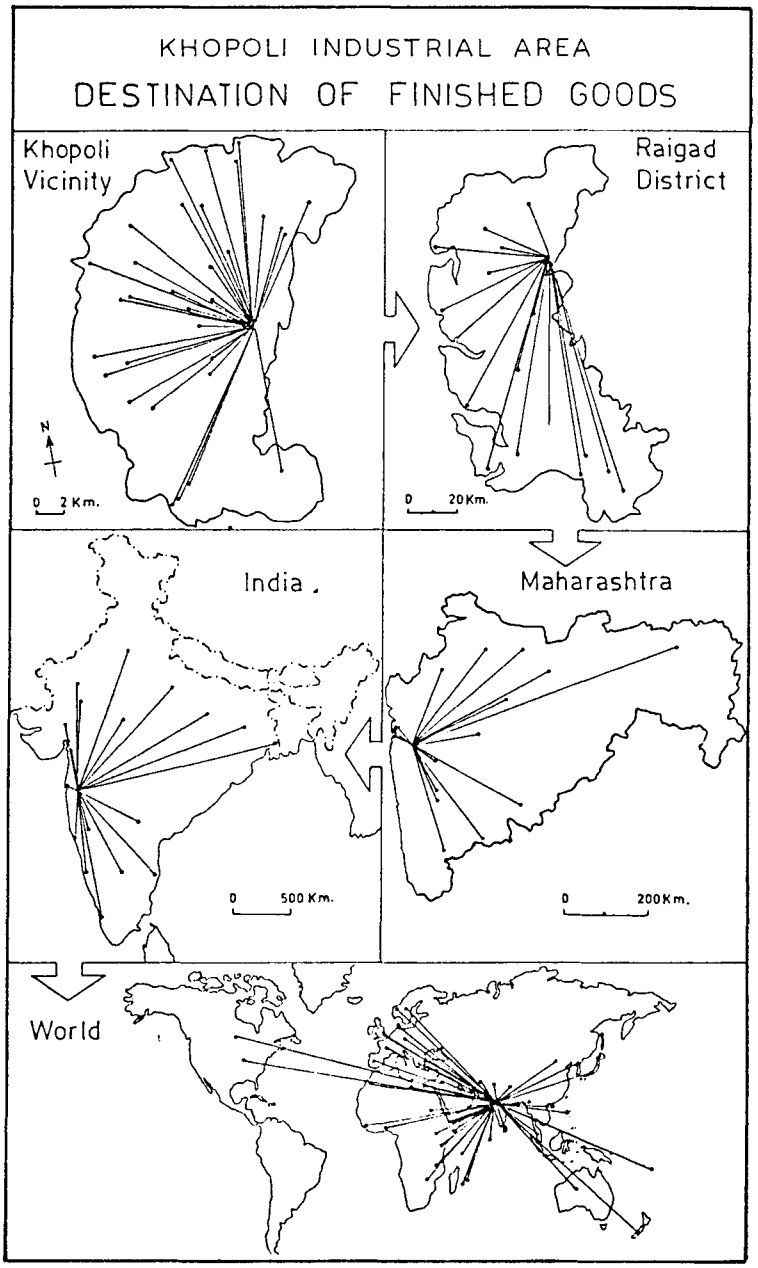

Fig. 3

sis of this type is relevant in understanding the impact. The available quantitative data is not adequate as all the industrial units could not give exact proportion of their finished products going to different destinations. The quantitative analysis is based on the information given by 13 out of 30 units (Table 4). Bombay is the main market for the finished products of a number of large and small scale industries. The only other market is from urban centres in Maharashtra. Market linkage with Khopoli and the surrounding area is weak and this indicates that the industrial units at Khopoli are subservient to the metropolitan economy. This is but natural as the industrial units are mostly the branch plants of the industries located elsewhere, mostly in Bombay.

Spatial pattern of destination reveals actual linkage in a qualitative manner (Fig. 3). The linkage pattern upto the national level does not show a significant difference from that of the raw materials. On the international scene, however, the linkage is not restricted only to developed and Middle East countries. A large number of Afro-Asian neighbours are also linked. There is a significant absence of linkage with Latin American countries.

TABLE 4 : PERCENTAGE OF FINISHED PRODUCTS (BY VOLUME) MOVING TO DIFFERENT DESTINATIONS

Destination	1	2	3	4	5	6	7	Total
Percentage	00.04	78.90	00.15	–	17.95	00.23	02.73	100.00

CONCLUDING REMARKS

Industrialization at Khopoli has failed to develop backward linkage with the surrounding area; only about 5% of the raw materials by volume is supplied by Khopoli and its vicinity. Even this figure is rather illusive as a part of these raw materials, though purchased in Khopoli, are not produced there; they actually come from other centres. The only industrial units which have a substantial share coming from the rural vicinity of Khopoli are the saw mills. Bombay, on the other hand, is the predominant source supplying over 60% of the raw materials to most of the industries except brewery. This confirms the metropolitan dominance of Bombay. The industries have also failed to develop forward linkage. Only about 3% of the finished products by volume go to Khopoli and its vicinity; bulk of this goes to the former and is suggestive of inter-industrial linkage. A very small portion goes directly to the consumer. Industrial structure at Khopoli is unsuitable for development of linkage with the surrounding area. It has shown the capacity to create growth but it is not simultaneously sending the impulse to productive activities in the surrounding area.

The burden of this paper is not to suggest that industries oriented to local raw materials alone should be developed. Large scale industries have a specific role to play in regional development. However, the opportunities of concomitant development of small industries should not be missed. It is also necessary to promote the use of local raw materials whereever possible. Paper industry, for example, can substantially bring in the local component to its raw materials. This has not happened as at

Dhatav (Sengupta and Phadke, 1984). Resource-based industries on the lines of those at Chandrapur (C. S. D. I., 1980) or mini industrial estates of Kerala (Government of Kerala, 1979) are worth encouraging.

Today Khopoli appears as an 'enclave' in the surrounding agricultural area subserving the metropolitan economy of Bombay and it reflects on the continuation of the colonial tendencies. This picture has to change and the change would come only through purposeful development of ancillary industries.

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