

CALCUTTA RESEARCH STUDIES

No. 6

**Ancillary Industries in Asansol-Durgapur:
A Preliminary Study**

JOHN MACDOUGALL

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GENERAL EDITOR: LESLIE GREEN

INSTITUTE OF PUBLIC ADMINISTRATION, NEW YORK

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by *R. Dhar*

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INSTITUTE OF PUBLIC ADMINISTRATION
NEW YORK

ANCILLARY INDUSTRIES IN ASANSOL-DURGAPUR

A Preliminary Survey

JOHN MACDOUGALL

Research Scholar in Urban Studies

Published for

Institute of Public Administration, New York

ASIA PUBLISHING HOUSE

BOMBAY . CALCUTTA . NEW DELHI . MADRAS

LUCKNOW . LONDON . NEW YORK

©
Institute of Public Administration, New York

Previously published by the Institute, 1964

Re-published in this edition, 1965

 Library IAS, Shimla



00031034

Note

In this study, all statistics above 99,999 are given in lakhs and crores. One lakh=100,000 and is depicted as 1,00,000. One crore=10,000,000 and is depicted as 1,00,00,000. The unit of currency used is the Rupee. One Rupee=0.21 (approx.)

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PRINTED IN INDIA
BY S. N. GUHA RAY AT SREE SARASWATY PRESS LTD.,
32 ACHARYA PRAFULLA CHANDRA ROAD, CALCUTTA-9 AND
PUBLISHED BY P. S. JAYASINGHE, ASIA PUBLISHING HOUSE, BOMBAY

FOREWORD

The Institute of Public Administration, New York, is a private, non-profit organization, chartered under the laws of the State of New York to improve public administration practices, sponsor research in government problems, and conduct educational programmes. Since the end of the Second World War, the Institute has concentrated its efforts on policy problems of urban government, on regional and national problems arising from urbanization and metropolitan growths, and on problems of administration in developing nations. The current series of research studies records the results of work undertaken in and around Calcutta by teams of graduates from Indian, American and British Universities. The teams have been engaged on an international urban studies programme operated by the Institute in close association with the Calcutta Metropolitan Planning Organization, and financed by the Ford Foundation.

This programme has had the two main aims of training research workers in urban studies and of assisting the Calcutta Metropolitan Planning Organization. These twin objectives have been pursued by agreeing projects with that Organization designed to serve both ends. At the same time, the Institute has hoped generally to further the public interest in India by its examination of social, economic and governmental problems in the country's largest urban complex.

Although specific acknowledgements are made in the preface to the present study, I am happy to acknowledge in this foreword the generous financial aid of the Ford Foundation, and the ready response of members of the Calcutta Metropolitan Planning Organization and Ford Foundation advisory group to that Organization whenever approached for assistance by the Institute's research personnel.

LESLIE GREEN

PREFACE

This study of the scope for and problems of ancillary, "feeder" industries in Asansol-Durgapur was carried out between October, 1962, and October, 1963, under the general supervision of Dr. Leslie Green, Senior Specialist in International Urban Studies of the Institute of Public Administration, New York. Special thanks are due to him for help at all stages of the work. The writer is also very grateful for the advice and information given by members of the Calcutta Metropolitan Planning Organization and Ford Foundation advisory group to that Organization; in particular, Dr. H. Banerji, Mr. Ajit Bose and Dr. George Rosen.

Special mention should be made of the unstinting help given by Mr. K. C. Sivaramakrishnan, Additional District Magistrate, Asansol, Mr. V. K. Seth, Secretary of the Joint Working Committee of the colliery associations, Mr. S. K. Mitra of Asansol, and the staff of the Chief Inspector of Mines. General help was given by the Sub-Divisional Officer, Asansol, and his staff, the Directorate of Industries, Government of West Bengal, the Small Industries Service Institute, Calcutta, the Indian Engineering Association, the Indian Chamber of Commerce and the Bengal National Chamber of Commerce and Industry. Information was kindly provided by the Chief Inspectors of Factories of West Bengal and Bihar; officers in the Central Glass and Ceramics Research Institute; the Central Engineering Organization, Howrah; the Employment Exchange Officer, Asansol; the Disergarh and Associated Power Supply Companies, and Asansol and Raniganj Electric Supply Companies; the Indian Institute of Technology, Kharagpur (Department of Architecture and Regional Planning); Mrs. Sabita Chatterjee; Dr. Morton Grossman, Ford Foundation Consultant on Economics and Planning, New Delhi; Mr. Motin De; and Mr. Satish Chandra Dey. Special thanks are due to the Ministries of Steel and Heavy Industries, and Commerce and Industries (Department of Company Law Administration), Government of India, for permitting the collection of statistics from steel and coal-producing firms.

A special debt is owed to Miss Kamalini Sen Gupta, Mr. Pradip Das Gupta, Mr. Manas Sen Gupta and Mr. Amar Datta, who acted as research assistants; and to Mrs. Ruby Advanio and Miss Joan Waugh, who typed the script. The writer is also grateful to the following who allowed him to use information already collected by them: the Calcutta Metropolitan Planning Organization (Economic Section); Dr. H. Banerji, Reader in Economics, Jadavpur University; the Department of Economics, University of Calcutta (especially Dr. S. K. Basu, Mr. Alok Ghosh and Mr. Subrata Roy); and the Joint Working Committee of the colliery associations. Last but not least, the writer is most grateful for the help of the personnel of the firms interviewed.

Calcutta, November, 1963

J. M.

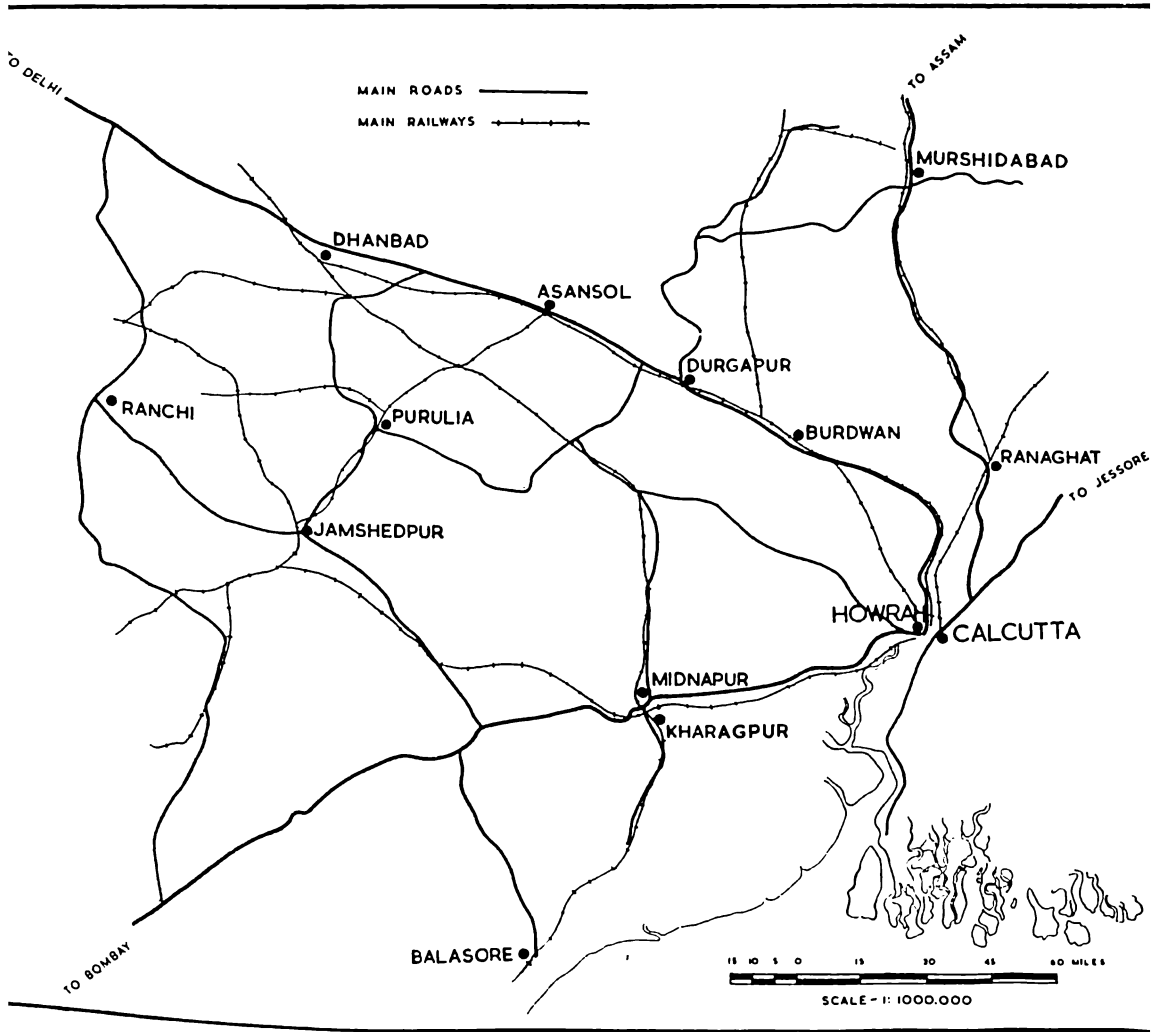


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1. Objectives

The principal aims of this study are as follows:

- (a) To estimate the demand, existing and potential, for the products of local ancillary industries in the Asansol-Durgapur area;
- (b) to estimate the average current costs of production of existing ancillary industries in the area, both in general and as regards particular items, and to compare these costs with those of similar industries in the Calcutta Metropolitan District;¹ and
- (c) on the basis of (a) and (b), to reach tentative conclusions as to the kinds of ancillary industries that might be encouraged to develop in the Asansol-Durgapur area.

2. Relevance to Regional Economic Planning and Development

The study is based on the assumption that one measure which could well be adopted to reduce the congested living conditions and other urban problems of the Calcutta Metropolitan District, is the development of new major industrial areas within its economic hinterland to serve as “counter-magnets” or rival centres of industrial and urban growth. It is further assumed that the Asansol-Durgapur area could be one of these centres. This particular study focuses attention on one problem involved in developing the Asansol-Durgapur area as a “counter-magnet”. It tries to point out, and to a limited extent analyse, the possibilities of making the latter area less dependent on other areas—in particular, the Calcutta Metropolitan District—for its supplies of manufactured producer goods. It is thus hoped that if, as a result of the study, certain ancillary industries may be suggested for development in the Asansol-Durgapur area, one firm method may be proposed for reducing urban congestion in Greater Calcutta. It is hoped, however, that this study will not only be of interest to those concerned with the planning of Greater Calcutta, but also to those concerned generally with regional planning in India. In the context of Indian economic development, regional planning is concerned with the framing of targets, production plans and the like for individual states or groups of states, or for areas within states or straddling state boundaries. In such planning, it must be assumed that interactions between developments forecast or desired in the region under consideration, and those resulting in other parts of the country, can either be more or less ignored, or can be predicted with some confidence and thus allowed for in the forecasts and plans. In this study, it is assumed that the development of ancillary industries in the Asansol-Durgapur area will, in general, have little or no significant effect on the future demands placed on ancillary industries in the rest of India, other than in the Calcutta Metropolitan District. The grounds for this assumption are that only a small part of the total orders placed now and in the future can originate from the Asansol-Durgapur area.

¹ As defined by the Calcutta Metropolitan Planning Organization.

It is further assumed that the demands on existing ancillary industries in the Calcutta Metropolitan District will not be significantly affected in the future by any development of such industries in Asansol-Durgapur. This assumption is based partly on similar grounds, and partly on the grounds that ancillary industries in the Metropolitan District are most unlikely to face any significant slackening of demand if they should in future lose some of their customers in the Asansol-Durgapur area. This forecast is based in turn on the evident shortage of ancillary products in Calcutta and its economic hinterland at the present moment, and on the prospects of a large increase in the demand for ancillary products throughout the hinterland in the next decade.

3. Definition of Ancillary Industries

The main definition of an ancillary industry used here is: *any industry producing manufactured goods which constitute a current input to another industry*. Certain industries have been excluded, however, on pragmatic grounds. These industries are as follows:

- (a) Steel and steel alloys, which have been excluded on the grounds that (i) production plans for steel are drawn up by the Union Government to meet the needs of the country as a whole, and any suggestions a study such as this might make on steel production could have little significance for such national planning; and (ii) there is at present no need for further production of steel purely to meet the needs of Asansol-Durgapur, which is a steel-exporting area.
- (b) Refractories, which have been excluded because Asansol-Durgapur is again a large exporter of this item.
- (c) Petroleum products, which have been excluded because (i) it is much more economical to make these products on a large scale to serve a very large area, so that, once again, considerations of national planning come to the fore; and (ii) it is considerably more economical to produce these items near to the source of raw materials, in which case the Asansol-Durgapur area offers no particular advantage.

Thus, the types of ancillary products considered in this study are as follows:

1. Ferrous and non-ferrous castings, machined parts, forgings, and fabrications.
2. Electrical equipment.
3. Chemicals.
4. Reinforced concrete pipes and other fittings.
5. Industrial gases, electrodes and equipment.
6. Wood products.

By far the largest number of ancillary firms investigated manufacture products falling under the first category.

It will be seen that the scope of this study extends beyond what is perhaps the only type of firm strictly deserving the name ancillary, i.e. a firm regularly taking orders from other, "parent", firms, on the basis of either an official sub-contract agreement, or at least an order placed after direct negotiation between the "parent"

and ancillary firms. A number of studies¹ have suggested that small firms enjoy the best prospects of development if they begin by being ancillary in this strict sense of the word. The present study is unable to suggest if small enterprises in the Asansol-Durgapur area should start their lives in some other way, and further research in this direction might be useful. Nevertheless, for reasons given below, there seems to be value in exploring the scope for developing the more general type of ancillary or "feeder" industry that is the subject of this study. The reasons are as follows:

- (a) The scope for strictly ancillary industries appears to be limited in the Asansol-Durgapur area, as most of the area's major industries produce basic industrial materials such as coal, steel and fire-bricks, which involve few regular purchases of manufactured items.
- (b) The area as a whole depends to a very marked degree on the Calcutta Metropolitan District, and on foreign sources reached via Calcutta port, for those current manufactured inputs which it does buy. There should thus be much scope for the development of local industries to reduce the area's dependence on external manufacturers by meeting its needs as a whole.
- (c) It is unwise to rule out consideration of the scope for industries in the Asansol-Durgapur area which, usually making more specialized products, would find their market in an area extending beyond Asansol-Durgapur to possibly the whole of India. Although at least a significant part of their market would remain in the local area, such industries would, from the very start of their lives, be less in need of the kind of support they would require if they were, strictly speaking, ancillary industries.

4. Area of Study

As illustrated in Figure 2, the geographic area of study comprises the whole of the Raniganj Coalfield, plus the area of the Durgapur Development Authority. With some justification, this area can be regarded as an homogeneous industrial belt. In the first place, much of its commercial life revolves around the same centres and sub-centres—such as Asansol, Raniganj, Durgapur and Barakar—and possible rival centres outside this area do not appear to attract commerce from within it. Indeed, on this score, Mugma could be defined as the eastern limit of the area, as its commercial centres are apparently Dhanbad and Jharia. Secondly, almost the whole of the area is coal-bearing. Thirdly, for an under-developed country, the area is characterized by a relatively high level of industrialization. This industrialization extends for fifty miles from Durgapur north-westwards through Andal, Raniganj, Jaykaynagar, Asansol, Burnpur, Kulti, Barakar and Kumardhubi to Mugma, after which there is a major break of some twenty miles before the Dhanbad industrial complex is reached. Finally, the whole area possesses the common transport arteries of the

¹ For example, see P. N. Dhar and H. F. Lydall, *The Role of Small Enterprises in Indian Economic Development*, Bombay, 1961; George Rosen, *Industrial Change in India*, Bombay, 1959; A. Molinari, *Some Controversial Questions Regarding Industrial Estates*, Paper No. 18 read at Seminar on Industrial Estates in the ECAFE region, Madras, November 1-11, 1961; William Bredo, 'Industrial Decentralization in India', *India's Urban Future*, (Roy Turner ed.), Bombay, 1962.

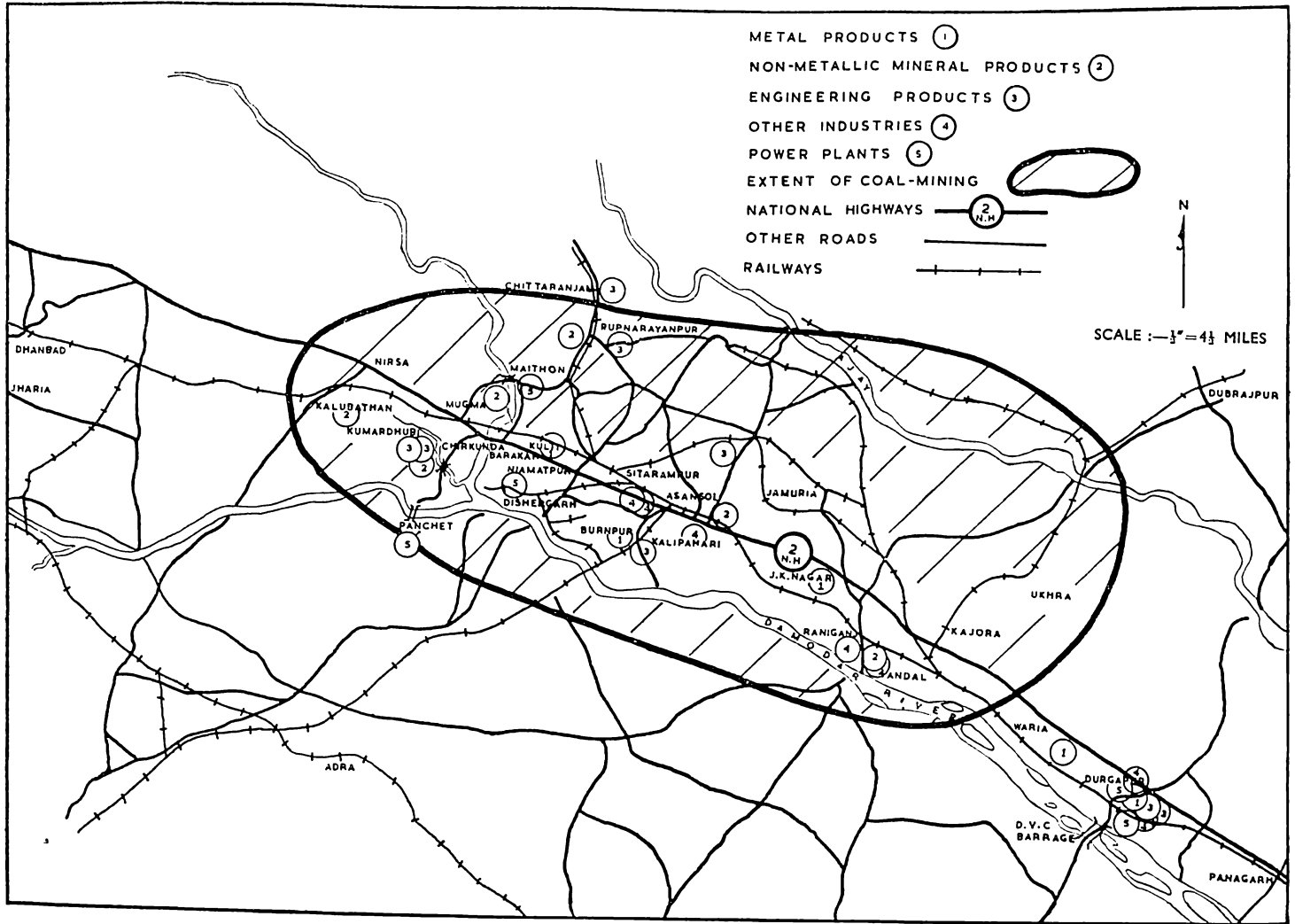


Fig. 2. Asansol—Durgapur

Table 1

INDUSTRIES IN ASANSOL-DURGAPUR, 1963

Serial No.	Industry	Number of "Parent" Firms Interviewed		Number of Ancillary Firms Interviewed	
		Already in Operation	New	Already in Operation	New
1.	Iron and Steel	2 ¹	—	—	—
2.	Alloy Steel	—	1	—	—
3.	Aluminium	1	—	—	—
4.	Engineering:				
	4(i) Castings and Machinery	—	—	4	2
	4(ii) Machinery	—	—	1	—
	4(iii) Fabrication	1	—	6	1
	4(iv) Castings, Machining and Fabrication	4 ^{1,3}	—	11 ^{3,4}	—
	4(v) Erection	—	—	2 ^{3,4}	—
	4(vi) Re-rolling	1 ³	—	2 ^{3,4}	—
	4(vii) Steel from Scrap	1	—	—	—
5.	Locomotives	1	—	—	—
6.	Railway Wagons	1	—	—	—
7.	Cotton Textiles	1	—	—	—
8.	Glass	2	—	—	—
9.	Industrial Gases	1 ³	—	1 ³	1
10.	Carbon-black	1	—	—	—
11.	Gin and Spirits	1	—	—	—
12.	Coke	1	—	—	—
13.	Paper	1	—	—	—
14.	Chemicals:				
	14(i) Sodium Sulphate	—	—	6 ^{4,5}	—
	14(ii) Hydrochloric and Other Acids	—	—	1 ⁵	—
	14(iii) Coal Tar Distillation	1 ²	—	1	—
	14(iv) Other Heavy Chemicals	1	1	3 ⁵	—
15.	Refractories	1 ³	—	—	—
16.	Cables	1	—	—	—

Table 1—(Contd.)

INDUSTRIES IN ASANSOL-DURGAPUR, 1963—(Contd.)

Serial No.	Industry	Number of "Parent" Firms Interviewed		Number of Ancillary Firms Interviewed	
		Already in Operation	New	Already in Operation	New
17.	Electric Power	3 ²	—	—	—
18.	Ice & Cold Storage	1	—	—	—
19.	Bicycles	1	—	—	—
20.	Electric Equipment	1	—	—	2
21.	Wooden Products	—	—	3 ³	—
22.	Concrete Products	—	—	2	—
23.	Welding	—	—	1 ⁴	—
24.	Plastic Products	—	1	—	—

¹ The Indian Iron and Steel Co. has both a steel factory and an engineering factory falling under category 4(iv).

² Durgapur Projects Ltd. at present operates coke ovens, a tar distillation plant and an electricity generating plant. It is understood that it will add an engineering workshop and a coal washery.

³ One firm in each of categories 4(iv) and 4(vi) was considered to be of such importance as to justify its being treated both as a "parent" firm and as an ancillary firm.

⁴ One ancillary firm undertakes fabrication and re-rolling work, and also makes sodium sulphate.

⁵ One ancillary firm produces sodium sulphate, hydrochloric acid and limestone dust.

⁶ There are many more ancillary firms making these products or performing such services, and only a few firms, which seemed to be representative, were interviewed.

Grand Trunk Road and main-line Eastern Railway running along its entire length from east to west.¹ Apart from coal-mining, the industries which have either been established or are in course of establishment within the boundaries of this area, are listed in Table I. This table also lists the number of "parent" and ancillary firms in each industry which were interviewed during the field work for this report.

5. Research Methods

The general approach has been to concentrate on the individual industries actually operating in the Asansol-Durgapur area, rather than to use information on other, larger regions already available elsewhere. This approach tends to be the much more laborious of the two, but it would seem to be the only one capable of reflecting as accurately as possible the peculiarities of a particular, small area. Another general

¹ For a more precise definition of the Asansol-Durgapur complex, see 'The Economic Hinterland of Calcutta', *Calcutta Research Studies No. 7*, by R. Dhar, Wallace E. Reed and P. N. Sinha; 'Development in Asansol-Durgapur', *Calcutta Research Studies*, (Occasional Report), by R. Dhar. These reports give data on the extent, natural resources, population, employment, production, communications, power supply, investment and municipal facilities of the complex.

feature is that, in describing the present position, little note has been taken of past trends. The main justifications for this are that (i) the Asansol-Durgapur area, especially Durgapur itself, has developed very rapidly in the last decade, and there is little point in studying the relation between past and present when they are so very different; and (ii) the most important questions in locational studies such as this naturally concern the place rather than the timing of economic activities, and considerable attention has thus been paid to the former.

Accordingly, forty-six large-scale firms, generally employing one hundred or more persons (although some of them were not yet operating at the time of the survey), and fifty collieries, were directly questioned¹ about their places of purchase of components, spare parts and other manufactured consumable stores, about the amounts of such commodities they would be willing to buy from local manufacturers, and about aspects of their relations with their present suppliers of these items, e.g. the arrangements for inspection of such items, for placing orders and for assisting suppliers. A further forty-five ancillary firms were asked quite detailed questions¹ about their costs and output, and less detailed questions about, for example, their capital structure, labour force, and relations with "parent" firms. Some of these firms, of course, have customers outside the Asansol-Durgapur area. Where the latter did not account for a large proportion of a firm's sales, it was investigated. Otherwise, it was excluded. The collieries of the Raniganj coalfield were sampled in the following way: (a) A complete coverage of collieries raising over 20,000 tons per month in September, 1962; (b) a 58% sample of companies raising between 10,000 and 20,000 tons; (c) an 11% sample of pits raising under 10,000 tons; and (d) a 6% sample of open-cast mines and inclines raising under 10,000 tons.

For the "parent" industries, the names and addresses of factories to be interviewed were obtained mainly from lists kindly supplied by the Chief Inspectors of Factories, West Bengal and Bihar. For collieries, the only source of information was a list kindly supplied by the Chief Inspector of Mines. The Chief Inspectors of Factories' lists were also consulted for the ancillary firms, although in this case more extensive use was made of subsidiary sources, namely, names and addresses supplied by people who knew the area well, and the field observations of research personnel in the case of new concerns.

6. Limitations

It is fully acknowledged that this study represents merely the beginning of an attempt to lay bare the problems and possibilities of ancillary industries in the Asansol-Durgapur area and that, perhaps, its main role is to make clearer to others what work remains to be done. Much further research needs to be undertaken, both to intensify and improve the work already completed and to explore new fields. It must be emphasized that the present investigation has been undertaken as part of a training programme in urban studies for pre-doctoral students, and that, in spite of the stress laid upon the collection of data by direct questioning and personal interview, there is no doubt that a considerable proportion of the data must be treated with

¹ For the Questionnaires used see Appendices A to E.

caution. Not only do some of the statistics thus obtained appear to be misleading, but, in a number of cases, they reflect little more than informed guesses made by the persons interviewed. It was decided, however, that, where data appeared to be suspect, further interviewing should not take place, particularly because of insufficient time. Where an attempt was in part made to re-question certain firms, the response was so poor as to justify this decision.

1. Problems and Methods of Measuring Demand

For a number of reasons, it is particularly difficult to measure the potential demand for locally-made ancillary products in a small area such as Asansol-Durgapur, where it is at once apparent that the demand is hardly met locally at present except, possibly, in engineering. Because of the area's limited size, in many cases the local demand, though not negligible, cannot be so great as to justify the establishment of new firms supplying to local firms only. In addition, the degree of interaction between changes in supply and changes in demand can be important. For example, a firm may set up a factory to produce an item which, because of its technical complexity, was never expected to be produced locally. In consequence, further new firms may thereupon be established to make use of this item, the development of which could not have been foreseen before the first new factory was built.

Because this study has concentrated on the prospects for developing *local* ancillary industries, primary emphasis has been placed on measuring the *local* demand for the products of such industries. Nevertheless, it is acknowledged that there is much scope for the development of industries that would find their market not only in the Asansol-Durgapur area, but in other parts of Eastern India also, or in India as a whole. The establishment of this type of ancillary industry in the Asansol-Durgapur area is, of course, likely to reduce the economic dependence of the area on the Calcutta Metropolitan District, but to a lesser extent than the establishment of industries catering purely to a local market. The reason is that industries supplying a wider market are likely to find important customers in the Calcutta Metropolitan District, and to stimulate the development of their own ancillary industries in that District. While it would appear that the development of these kinds of industries should be encouraged, on the national grounds that their growth is likely to make for a more productive use of national resources, the question of their location in Asansol-Durgapur needs more study.

Because of these and other difficulties of measurement, alternative methods of estimating the demand for local ancillary industries have been used, both in connection with the present and with future prospects. In all of such methods, attention has been focused on ancillary products which "parent" firms are willing to purchase *regularly*, i.e. on an average, at least once a year. Owing to misunderstandings, some quantities of items purchased less often than once a year may have been inadvertently included, but efforts have been made to exclude them. In contrast, complete statistics have not been obtained for items which can be considered as capital goods and which are purchased more than once a year, although large and capital-intensive factories can be expected to make such regular purchases of capital goods.

Other limitations are the somewhat narrow range of "parent" industries and ancillary products that have been studied, and the fact that only two methods of measurement have been used. As regards the former, the demand for road transport services and equipment has been omitted, although it is likely to be considerable

owing to the wide use of road transport for journeys starting and finishing *inside* the area, not to mention the substantial volume of *through* traffic. Nevertheless, this item has been excluded, because of the difficulties of measuring the extent to which the demand is met and created by transport contractors and by industry itself, and because of the difficulties of measuring the demand originating from through-transport movements. In addition, the demand for office equipment and furniture has not been measured, firstly because the aim of the study was to measure the demand for specifically industrial products, and secondly because of the probable considerable demand for domestic as well as office furniture, a demand which could not be measured by the Institute. Again, no attempt has been made to measure the demands for local ancillary products of (a) the construction industry, and (b) the food-processing and food-preserving industries. These demands are likely to grow quite rapidly in the future, in the case of (a) because of the area's continuing industrialization and in the case of (b) because of the probable rapid rise in the area's *per capita* and aggregate income. Finally, a full picture of the demand for products required for the transmission of electricity has not been obtained.

In all of these estimates, statistics of the potential demand for local ancillary products should, strictly speaking, be modified to allow for all new plants coming into operation in Asansol-Durgapur, or outside the area, that will definitely be meeting this demand in whole or in part. However, little indication has been found of the possible establishment of such plants in Asansol-Durgapur, other than those mentioned below in this report, and it has not been possible to obtain information about such plants elsewhere in India. Moreover, most of the ancillary products needed in Asansol-Durgapur are in very great demand all over India, and new plants being established to make them are therefore unlikely to saturate the national market. In view of the very rapid mechanization of coal mining that is envisaged, this is even true of the coal-mining machinery plant at Durgapur, which would otherwise appear to be a possible exception.

Lastly, other methods of measuring the demand for local ancillary products might have been used. For example, it could be assumed that all products, the prices of which are higher in Asansol-Durgapur than in the Calcutta Metropolitan District by an amount smaller than the cost of transporting the products from that District to Asansol-Durgapur, could be made in the latter area. Here, of course, amongst other factors, the nature of the market conditions in the two areas would have to be considered.

In this study, the main measure of the size of the demand for local ancillary products in Asansol-Durgapur has been the answers to questions put directly to firms and collieries asking them what ancillary products they would be willing to buy from the area, if such products were to be manufactured there, if their price and quality were to be the same as at present and if supplies were to be regularly available.

This question was designed to elicit information not only about (i) which ancillary industries the firms and collieries would themselves like to see developed in the area, but also about (ii) which industries would be able to sell their products to other firms

in the area, (iii) which industries should not be encouraged because new capacity was already being installed, and (iv) which industries could operate on an economical scale if they were to sell their products only to local customers. As it became evident, however, that full answers to questions (ii), (iii) and (iv) would require either much further research or technical knowledge not possessed by the interviewing team, an attempt was made to obtain partial answers from colliery staffs and industrialists themselves. The information thus collected does not provide a wholly satisfactory picture of the potential demand for local ancillary products. For example, in some cases, demands were expressed for local ancillary products which could be produced economically only if other firms were also to demand them; in other cases, it was not clear if the aggregate local demand would be sufficient to justify local manufacturers starting production of the item in question.

Other problems have arisen from the fact that, in the case of certain industries operating in the Asansol-Durgapur area, and especially coal and steel (which are the two leading industries), very many items of stores and spare parts are required. To compile a complete list of these items would be a prohibitively long task. Moreover, such a list would be unlikely to give a really clear indication of the types of industries that could actually be encouraged, as it would not spell out the combinations of products which these industries would make. Consequently, in certain cases an attempt was made to discover how much work "parent" firms or collieries could give to local *industries* of a particular type, such as foundries.

2. Estimated Demands for Local Ancillary Products in Asansol-Durgapur: Industries' Demands

Because of the limitations of the data collected, it is not possible to make precise estimates of the industrial demand for all the various ancillary products in the Asansol-Durgapur area, other than in the case of certain specialized types of spare parts. Indeed, in a number of cases, industrialists have probably given merely their impressions of the amounts involved. It is, however, possible and worth while (a) to list items for which the potential local demand is definitely at least Rs. 1 lakh per annum, and (b) to list other items which seem to be in particularly short supply. The items listed under (a) are classified below as (1) components, (2) raw materials, (3) consumable stores, (4) spares and (5) services; consumable stores being distinguished from raw materials by their being "applied to" the product, rather than "embodied in" it. The demand for items in groups (1) and (2) is likely to be considerably more regular than that for items in the other three groups.

Wherever possible, statistics are given, but in almost all cases they should be taken as indicating an order of magnitude rather than the exact quantity demanded per annum. It should also be borne in mind that, in many instances, the actual magnitudes are likely to exceed the estimates because of a lack of response from some of the firms approached. Items have been mentioned as specifically as possible, and data have been collected on some of the major new plants being established in Asansol-Durgapur, especially the coal-mining machinery, alloy steels and chemical plants. This information, together with information on existing factories that are expanding their capacity,

has been used to give a picture of the growth in the potential demand for certain local ancillary products up to the end of the Third Five Year Plan, 1965-6.

In measuring the industries' demands for local ancillary products, attention has been paid mainly to answers given by firms to the direct question, "What ancillary products which you now buy from outside would you like to buy from manufacturers operating in the Asansol-Durgapur area, assuming prices and qualities were competitive with those of the products you now get from manufacturers outside the area" ? However, in one or two instances indicated below, the statistics given in answer to this question have been supplemented by (i) statistics of imports, where the information seems to be incomplete, or by (ii) statistics of inputs received from other parts of India (principally the Calcutta Metropolitan District), where it may be presumed that such inputs represent items which the "parent" firms would be willing to buy from local ancillary industries. When only one firm mentioned an item, that item has been excluded, however great its value might be. It should be noted that, throughout this section, statistics given of *local requirements* reflect the *estimated potential demand for local products*. At present, by far the greater part of the demand is met from outside the Asansol-Durgapur area.

(a) Items for Which the Potential Local Demand is Definitely Rs. 1 Lakh or More Per Annum

1. COMPONENTS

At the moment, the only factories in the Asansol-Durgapur area requiring regular supplies of components on a large scale are those making bicycles, and railway locomotives and wagons. However, the value of the demand amounts to at least Rs. 1.4 crores per annum for a range of commodities too wide to be detailed here, although the items concerned are mainly metal products. This demand is likely to vary substantially now that the Chittaranjan Locomotive Works has started to produce electric as well as steam locomotives.¹ In addition, at least Rs. 2 lakhs' worth of forgings and over Rs. 1 lakh's worth of tubes are locally required, and the potential local demand for components in general will undoubtedly increase still further after 1965, when the coal-mining machinery plant commences operations. Further research into the demand for components is thus clearly needed, but requires a separate study because of the extensive range of items used, and likely to be used.

From such commodities, it is convenient to pass to packing materials, as these can also be treated as part of the finished product, although they are not raw materials (as defined). The demand for packing materials is very great in relation to the local supply. Two firms stated they had an aggregate local requirement of Rs. 16 lakhs' to Rs. 20 lakhs' worth of processed timber, such as wooden containers. One firm recorded an annual local requirement of Rs. 1.35 lakhs' worth of packing cases and Rs. 1.25 lakhs' worth of labels; two more firms expressed a local need for Rs. 1 lakh's

¹ It is anticipated that the production of electric and diesel locomotives will increase quite sharply, whereas the production of steam locomotives will decrease and practically cease by the end of the Fourth Five Year Plan.

worth of paper; and three firms reported a local demand for Rs. 2.8 lakhs' worth of other packing materials. A further two firms definitely require large but unspecified supplies, and four more possibly have a regular demand for smaller, unspecified amounts of packing materials. There are also thirteen refractory units, data for which were not obtained, and abundant evidence of a widespread local demand for cylinders for transporting oxygen.

2. RAW MATERIALS

There is not an extensive demand for local raw materials at present, but two products in particular were mentioned as being in short supply, namely (i) soda ash, of which about 2,000 metric tons, worth some Rs. 10 lakhs, are required annually by three firms combined, and (ii) caustic soda, of which about 800 metric tons, worth some Rs. 6 lakhs, are required by two firms, and a third firm appears to use 2,400 metric tons, worth approximately Rs. 19 lakhs. Perhaps surprisingly, although many other chemicals have been mentioned, the total local requirement reported is nowhere worth more than Rs. 50,000 for any one item. However, one item, the demand for which is worthy of further investigation, is laboratory chemicals for the thirteen refractory works in Asansol-Durgapur. The combined local requirement of only two such works amounts to some Rs. 20,000 a year, and the potential local demand is thus quite large.

In addition, when the planned chemicals undertaking at Durgapur comes into operation, the demand for sulphuric acid will increase sharply to about 400 metric tons, worth about Rs. 6 lakhs per annum. Moreover, the new alloy steels plant at Durgapur will greatly increase the demand for ferro-alloys in the near future, and a cement factory, an ophthalmic glass plant (with a capacity of 300 metric tons) and a fertilizer plant (with a capacity of 1 lakh metric tons) are scheduled for the public sector under the Fourth Five Year Plan. When completed, the alloy steels plant is expected to require annually 12,000 metric tons of ferro-alloys, 1,500 metric tons of ferro-tungsten and 200 metric tons of ferro-molybdenum.

3. CONSUMABLE STORES

This group appears to be the most important of all. At present, the Asansol-Durgapur area seems to be almost entirely incapable of supplying the thousand and one items requiring regular replacement that are needed by a typical modern engineering, chemical or other processing factory. In what follows, therefore, an attempt will be made to list all the items needed, other than those specially required by particular industries only. The first two items are in particularly short supply and are very well suited to manufacture by local ancillary units.

(i) *Industrial gases, electrodes and allied equipment.* Existing local plants making industrial gases come nowhere near to meeting the local demand, and there are no factories in Asansol-Durgapur making electrodes or allied equipment. Two firms registered an annual local requirement of about Rs. 7 lakhs' worth of electrodes, and another firm uses 800 metric tons of imported electrodes. Three firms consume about Rs. 7 lakhs' worth of gases a year. There are probably six engineering firms requiring

industrial gases, electrodes and allied equipment, and most other firms in fact need them for their workshops. In the future, the demand will grow substantially when production of coal-mining machinery and alloy steels commences. Moreover, one or two new engineering plants are coming up, and existing firms are planning to expand.

(ii) *Nuts, bolts and other fasteners.* No ancillary firm was found making these articles in Asansol-Durgapur. Six firms, of which four are in the engineering industries, recorded an aggregate local demand worth about Rs. 19 lakhs, and two firms stated they obtain nuts and bolts worth in aggregate Rs. 1.6 lakhs from the Calcutta area. The two steel plants at Burnpur and Durgapur, and another major engineering plant omitted from the above figure, are potentially large consumers, at least one of which is presently forced to make its own nuts and bolts. The requirements of workshops and other plants, expansion plans and the new large-scale engineering and other plants scheduled for establishment, have also to be taken into consideration. Further investigation of the possibilities of this group of ancillaries is thus well warranted, and particular attention could be paid to them by, for instance, the Rehabilitation Industries Corporation, which is scheduled to set up two hundred small industries in Durgapur under the Fourth Five Year Plan.

(iii) *Wire rope.* The aggregate local requirement of wire rope by only three firms amounts to some Rs. 20 lakhs a year. Here, again, one can expect other existing and new firms substantially to raise this total, particularly the engineering plants and the other steel plants, as the figure given consists almost entirely of the potential demand of but one of the steel plants in the area.

(iv) *Hardware, including picks, shovels, and buckets.* Four firms, two of which make refractories, recorded an aggregate local requirement of about Rs. 2 lakhs annually. These items would seem to be needed by all "parent" firms in Asansol-Durgapur, yet only two ancillary firms in the area were found specifically to make them.

(v) *Electrical equipment.* One firm generating and distributing electric power requires Rs. 1.5 lakhs' worth of conductors and Rs. 2.8 lakhs' worth of switchgear annually. As there are three such undertakings in the area—the Damodar Valley Corporation, Durgapur Projects Ltd. and the Disergarh and Associated Power Supply Companies—the demand for electrical equipment is clearly of a high order. There are, in addition, the requirements of other industries to be taken into account. For example, approximately Rs. 6 lakhs' worth of miscellaneous electrical materials are locally required by four firms, and two other firms need Rs. 3.5 lakhs' worth of insulating equipment a year. In addition, copper wire worth Rs. 1.16 crores, tinned copper wire worth Rs. 15 lakhs and electric motors worth Rs. 1.1 crores will be required annually by public sector undertakings making cables and heavy engineering goods. The area's aggregate potential demand for industrial electrical goods is thus very substantial.

(vi) *Scientific equipment.* Four firms in various industries reported local requirements totalling about Rs. 2 lakhs. Such equipment is undoubtedly required by many other firms in Asansol-Durgapur, as most of the larger undertakings have

laboratories, or facilities for systematically controlling e.g. the quality of product, or temperature. The planned establishment of new industries in the Asansol-Durgapur area already mentioned above—alloy steels, ophthalmic glass, chemicals and coal-mining machinery—and the planned extension of existing industries, will undoubtedly add substantially to the demand for items in this group within the next decade.

(vii) *Bearings*. Here, the demand is possibly of the order of Rs. 25 lakhs at present, although the data collected are unreliable. The steel plants' demands are particularly large. For ball-and roller-bearings the requirement may become as high as Rs. 50 lakhs by the end of the Third Five Year Plan, although, again, the information available is not good and the estimate is notional.

(viii) *Gears*. Two firms mentioned a local demand for gears, and one of them recorded a local requirement of Rs. 2 lakhs' worth a year.

(ix) *Grinding wheels*. Here, again, the data are defective, owing to a lack of response, but the demand may well be of the order of Rs. 5 lakhs a year because of the needs of the steel plants.

(x) *Glass products*. The two glass works in Asansol-Durgapur do not produce the types of glass most needed by industries in the area, and there is thus room for further development. In particular, three firms reported a local requirement of safety glass products valued at over Rs. 2 lakhs a year, and another firm needed Rs. 5 lakhs' worth of glass bottles annually.

(xi) *Leather products*. The safety-leather product requirements of two firms, one of which is a large public undertaking, aggregated Rs. 34 lakhs a year. The requirement for all firms is considerably larger than this, as there are a number of steel-and other metal-making, engineering and chemical works that would no doubt require such products, although they recorded no potential local demand.

(xii) *Polythene products*. Two firms mentioned potential local requirements of Rs. 7 lakhs' worth of polythene pipes, washers etc., annually.

(xiii) *Compressors and compressor parts*. Three firms recorded local demands totalling about Rs. 1 lakh a year.

4. SPARES

Four firms returned an aggregate local requirement of over 8,000 metric tons of ferrous and ferrous-alloy castings, one recorded a further local requirement of some 250 metric tons of non-ferrous castings, and a further five firms stated they required over Rs. 3 lakhs' worth of miscellaneous castings annually. The total requirements for all manufacturing industries in Asansol-Durgapur are undoubtedly considerably greater than this, as most firms either do not have or do not make all the castings they need, and a number of important engineering concerns, which are probably not self-sufficient in castings, made no reference to the possible local purchase of spares.

In addition, an aggregate local requirement of at least Rs. 3 lakhs' worth of machined parts was returned by four out of five firms reporting such need, and at least 2,000 metric tons of structures are needed by four firms, of which two reported the quantities required.

Apart from such general industrial spares, particular industries have a demand

for particular types of spares. Confining attention to types required by more than one firm and thus considering the local requirements of the steel-making, engineering and refractory industries as a whole (but omitting the chemical industry because of the diversity of the output and equipment of its constituent firms, and leaving aside the power-generating and distributing industry for lack of data), the following local demands emerge. The steel-making industry at present requires at least Rs. 1 crore's worth of special spares. The items mentioned are: rolls, of which 2,800 to 3,000 tons are needed annually by one steel plant alone, table rollers (no quantity given), various special metal products (amounting to the value of Rs. 16 lakhs for one plant), and large ladles (of which one plant requires Rs. 1.5 lakhs' worth a year). The general engineering industry has a smaller but still substantial aggregate requirement, two of the eight major engineering units recording a combined local demand of approximately Rs. 1 lakh, and two non-engineering firms recording a similar figure for spares intended specifically for the engineering industry. Data on refractory works' requirements show three firms to have stated a combined need of Rs. 3 lakhs' worth of spares, and two firms to have been receiving approximately Rs. 1 lakh's worth of spares from Calcutta annually. As this information refers to only a sample of the refractory undertakings, it is clear that the industry's local demand for spares may be as great as that of the engineering industry.

5. SERVICES

Under this heading, the major items referred to were repairs and the re-winding of motors. While no precise data were given in connection with the latter, one out of four firms reporting mentioned an annual repair bill of Rs. 24,000. It is also interesting to note that, in Durgapur, certain large-scale plants reported that, to some extent, they had begun to undertake each others repairs, out of necessity and not from choice. Clearly, there is an immediate opportunity for local ancillary industries to be developed in this group.

(b) Other Items in Particularly Short Supply

Finally, several other items need to be mentioned. Although the potential local demand for them is more uncertain, it in fact very probably amounts to over Rs. 1 lakh each. The list is as follows: equipment for handling materials, earth-moving equipment, compressors, belting, gaskets, rope and string, re-rolled steel (including tubes, tape and wire), scrap iron and steel, and processed and unprocessed non-ferrous metals (for the general manufacture of non-ferrous machine parts, and for the special requirements of the steel, aluminium and cable-making plants).

3. Estimated Demands for Local Ancillary Products in Asansol-Durgapur: Collieries Demands

Although a large public sector factory is being established in Durgapur to make coal-mining machinery, and more such factories are planned, there is yet good reason to attempt to estimate the collieries' demands for ancillary products. Not only will the

Durgapur plant be unable to cope with all such demands, but it is uncertain if, in view of the very fast rate of mechanization of coal mining envisaged, the other plants scheduled for later development will be able to make up the shortfall. To estimate the requirements of collieries for local ancillary products, two methods are used here. The first is similar to that used in the preceding section for estimating the industrial demand for local ancillary products. That is to say, some products are listed for which the data collected by the field survey suggest there is a potential local demand worth more than Rs. 1 lakh per annum. As before, the statistics indicate an order of magnitude rather than precise quantities. The second method is to present some comprehensive data on imports, based on returns submitted by collieries importing machinery under a recent World Bank loan for colliery mechanization. For this purpose, it is assumed that all such imported items could be made in the Asansol-Durgapur area. If to these statistics are added estimated figures of the present indigenous production of colliery equipment, an approximate indication of the demand for coal-mining equipment in Asansol-Durgapur can be arrived at. In this connection, it should be mentioned that, until the Durgapur plant comes into operation, virtually no mining machinery is being made in Asansol-Durgapur.

(a) Local Demands Estimated from Field Survey

In this section are presented some of the answers to the question, "Which ancillary items would collieries like to buy from the Asansol-Durgapur area, so long as prices and quality were competitive with those of products now bought from elsewhere?" These answers are in some cases supplemented by information on inputs obtained from manufacturers in the Calcutta Metropolitan District, and the statistics relate to requirements in the Asansol area.

The collieries in the Raniganj field may be divided into four groups, as follows:

Group	Monthly Raisings (metric tons)	No. of Colliery Companies
I	over 20,000	11
II	10— 20,000	12
III	under 10,000 (pits)	73
IV	under 10,000 (quarries and inclines)	101

The collieries in groups I and II were studied more intensively than those in groups III and IV, and, in the following estimates, items will be mentioned only if at least one of the collieries requiring them is classed in either group I or group II. This limitation is imposed as it is understood on good authority that collieries raising under 10,000 tons a month will be unlikely to participate in the extensive mechanization planned. In addition, as in the case of industries, items will be mentioned only if the potential local demand, for which statistics have been collected, is worth more than

Rs. 1 lakh a year, and if they are mentioned by more than one colliery, or colliery concern.

On this basis, the following estimated local demands may be derived from data obtained by the field survey:

- (i) *Coal cutters.* A large colliery concern in group I recorded a requirement of Rs. 4 lakhs' worth of coal cutters, another in group II a requirement of Rs. 15,000, and another in group III of Rs. 1 lakh a year. As all these were requirements that would be bought locally if available, and comprise but a small sample, the potential market is obviously large.
- (ii) *Drills.* Three colliery companies in group I recorded a combined local requirement of Rs. 7 lakhs' worth of drills, and one each in groups II and III a requirement valued at some Rs. 3,000.
- (iii) *Pumps.* A colliery in group I stated it had a local requirement of pumping equipment to the value of Rs. 6 lakhs, a colliery in group II reported a demand valued at Rs. 10,000, and a third one in group IV recorded a demand worth Rs. 200 a year.
- (iv) *Detonators.* One colliery in group I mentioned an annual requirement of Rs. 2 lakhs of detonators, and two collieries in group II a combined requirement of Rs. 34 lakhs. The shortage of this item is well known, and there would clearly be a very large market for a local producer.
- (v) *Pipes.* A colliery company in group I reported a local requirement of plastic and steel pipes worth some Rs. 30,000 a year, and another in the same group a requirement of sand-stowing pipes to the value of Rs. 35 lakhs. No doubt, many other collieries would switch to locally-produced pipes if an ancillary industry were to be established.
- (vi) *Cables.* Rather more colliery concerns gave data on their requirement of cables (and wire ropes), and it may be recalled that industries also reported a substantial demand for these items. Three collieries in group I expressed a requirement of Rs. 9 lakhs' worth of cables, three in group II a demand valued at Rs. 23,000, and two in group III recorded a need for a similar amount.
- (vii) *Wire ropes.* Three concerns in group I reported a local demand worth Rs. 1 lakh, four in group II a requirement of Rs. 90,000, and two in group III an aggregate requirement of Rs. 17,000. In addition, a further four firms in group I reported purchases from Calcutta makers amounting to Rs. 4 lakhs a year, one in group II purchases worth Rs. 40,000 and three in group III purchases worth Rs. 13,500.
- (viii) *Hardware.* A colliery concern in group I expressed a local demand for Rs. 3 lakhs' worth of quality hardware, and one in group II recorded a local demand for hand tools to the value of Rs. 2,000. Three other concerns, two in group I and the other in group II, mentioned a demand for local picks, although only small values were involved.
- (ix) *Wooden products.* Local sleepers were required by several colliery concerns: two in group I (to the value of Rs. 70,000), and one each in the

other three groups (to the value of Rs. 14,000, Rs. 20,000 and Rs. 24,000 respectively). As two other concerns in group II mentioned a general demand for timber totalling Rs. 55,000 in value, there would seem to be a wide scope for the establishment of more local units to process timber for collieries.

As in the case of industries' demands, various locally-desired ancillary products may also be mentioned, the size of the demand for which cannot be confidently indicated on the basis of the data collected, but which is nevertheless likely to be significant. Some of these are items which collieries would specifically like to obtain from the Asansol-Durgapur area; others are merely those which were reported as being purchased from Greater Calcutta. For other items, the amounts required are definitely worth over Rs. 1 lakh in each case, but only one colliery concern reported their requirement locally. The items involved are as follows: haulages; winders; crushing equipment; boilers; measuring and testing equipment; survey equipment; electrical equipment (for which an industrial demand will be recalled); tubs; boiler valves; fans; cap lamps (for which the indigenous supply appears to be inadequate); safety torches; nuts, bolts and other fasteners (as in the case of industries); electrodes (again also appearing on the industries' list); fibre ropes; limestone dust; packing materials (including material for inserting between pipes wedged together); and cane baskets. In this connection, it was surprising to find that a number of collieries obtain cane baskets from Calcutta because, even allowing for higher transport costs, their price is no higher than that of baskets made in Asansol-Durgapur, and their quality is better.

(b) Local Demands Estimated from Inputs under the World Bank Loan

The Joint Working Committee of the colliery associations kindly provided the Institute with a statement of the value of equipment imported between 1960 and 1963 by the private sector collieries under the terms of a World Bank loan to them. The statistics apply to the whole of India, and the share of the Raniganj collieries has been estimated on the basis of the percentage of the all-India production of coal by private-sector collieries which is raised by these collieries in the Raniganj coalfield, i.e. about 40%.

From such estimates, certain individual items have been selected the value of which is in each case over Rs. 1 lakh. These items appear in Table II (a) below. This list may, however, understate the scope for ancillary units making Rs. 1 lakh's worth or more of equipment annually, since such units may find it economically and technically worth while to make a range of similar items. Accordingly, a supplementary list, Table II (b), has been compiled showing groups of items worth, as a group, more than Rs. 1 lakh each. The grouping is that used by the Joint Working Committee.

It is difficult to judge if estimates of capital equipment imported annually which are derived from this table are likely to represent the average annual imports to be expected over the next few years, since, on the one hand, collieries may need some time to "digest" their recent imports of capital equipment and, on the other, they will need

more machinery to achieve the great increases in output planned. Nevertheless, in the figures given in Table II, it is assumed that annual figures derived from those given by the Joint Working Committee are the same as the annual figures to be expected in the near future. As regards spares, the position is considerably clearer. Firms usually imported under the World Bank loan enough spares in one year to last them for two, and adjustments have been made in the figures accordingly. However, it is unlikely to be strictly correct to assume that imports of coal-mining equipment can be equated with what the collieries would like to buy in Asansol-Durgapur, since a certain amount of equipment made in India, but outside that area, should probably be included. As, in general, about 10% of the country's coal-mining equipment is now made in India, this percentage might possibly be added to the figures given in Table II to estimate the total amount of colliery equipment that collieries could potentially buy from local manufacturers in Asansol-Durgapur (assuming a uniform proportion of indigenous production for all types of coal-mining equipment).

Table II

**COLLIERIES' ESTIMATED ANNUAL IMPORTS UNDER THE WORLD BANK LOAN,
OCTOBER, 1960—MARCH, 1963.**

Class No.	Item	Estimated Imports into Asansol-Durgapur	
		Capital Items	Spares
(a) Individual Items worth over Rs. 1 lakh each		Rs.	Rs.
1(a) (i)	Coal cutters	35,75,640	4,06,805
1(a) (ii)	Gate-end boxes	1,28,046	28,271
1(b) (ii)	Electric coal drills	4,64,780	86,507
1(b) (iv)	Drill bits and rods	1,39,263	200
2	Coal loaders	1,29,349	2,336
3(a) (i)	Chain conveyors	6,14,451	2,04,432
3(a) (ii)	Belt conveyors	2,77,790	14,119
3(b) (i)	Direct haulages	16,80,068	1,32,901
3(b) (ii)	Endless haulages	1,98,695	543
3(b) (v)	Locomotives	4,27,191	79,460
4(a)	Electric or steam winders	14,09,812	7,471
4(ii)	Safety devices for winders	1,53,107	—
4(iii)	Safety hooks, rope cappels	6,65,918	—
6	Pumping equipment	14,65,248	1,04,749

Table II—(Contd.)

COLLIERIES, ESTIMATED ANNUAL IMPORTS UNDER THE WORLD BANK LOAN,
OCTOBER, 1960—MARCH, 1963.—(Contd.)

Class No.	Item	Estimated Imports into Asansol-Durgapur	
		Capital Items	Spares
		Rs.	Rs.
7(i)	Electric safety lamps	1,59,556	27,254
9(i)	High tension power transformers	4,47,237	10,679
10(iii)	Trailing cables	4,65,597	—
12(i)	Winding and guide ropes	9,73,067	—
13	Pipes and fittings	5,44,550	—
14(i)	Boilers	1,71,711	—
15	Stowing equipment	1,76,681	7,352
20(iv)	Flameproof motors	9,99,818	19,450
21(ii)	Air and oil circuit breakers	7,15,839	11,937
(b) Groups of Items worth over Rs. 1 lakh each			
1(b)	Drilling equipment	6,37,744	88,139
3(b)	Haulage equipment	23,49,572	1,64,985
4	Winding equipment	22,36,573	7,471
7	Underground lighting equipment	2,30,474	27,254
9	Transformers and switches	5,73,593	11,837
10	Cables	27,09,165	—
12	Wire ropes	9,88,016	—
14	Steam-generating equipment	1,81,781	—

SOURCE: Statement prepared by the Joint Working Committee of the colliery associations on the utilization of the World Bank loan for mechanization of the coal industry.

It is somewhat reassuring to note that, in both Table II(a) and Table II(b), more than two-thirds of the items listed have already been mentioned in the estimates given in sub-section 3(a) above. The previous estimates do not seem to give too misleading an idea of what items are potentially involved, although they may not give a good indication of the quantities that might be purchased.

(c) Future Demands

Before leaving the subject of the collieries' potential demand for local ancillary products, a brief excursion into the future may be attempted. If it is assumed that

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increases in the demand for the products listed are usually of the same size as increases in the collieries' stocks of equipment, it may be estimated that, between 1961 and 1965, the demand for ancillary products will increase by about 12%. (The estimated increases in capital stocks are in turn based on (a) the Third Five Year Plan targets of investment in coal-mining machinery, and (b) statistics of the stocks of machinery held in 1958, as given in the relevant Report of the Coal Price Revision Committee,¹ and of the actual volume of investment taking place between that year and 1961). A separate table has not been drawn up to show this anticipated increase in demand, item by item, because data are lacking and because it is hardly justifiable to assume an identical increase for all items. However, in Appendix M of the Report of the Mines Safety Equipment Committee,² specific estimates have been made of the demand for particular items in 1965. For the relevant items included in Table II, the percentage increases (for all-India) are as follows: Table III.

Table III

COAL-MINING EQUIPMENT; ALL-INDIA ESTIMATES OF PERCENTAGE INCREASES IN DEMANDS, 1963-5: (CERTAIN ITEMS ONLY)

Item	Increase in Estimated Demand
Pipes	68%
Winding ropes	51%
Wire ropes	79% ¹
Timber	40%
Lamps	41% ²

¹ Average increase for three different types of wire rope.

² The type of lamp concerned is not clear.

SOURCE: *Report of the Mines Safety Equipment Committee*, Government of India, Ministry of Labour and Employment, 1961; Appendix M.

It would be particularly worth while to undertake further research into the potential demands of collieries for ancillary products, as not only is a great increase planned in the use of machines in coal-mining, but there are also large schemes for mechanized sand-stowing and aerial ropeways for which considerable amounts of equipment will have to be purchased regularly.

4. Factors Affecting Demand

Clearly, the volume of the potential demand for local ancillary products will be affected by the volume of output and capital stocks of the firms concerned, and the

¹ *Report of the Coal Price Revision Committee on the Bengal-Bihar Coalfield and the Outlying Coalfields (other than Assam and Andhra Pradesh)*, Government of India, Ministry of Steel, Mines and Fuel, 1958.

² *Report of the Mines Safety Equipment Committee*, Government of India, Ministry of Labour and Employment, 1961.

longevity of the various items of capital equipment. Some other factors which, it can be suggested, also affect the size of a firm's demand for ancillary products are as follows:

- (a) *The ownership of the firm.* If, as is likely in Asansol-Durgapur, a "parent" firm is a member of a group of firms making products other than those of the particular firm in question, it is likely that its requirements of ancillary products will at least be partly met by a sister firm or firms. Apparently, it is usually the policy of such groups that, where possible, one firm should make its purchases from another firm or firms in the same group.
- (b) *The complexity of the items required.* Most ancillary firms in Asansol-Durgapur make products requiring no great technical or organizational skill, or intricate machinery, and it would appear that the more difficult and complex is the manufacture of an item, the greater are the chances that it will be made outside the Asansol-Durgapur area.
- (c) *The existence of a very large number of established suppliers in the Calcutta Metropolitan District.* These often enjoy a competitive advantage over firms in Asansol-Durgapur, particularly where their costs are lower¹ or where they have long-established contacts with their customers and a reputation for quality. Such good-will cannot be established quickly by new suppliers. The field survey revealed that firms and collieries in Asansol-Durgapur often seemed to have little knowledge of the existence of ancillary suppliers in their area, whereas they were fully aware of the existence of ancillary firms in the Calcutta Metropolitan District.
- (d) *The high quality of some of the products demanded.* This point, touched on in (c) above, needs to be emphasized. A number of large firms and collieries complained of the very low quality of ancillary products made in the Asansol-Durgapur area. They reported they had tried to buy ancillary products from local manufacturers, but found the quality so unsatisfactory that they were unable to continue with them. A number of firms also complained of the low quality of Indian ancillary products in general, but stated they had found reasonably satisfactory products made by a few firms in Calcutta, Bombay and one or two other major cities (although not in Asansol-Durgapur). There are, in addition, instances of collieries using patented capital equipment, all the spares for which have to be purchased from a particular supplier. Here, of course, there is no scope for ancillary industries unless the patented equipment is replaced by non-patented equipment.
- (e) *The importance of a demand in other parts of India for some items.* Mention has already been made of the scope for developing ancillary industries to serve not only the Asansol-Durgapur area, but also other parts of Eastern India, or India as a whole. No attempt is made here to determine which of the potential ancillary industries mentioned above could economically be established in the Asansol-Durgapur area. If such an attempt

¹ See below, pp. 25-6.

were subsequently to be made, however, it would undoubtedly be wise to consider the possible markets for ancillary products which are located outside Asansol-Durgapur, and particularly in the Calcutta Metropolitan District. On the other hand, such considerations are far less important for ancillaries catering purely to the steel and coal industries, which are more heavily concentrated in Asansol-Durgapur.

1. Costs of Industries in Asansol-Durgapur

The first factor that will be considered on the supply side is the cost of production of ancillaries in Asansol-Durgapur, with an emphasis placed on average total costs. The reason for doing so is that, in the present state of the Indian economy, where the supply of engineering and chemical products falls short of the demand, manufacturers of these products enjoy a sellers' market. In these circumstances, prices are likely to be determined by costs. As regards such costs, it is unrealistic to try to calculate marginal costs when firms are operating at different degrees of utilization of capacity, and the shape of the cost curve could easily be changed by one or two firms producing at different levels of capacity. Moreover, as has already been suggested above,¹ interactions may be expected between the demand for ancillary products and their supply, which make it unrealistic to draw a demand curve. Thus, a simpler procedure has been adopted. The average costs of each ancillary industry as a whole have been calculated, on the assumption that such costs are most likely to determine the prices set by existing ancillary producers, or the prices which potential ancillary producers might be expected to set, and hence are most likely to determine the profitability of ancillary industries established in Asansol-Durgapur compared with those established in any other area. The next step has been to compare such average costs with those of similar industries in the Calcutta Metropolitan District, as the underlying object of this study is to investigate the possibilities of developing Asansol-Durgapur as a counter-magnet to Calcutta.

It is not possible to arrive at definite conclusions as to which ancillary industries have higher or lower average costs in the Asansol-Durgapur area than in the Calcutta Metropolitan District, owing to deficiencies in the data collected in the former area, and uncertainty as to whether such data are strictly comparable with the data given for ancillary industries in the latter District. But it is still useful to present the statistics that have been obtained, as they do help to indicate the general order of magnitude of costs in Asansol-Durgapur, as compared with those in Greater Calcutta.

The ancillary industries in Asansol-Durgapur which can thus be compared with similar industries in the Calcutta Metropolitan District all fall under the general heading of engineering. In other cases, either there are insufficient ancillary units in the former area to compare with those in the latter District—as in the case of sodium sulphate—or there is only one unit in Asansol-Durgapur. As will be seen, however, several types of engineering industries may be distinguished.

For firms showing profits in the Calcutta Metropolitan District, Dr. H. Banerji has kindly allowed this Institute to use data given in his *Report on the Survey of the Engineering Industry in Howrah*, Jadavpur University, 1962. Attention has been focused on concerns in Howrah, as they, rather than concerns in Calcutta or in other parts of the Metropolitan District, are in competition with ancillary firms in Asansol-Durgapur. In estimating the average costs, depreciation and interest charges have

¹ p. 9.

been omitted, because the aim has been to focus attention on costs directly linked with current production. Moreover, in the case of depreciation, the firms' own estimates of their depreciation costs may well result in an unrealistic picture, and any alternative method of calculating depreciation is fraught with difficulty.

Finally, two sizes of firms have been distinguished, those with over twenty employees and those with less than twenty. In the former group, a further distinction has been made in some instances between firms employing under and over one hundred workers. The results are as follows:

- (i) *Foundries and machine shops.* Of the inputs under consideration, the average costs per rupee of output amount to Rs. 0.75 in Howrah. For Asansol-Durgapur firms, the costs of almost identical firms tend to be higher; one firm has average costs of Rs. 0.86, and another of Rs. 1.18.¹
- (ii) *Machine shops and fabrication.* A firm in Asansol-Durgapur employing over one hundred workers incurs average costs of Rs. 0.74 per rupee of output, while three firms employing between twenty and one hundred workers incur costs ranging from Rs. 0.44 to about Rs. 0.90 and Rs. 1.94.¹ In the latter case, however, the average costs are impossible to estimate with certainty, as the firm makes three considerably different products, and the estimate given has to be based on the assumption that the "overhead" costs involved are spread evenly between the three products. For Howrah, the most comparable industries are sheet-metal processing and structures. Their average costs (weighted by the number of firms in each group) come to Rs. 0.75 per rupee of output.

In addition, in this industry it is possible to compare two units in Asansol-Durgapur employing under twenty workers with Howrah units of similar size. For one of the two former units, the average costs are Rs. 0.71, for the other they amount to Rs. 0.81. The average costs for all the Howrah units (of which the large majority either undertake jobbing work or make machine parts) amount to Rs. 0.49 per rupee of output.

- (iii) *Foundries with machine and structural shops.* In two firms in Asansol-Durgapur employing over one hundred workers, the average costs are Rs. 0.76 and Rs. 0.50 respectively. Firms in the most nearly corresponding group in Howrah (machine-making units) have average costs of Rs. 0.79.

From these comparisons, it may tentatively be concluded that costs are higher in Asansol-Durgapur except in the case of firms engaged on casting, machining and structural work taken together. In the case of machining-cum-fabricating firms, however, the difference in costs is certainly not great.

2. Particular Types of Costs and Shortages

Industrialists are probably influenced in their investment decisions not only by the average total costs of production, but also by the cost and, perhaps more important, the absolute shortage of particular inputs. Some attention has therefore been devoted to these matters, and where definite statistics for the Asansol-Durgapur area are

¹ According to the data supplied.

available, comparisons are made below with statistics for the Calcutta Metropolitan District. The inputs considered are coal, iron and steel, other raw materials, power, labour, working capital, land and water. Information is also given on the quality of products and plans for expansion.¹

(i) *Coal*. The Asansol-Durgapur area would appear to have an advantage over the Calcutta Metropolitan District in regard to the price of coal, as the transport cost from pithead to consumer is much higher if coal is brought from the Raniganj coalfield to places in the Metropolitan District. For example, the cost of transporting a ton of coal by road from the coalfield to Calcutta is Rs. 20, while the cost of transporting it by road between the most distant places in the Asansol-Durgapur area is no more than Rs. 6 or Rs. 7.

However, if coal is brought to consumers in the Metropolitan District by rail, they may in fact enjoy an advantage in transport cost over consumers outside the District. This results from a present regulation, whereby most coal-users in the private sector situated less than one hundred miles from collieries are obliged to use road transport. Assuming that the cost of transporting coal by road is about 30% of the cost of transporting it by rail, this regulation entails that a firm in the Asansol-Durgapur area situated within thirty to forty miles of a colliery must pay from Rs. 5 to Rs. 7 a ton for transporting its coal, while a firm in the Calcutta Metropolitan District which is one hundred miles or more from Asansol-Durgapur pays about the same price for transporting its coal by rail (which it is allowed to do). It may be added that there are no firms in Asansol-Durgapur more distant than forty miles from a colliery.

Moreover, in cases of shortages of coal the existence of a nation-wide system of control over coal distribution deprives firms in the coalfield of the advantage they have in ease of communication with their coal suppliers.

(ii) *Iron and Steel*. Firms in the Asansol-Durgapur area do not enjoy an advantage over Calcutta firms in the price they pay for iron and steel. This is evident from certain statistics obtained of comparative costs per ton of iron and steel in Howrah and in Asansol-Durgapur. A few firms from each area, belonging to approximately the same industrial groups, were compared, the data for Howrah being kindly supplied by the Economic Section of the Calcutta Metropolitan Planning Organization from its industrial survey of the Metropolitan District.

For pig iron, the average price is almost the same in the two areas, i.e. about Rs. 300 a ton. However, if a few prices deviating far from the mean are excluded, the average price appears to be about Rs. 250 a ton in Asansol-Durgapur, but only Rs. 240 a ton in Howrah. Steel is also a little cheaper in Howrah. In Asansol-Durgapur, the price averages Rs. 661 per ton, or Rs. 813 if two cases are excluded where the price is given as Rs. 400 and Rs. 438 respectively. In Howrah, the price averages Rs. 741 a ton, and it falls to Rs. 653 a ton if a small firm, employing between 25 and 49 workers and paying Rs. 1,050 a ton, is excluded. Scrap is likewise cheaper in Howrah. Three units in Asansol-Durgapur reported an average price of Rs. 283. In Howrah, the average price is Rs. 271 per ton, and falls to Rs. 222 per ton if two extreme deviants are omitted.

¹ Certain other reported problems of ancillary industries in Asansol-Durgapur are discussed below, pp. 31-2.

It follows that, although firms in the Asansol-Durgapur area are usually situated nearer to the makers of iron and steel than firms in Howrah, they generally have to pay higher prices. The main reason for this paradox may well be the much smaller number of dealers in Asansol-Durgapur, and further research could usefully be undertaken on this subject. In addition, in cases of scarcity, Asansol-Durgapur firms are no doubt more likely to face absolute shortages of steel, in view of their inferior contacts with the uncontrolled supplies that are available in the Calcutta Metropolitan District.

(iii) *Other raw materials.* There are not many other natural or processed industrial raw materials which are more abundant or of better quality in Asansol-Durgapur than in the Calcutta Metropolitan District. Indeed, it is probable that, if any raw material is processed in Eastern India, it will at least be found in the latter District. In so far as this may be true, Greater Calcutta is better placed than Asansol-Durgapur for the supply of processed raw materials to ancillary industries. As regards raw materials from natural resources, those available in the Asansol-Durgapur area do not appear to play a significant role as far as *existing* industries are concerned. It is true that there are reserves of limestone and boulder stone in Asansol, and none in the Metropolitan District, and that the former's supplies of sand are considerably better but, judging from the little data on Asansol-Durgapur that are available, expenses on such items constitute only a small percentage of the total outlays of foundries on raw materials. The only existing industry in Asansol-Durgapur where such raw materials do constitute a sizeable portion of expenses under this head is that of limestone-crushing.

(iv) *Power.* In Asansol-Durgapur, the main suppliers of power to small and medium-sized industrial units are the Disergarh and Associated Power Supply Companies Ltd.¹ The rate is Rs. 0.08 per unit to large and medium-scale firms, and slightly higher to small-scale firms. In the Calcutta Metropolitan District, the rates are of much the same order, i.e. between Rs. 0.07 and Rs. 0.09 per unit.

(v) *Labour.* As shown in Table IV, generally speaking, labour is no cheaper in Asansol-Durgapur than in the Calcutta Metropolitan District.

Table IV
ESTIMATED DAILY WAGE RATES IN ASANSOL-DURGAPUR AND THE CALCUTTA METROPOLITAN DISTRICT, 1962-3.

Type of Labour	Asansol-Durgapur	Calcutta Metropolitan District		Howrah
		High-Wage Areas	Low-Wage Areas	
	Rs.	Rs.	Rs.	Rs.
Skilled	3-4	4.50	3-4	3-5
Semi-skilled	2.50	3.50	2.50	2-3
Unskilled	2-2.50	2.50	2-2.50	1.50-2.50

SOURCES: Estimates for Asansol-Durgapur and Calcutta Metropolitan District supplied by Employment Officer, Asansol, 1963. Estimates for Howrah, *Report on Engineering Industries in Howrah*, Jadavpur University, 1962 (rounded off).

¹ The companies also supply power to large industrial units, of course.

Moreover, there is a serious shortage of many categories of skilled labour in Asansol-Durgapur, including civil and mining engineers, metallurgists, civil engineering overseers, mining *sardars*, draughtsmen, fitters, markers, machinists and electroplaters. Small industrialists cannot usually afford to train their own labour, there is a shortage of external training facilities, and there is little of the tradition of skilled engineering work that is so strongly characteristic of Howrah. Of eleven engineering works reporting, two stated that their skilled workers had previously been unskilled, three stated that their workers had previously been employed in collieries, and only two specifically reported that their workers had previously been employed in the engineering industry.

On the other hand, of fifteen engineering firms giving information on the subject in Asansol-Durgapur, ten reported they provided training on the job, three (all of them members of wider groups of firms) had, or will have, apprenticeship schemes, and only two reported no training arrangements. By contrast, the Jadavpur University Report on the Engineering Industry in Howrah points out that apprenticeship schemes are very rare in that area and affect only 3% of the total number of workers. It thus appears that, in relation to the total number of workers, apprentices and apprenticeship schemes are far more numerous in the Asansol-Durgapur area. In this respect, the prospects in that area would seem to be more favourable than those in Howrah.¹

(vi) *Working Capital*. A little over one-half of the firms in Asansol-Durgapur giving positive answers on this subject stated they experienced difficulty in financing purchases of working capital. Moreover, a considerable number of those reporting no such difficulties were large-scale undertakings, or members of large industrial groups, while those experiencing difficulty were mainly small firms, in which category most ancillary undertakings are likely to fall. No data were collected on the cost of working capital, or the sources from which such capital was raised.

(vii) *Land*. Statistics of current land prices were kindly supplied by the Special Land Acquisition Officer, Burdwan. These show that, in the Asansol-Durgapur area, for land within two hundred feet of the Grand Trunk Road and other main roads, the price varies from Rs. 10,000 per acre in Jaykaynagar to Rs. 72,000 in Asansol and Rs. 60,000 in Burnpur and Raniganj (suggesting a positive correlation between the price of land and the degree to which the locality has been built-up). Because of its proximity to transport arteries, such type of land is probably the most suitable for ancillary industries, and it is significant that eighteen out of twenty-one engineering units located outside Durgapur and five out of nine chemical plants, are situated within two hundred feet of a main road.

In contrast, statistics prepared for the Economic Section of the Calcutta Metropolitan Planning Organization by Mr. Anil Mukherjee show average prices in 1961-2 of Rs. 3,24,660, Rs. 3,12,960 and Rs. 2,07,180 per acre in New Alipore, Prince Anwar Shah Road and Netaji Subhas Chandra Bose Road, Calcutta, respectively. The third area is most closely comparable to places in the Asansol-Durgapur area, but, even so, its average land price is far above any price paid in Asansol-Durgapur,

¹ Although the introduction of the Apprentices Act, 1961, may ultimately improve the position in Howrah.

which thus has a clear advantage in respect of the cost of land for industrial development.

(viii) *Water*. About one-third of the firms interviewed in Asansol-Durgapur complained of water-supply problems, and undertakings in Asansol, where a new municipal water supply scheme is proceeding at a very slow pace, were particularly affected.

(ix) *Quality of product*. About one-third of the firms interviewed in Asansol-Durgapur reported difficulties in ensuring that their products were of adequate quality. All but one of the firms suffering from this problem were engineering units, and one-half of them employed under thirty workers. The reason most frequently given for these difficulties was the expense of establishing the necessary laboratory facilities. One firm reported difficulties in attaining the requisite quality when it was supplied with unsatisfactory material. In another case, the reason given was a shortage of skilled labour.

(x) *Expansion*. Rather more than two-thirds of the firms interviewed reported plans for expansion, or were at least contemplating expansion. This information may not be significant, however, as other surveys show most industrialists in India to express a wish to expand, and it gives very little guidance as to the volume or composition of the expansion to be expected. It is probably more significant that, of the sixteen firms which reported definite plans or policies of expansion, only three reported no difficulty in carrying them out. The most common problems were a shortage of raw materials (five cases), a shortage of power (four cases),¹ a shortage of finance (four cases), and a shortage of land (three cases). In addition, two firms recorded difficulties over imports, and one experienced difficulty in obtaining machinery. As only three firms (all making different products) gave information on plants under construction, it may not be realistic to use their returns to generalize about the problems of starting ancillary factories in Asansol-Durgapur. Nevertheless, it is possibly significant that two of the three, which were both located in Durgapur, reported difficulties in obtaining transport and accommodation for their workers. Only one firm reported that it was unable to expand because of lack of demand for its products. This firm makes sodium sulphate, the local market for which appears to be fully supplied.

3. Social Costs

Regional economic planners, to whom it is hoped this report will be of some assistance, must generally bear in mind the social costs (and benefits) of any project with which they are concerned. It has not been possible to consider such costs in any detail during the present study, but their existence has been borne in mind, and it seems appropriate to discuss them at this stage.

Certain social costs of ancillary and small-scale industries in Asansol-Durgapur are common throughout India: for example, the tendency for slums to grow around

¹ There have been power shortages in both Calcutta and Asansol-Durgapur in so far as the supplying undertakings have been unable (a) to supply new consumers with the amounts of power requested and (b) to meet the increased demands of existing consumers. In both areas, the allocation of electric power is controlled by the West Bengal Government.

such industries, even more than in the case of larger-scale industries; the harmful effects such industries can have on road transport by their ribbon-like development along main roads; and the generally greater need of small-scale industries for government assistance and (in some cases) control, in relation to the volume of output involved. One important social cost is unique to coal-mining areas, however, and is particularly important in the Raniganj coalfield. There may well be a serious loss of coal production resulting from the establishment of industry on land where good coal seams are near the surface, or where the seams are broad. As this is a cost that lends itself to calculation, it is suggested as a suitable subject for further research.

4. Parent Firm—Ancillary Firm Relationships

While the relationships between “parent” firms and ancillary firms did not form a major sphere of study, certain useful information was nevertheless obtained.

Firstly, it would appear that in many cases “parent” firms were not aware of the existence of ancillary industries in the Asansol-Durgapur area. Secondly, it is understood that the survey of ancillary industries in West Bengal as a whole recently conducted by the Department of Economics, Calcutta University, indicates that, in the majority of cases, “parent” firms are not interested in developing other firms to be ancillary to them. This probably also holds true for Asansol-Durgapur. In addition, it is likely that, when “parent” firms in the area do contemplate the development of ancillary firms, as often as not they will think only of developing them in the Calcutta Metropolitan District.

Thirdly, it appears that, although there are some important directions in which “parent” firms might be able to help ancillary firms, they rarely do so. Thus, only a minority of industrial firms reported placing orders with ancillary firms running for over two years, although a majority of collieries reported as doing so. About one-half of the “parent” firms assisted ancillary manufacturers to obtain raw materials, but technical assistance to ancillary firms was usually confined to the provision of drawings. In almost no case were special credit facilities stated to be given to ancillary firms to enable them to obtain working capital, and it appears that in only very few instances did “parent” firms and collieries make any advance payments for goods. Furthermore, although in the majority of cases payment was to be made on delivery, it seems there were sometimes considerable delays before the ancillary manufacturers actually received payment.

Fourthly, in one respect at least, ancillary firms in Asansol-Durgapur appear to be more fortunate than their counterparts in the Calcutta Metropolitan District. They are not obliged to sell their products through middlemen. None of the ancillary firms interviewed sold more than 50% of its output through middlemen, although one firm manufacturing a range of standard products stated it preferred to sell through them and another firm stated it would do so if it were to make a standard product.

Fifthly, from the above observations it may be inferred that general obstacles to further economic development in the Asansol-Durgapur area, and in particular the rather unfavourable attitude of “parent” firms and collieries, are some of the main impediments to the growth of ancillary firms. However, there is one feature of

the ancillary firms themselves which may be inimical to their development. Nearly three-quarters of the private-sector firms interviewed were owned by persons who also owned other types of industrial concerns, usually located outside the area. In one case, for example, a small industrialist would own not only a foundry, but also a rice mill and a cold storage depot. In another case, a firm would be under the control of one of the large managing agencies. In yet another case, a factory would be merely a local and not very important unit of a large all-India concern having a chain of factories located in other parts of the country. Most ancillary firms in fact follow one of these three patterns. In such cases, the risk incurred by the entrepreneur in investing in a new factory is reduced. But, on the other hand, the ancillary firms can hardly be expected to be so concerned to improve their sales and quality, and to reduce their costs, as they would be if their livelihood depended on their own, unaided efforts to sell their one and only product.

It is now possible to consider the kinds of ancillary industries presently operating in the Calcutta Metropolitan District that might be relocated or newly developed in the Asansol-Durgapur area. First, some of the implications of the preceding discussion will be spelled out. Secondly, mention will be made of certain further factors determining which industries might be so relocated or newly developed. Thirdly, some problems of relocation and development will be discussed. Finally, a short commentary will follow on certain policies that might be adopted to encourage the development of ancillary industries in Asansol-Durgapur.

1. Ancillary Industries having Particularly Good Prospects in Asansol-Durgapur

There is no need to repeat *in toto* the lists of items for which the potential aggregate demand in Asansol-Durgapur exceeds Rs. 1 lakh in value per annum. Nevertheless, it may be suggested that industries with good prospects of being ancillary to both manufacturing industries and collieries are those making packing materials and other wooden products, manufacturing wire ropes and producing hardware¹. In addition, there is also a good potential market for jobbing engineering products, which is very far from being satisfied by the existing ancillary firms; and the data collected by the field survey suggest that these ancillary firms will be most profitable if they combine the three engineering processes of casting, machining and fabrication.

It may also be noted that the National Council of Applied Economic Research has suggested that all expansion in West Bengal's large-scale engineering industries, and most expansion in its chemical industries, should take place in Asansol-Durgapur². Should these suggestions be implemented, there would undoubtedly be a correspondingly large expansion in the scope for ancillary industries, particularly those making components for the various types of industrial and heavy machinery proposed. The Council has also recommended that small-scale units should be established in the area to produce two groups of ancillary items, namely, (i) plastic switches, fuse-holders and sockets, and (ii) hardware and structures for mining³.

2. Other Industries enjoying Raw Material Advantages in Asansol-Durgapur

In the discussion of raw materials above,⁴ particular attention was paid to the type of raw materials required by existing ancillary industries in the Asansol-Durgapur area. However, in a study of the potential for future ancillary industries, one should not overlook those raw materials the supply of which is cheap and plentiful in Asansol-Durgapur, and which could easily be used by new ancillary industries. These include long "chains" of petro-chemicals, of which a full list is given in the *Techno-Economic*

¹ As defined above, p. 14.

² National Council of Applied Economic Research, *Techno-Economic Survey of West Bengal*, Bombay, 1963; Appendix 3.

³ *ibid.*, Appendix 5.

⁴ pp. 27-8.

*Survey of West Bengal*¹; the by-products and waste products of several of the large-scale industrial units, such as sulphuric acid from steel plants; and quartz, which is suitable for making pottery ware or, less economically, all kinds of glass. All of these raw materials are to be found within the Asansol-Durgapur area proper. If the types of raw materials available from the adjoining areas of West Bengal and Bihar were to be considered, a much greater range of potential industries would certainly be discovered.

3. Intangible Attractions of the Calcutta Metropolitan District

Clearly, certain intangible factors operate to inhibit industrialists from moving from Calcutta, even when good opportunities present themselves within its economic hinterland. Many of these factors are no doubt well known, but it is felt that they should be mentioned here because of their obvious importance, although no special study has been made of them during the present survey.

Firstly, to relocate a factory, or to open a branch factory some distance away from the "parent" factory, requires a considerable organizational effort on the part of the entrepreneur. He may well be unprepared to make this effort unless, when compared with the returns being earned at present, the anticipated returns on his investment are very great, very certain and likely to accrue in the reasonably-near future. As there still appear to be good prospects of developing in Calcutta the kinds of ancillary industries which would find a market in Asansol-Durgapur, there may be little incentive for the entrepreneur even to contemplate a move to the latter area. Further research into this subject might be undertaken.

Secondly, not only does Calcutta offer good markets for ancillary products; it also offers social amenities vastly superior to those of Asansol-Durgapur. These include, for instance, many educational institutions, cultural activities and recreational facilities. To such attractions may be added the presence of relatives and friends, and all the thousand and one other things that make Calcutta seem to lakhs of people a city worth living in.

Finally, Calcutta offers one advantage that is very important in the context of the planned Indian economy, namely, the presence of Government. A firm located in the Calcutta Metropolitan District has far closer contact with Union and State Governments than a firm located in the Asansol-Durgapur area, and it therefore enjoys a far greater chance of gaining Government favours and of overcoming any bureaucratic obstacles to development.

4. Entrepreneurship

Here, again, no special study of the subject was made during the field survey, but certain facts and impressions about entrepreneurship have emerged. Judging from the data collected, Bengali entrepreneurs are the most numerous in Asansol-Durgapur, although non-Bengalis together constitute a slightly larger group and Punjabis are the largest sub-group. In most cases, the persons actually founding

¹ *ibid.*, p. 140. In addition, National Instruments Ltd. (a Government of India undertaking) has recently proposed the establishment of a camera factory in Durgapur.

the firm have been in business before, and in some instances they have received technical training. Generally speaking, entrepreneurs appear to be keen to enter new lines of business. For example, in many cases structural engineering firms expressed a keen desire to establish foundries which would provide them with a more regular source of income, and for which the local demand is still far from being satisfied. It may thus tentatively be concluded that there is already in Asansol-Durgapur a small group of entrepreneurs, among whom Bengalis and Punjabis are the most numerous, who are often quite technically competent in their line of business and are ready to venture into new lines.

A few case studies¹ were also made of ancillary firms in the Calcutta Metropolitan District to discover their attitude towards the idea of relocating their factories in Asansol-Durgapur, or of establishing branch factories there. Most of the firms interviewed made metal castings, fabrications or mass-produced parts. Two firms had received licences to expand, and nine had not applied for them.

As regards four small firms in the latter group, having an output worth less than some Rs. 3 lakhs per annum, it can be stated with some confidence that they showed very little awareness of the possibilities offered by the Asansol-Durgapur area, and were sufficiently burdened with problems in Howrah, particularly of finance and raw materials, not to consider relocation. A second group of five somewhat larger firms were also interviewed. Two of these had an all-India market, and could best supply that market from the Calcutta Metropolitan District because of the superior selling facilities offered there. Two other firms supplied a local market and were uncertain of the nature of the market in Asansol-Durgapur. The fifth firm, however, felt that the latter area definitely offered great possibilities, and was preparing to take advantage of them.

Finally, two large firms were interviewed. These manufactured standard metal products which were marketed all over India. In the production of most of these items, there were significant economies of scale to be gained if the firms' existing factories in the Calcutta Metropolitan District were to be expanded, and they would thus gain nothing on the demand side while losing on the cost side, if they were to set up factories in the Asansol-Durgapur area.

It can thus be inferred that ancillary industries in the Calcutta Metropolitan District are likely to fall between two stools, in regard to the possibility of their relocation in the Asansol-Durgapur area. If they could cater exclusively to a local market in Asansol-Durgapur, they are ignorant or uncertain of the possibilities there, or are too burdened with problems in Calcutta to bother. Alternatively, if they cater to a much wider market than that of Asansol-Durgapur, a move to set up factories there might deprive them of existing or potential benefits of large-scale production.

5. Some Policy Considerations

There is a wide range of policies that could be adopted to encourage the development of ancillary industries in Asansol-Durgapur. On the one hand, there are the possibilities of using such devices as industrial estates, or of planning and developing

¹ See Appendix E.

the entire area as one vast industrial complex. On the other hand, there are measures needed to eliminate problems of finance, power, marketing and the like which have been raised from time to time in this report. All of these matters need investigation. In addition, however, there are one or two measures that, it is felt, should undoubtedly receive a high priority, and there are one or two unconventional measures that deserve a special mention. Only these additional measures are referred to in this section, primarily because this report is concerned with establishing *which* ancillary industries might most usefully be developed in Asansol-Durgapur, and not with *how* they might be so developed.

In regard to the measures that should receive a high priority, it appears that, firstly, as compared with the situation in Greater Calcutta, deficiencies in the arrangements for the distribution of controlled industrial raw materials are probably a special obstacle to the development of ancillary industries in Asansol-Durgapur. To overcome this obstacle, one of two policies might be adopted; either the distribution systems for the various controlled products could be more decentralized, so that firms in Greater Calcutta would have less chance to benefit from the presence there of key distribution officials; or dealers in such materials could be encouraged to move to, and operate in, the Asansol-Durgapur area.

Secondly, another major obstacle to the development of ancillary industries in Asansol-Durgapur, which should receive particular attention, is the shortage of skilled labour of various types. In the short run, if ancillary industries are to develop rapidly, they will need to import skilled labour from outside, and mainly from the Calcutta Metropolitan District, which is the nearest source of supply. In order to do so, these industries will not only be obliged to pay higher wages to their skilled workers, but they will also be obliged to offer their workers adequate housing and the other amenities such labour expects. In all probability, it will be prohibitively expensive for a small-scale undertaking to provide these attractions by itself. The State (or Union) Government must clearly assist it in as many ways as possible, and to a far greater degree than at present.

Thirdly, one much more revolutionary suggestion is that at least some of the major government offices intimately concerned with industrial development should be moved from Calcutta to Asansol-Durgapur. Besides being controversial, this suggestion would have its disadvantages; for instance, the "economies of co-ordination" attained when all major offices are in the same place, would be lost. Nevertheless, it would enormously boost the development of ancillary industries in Asansol-Durgapur.

Finally, it may be inferred with some confidence from the evidence presented in this report, that the kinds of ancillary firms most likely to be developed in Asansol-Durgapur may be classified according to ownership and line of production as belonging to the following three types:

- (i) Firms which are completely new and independent.
- (ii) Firms which are associated with a wider group of firms, which are complementary to other firms in that group, and which can be established economically at some distance from such other firms (in cases where

the latter are not situated in the Asansol-Durgapur area). In this context, complementary firms are those firms which either provide inputs to, or make use of the outputs of, other firms.

- (iii) Branch factories of existing firms, in cases where it is more economical to set up a new branch factory nearer to the Asansol-Durgapur market than to expand an existing factory more distant from this market.

The number of potential ancillary firms falling under type (i) would not seem to be very large, judging by the small number of local entrepreneurs who have so far begun to operate in Asansol-Durgapur. As for firms falling under types (ii) and (iii), their development is less favourable to the growth of Asansol-Durgapur as an "autonomous" industrial complex, since firms of these two types are likely to purchase more of their inputs from manufacturers in Greater Calcutta than firms under type (i). They are almost certain to have better "contacts" there, and to incur lower transport costs for their group as a whole if inputs are bought from manufacturers operating in the Calcutta Metropolitan District.

Here, therefore, is probably another major obstacle to ancillary development in Asansol-Durgapur, if such development is intended to support a policy of encouraging the growth of the area as a counter-magnet to Calcutta. The measures to be adopted to overcome this obstacle will naturally depend on the determination with which such policy is pursued. The germ of an answer, however, may lie in the concept of the planned development of a vast industrial complex, in which ancillary and basic industries are developed as integrated and interdependent chains¹.

¹ See, especially, A. Molinari, *op. cit.*

1. The Scope for Ancillary Industries in Asansol-Durgapur

(i) PRODUCTS IN DEMAND

To sum up the preceding discussion, there seems to be much scope for the development of ancillary industries to produce a large variety of consumable stores for industries and collieries already established in the Asansol-Durgapur area. There is also scope for industries to provide (a) spare parts of machines required by various established industries, (b) components of bicycles and railway rolling stock, (c) certain types of manufactured industrial raw materials, and (d) certain services. Full details of all these requirements appear in the section entitled *The Demand for Ancillary Products*, pp. 9-24.

In assessing the demand for ancillary industries, however, possible future requirements cannot be ignored. Certain new industries that are presently being developed have already been mentioned. But it is also quite possible that the area will develop much further as an important producer of industrial machinery, chemicals and other products using raw materials found or manufactured in and around Asansol-Durgapur. These are referred to in the section entitled *The Future Development of Ancillary Industries*, pp. 33-4.

(ii) COSTS AND PROBLEMS OF ANCILLARY INDUSTRIES

From the data collected for this report, pp. 25-6, it is impossible to make a truly satisfactory comparison between the average costs of existing ancillary industries in the Calcutta Metropolitan District and the Asansol-Durgapur area. Very tentatively, however, it may be inferred that the costs of engineering firms are higher in the latter area, subject to two exceptions. The exceptions are (a) firms engaged on casting, machining and structural work taken together, where costs in Asansol-Durgapur are likely to be lower; and (b) machining-cum-fabricating firms, where there seems to be little difference in costs.

As regards the costs of certain major inputs, namely, coal, iron and steel, other raw materials, power, labour and land, as shown in pp. 26-30, the Asansol-Durgapur area does not usually compare favourably with the Calcutta Metropolitan District. Firms in the former area undoubtedly enjoy an advantage in coal costs if all coal is delivered by road from the pithead. If the coal is delivered to Calcutta by rail, however, regulations may either permit them no advantage at all, or even put them at a disadvantage.

As regards other raw materials, costs are never lower in Asansol-Durgapur, and are sometimes higher, and most raw materials are less easily obtainable than in Greater Calcutta. This conclusion applies even to iron, steel and scrap. In addition, power and labour costs are approximately equal in the two areas, and Asansol-Durgapur is short of many important types of skilled labour. Thus, the only definite

advantage enjoyed by the latter area arises in the case of land, which is very much cheaper than in Greater Calcutta.

As regards problems of ancillary industries, pp. 31-2, in Asansol-Durgapur ancillary firms suffer less from exploitation by middlemen than do their counterparts in the Calcutta Metropolitan District. By contrast, however, they do not usually enjoy a particularly co-operative attitude on the part of the "parent" firms. Furthermore, the owners of many of the ancillary firms in Asansol-Durgapur also have interests in other industries. While this no doubt helps the firms to keep going, it can hardly produce a climate favourable to the development of small and independent ancillary industries.

There are several intangible but important advantages in operating an ancillary plant in the Calcutta Metropolitan District, such as the presence there of the entrepreneurs' relatives, of social and educational amenities, and of Government offices, (see p. 34). In addition, as suggested in pp. 34-5, the effort and risk involved in shifting a plant to a new location, or in opening a branch in a new area, may well be too great for an entrepreneur already established in an economically-safe area such as Greater Calcutta, if he should consider the possibility of moving. That he may be unlikely even to contemplate such possibility is suggested by a few case studies. These tend to indicate that small ancillary firms in the Calcutta Metropolitan District are likely to suffer from too many serious problems to consider re-location in Asansol-Durgapur, and that larger firms might jeopardize present potential benefits of large-scale production if they were to locate new plant in the latter area.

(iii) POLICIES FOR ENCOURAGING ANCILLARY INDUSTRIES IN ASANSOL-DURGAPUR

The many possible policies that might be adopted to encourage ancillary industries to develop in Asansol-Durgapur range from the planning of the entire area as a vast and integrated industrial complex, to the establishment of industrial estates, and to special measures aimed at eliminating problems of finance, power, marketing, and the like (pp. 34-7).

Within this range of possibilities, it is felt that (a) certain measures should receive an immediate, top priority, and (b) certain unconventional policies should be specially mentioned. As regards (a), high priority should be given to policies to improve the supply of industrial raw materials, and of certain types of skilled labour in Asansol-Durgapur. As regards (b), ancillary industries would be greatly assisted if certain major Government offices were to be moved from Calcutta.

Consideration of the types of ancillary industries likely to prosper in Asansol-Durgapur leads to the tentative conclusion that, if they are to assist in the growth of an economic counter-magnet to Calcutta, success may lie in the direction of a comprehensively-planned complex in which ancillary and 'parent' industries are developed as interdependent chains.

2. Limitations of the Study

It is, perhaps, not out of place at this stage to stress once again the limitations

of this study. In particular, attention is drawn to the absence of a systematic investigation of the social costs of ancillary industries in Asansol-Durgapur; and the absence, in the estimates of the demand for ancillary products, of any estimate of the demand for capital goods and of any thorough estimate of the demand outside Asansol-Durgapur itself for such products.

3. Suggestions for Further Research

It may be useful to conclude with a list of major topics which, it is felt, deserve urgent, further attention, if rational policies for the development of ancillary industries in the Asansol-Durgapur area are to be devised. The list is as follows:

- (a) "*Background*" Research. First, it is considered that certain subjects should be studied to provide a clearer grasp of the wider effects of policies designed to affect particular aspects of the operation of ancillary industries in Asansol-Durgapur. The suggested subjects comprise the social costs of ancillary industries in the area; the reasons for the successful development of ancillary industries in other parts of India; the system of distributing inputs and outputs of ancillary industries in Asansol-Durgapur; the working of measures already taken to develop ancillary industries in the area; additional research into the relationship between "parent" firm and ancillary firm in Asansol-Durgapur; further research into the extent to which ancillary firms in Asansol-Durgapur are, and have been, associated with wider groups of firms; and the history of the development of ancillary industries in Asansol-Durgapur.
- (b) "*Planning*" Research. A somewhat different kind of research is suggested here, designed mainly to discover the kinds of policies that should be adopted in order to affect ancillary firms in various ways. Especially worth while, it seems, would be studies of the very important question of the viability of various types of ancillary industries containing firms of various sizes; means of improving the supply of factors of production, the shortage of which seems to be a crucial obstacle to the development of ancillary industries in Asansol-Durgapur (especially raw materials, skilled labour, and housing and other amenities for skilled labour); certain aspects of the demand and cost positions of existing ancillary industries, namely, the demand for, and cost of, office equipment, and machinery and equipment for the food-processing, construction, and road transport industries; the all-India demand for ancillary products required in Asansol-Durgapur; the demand for, and costs of, cottage industries' products, and the economics of really small ancillary firms employing less than twenty-five workers, which have not been considered here; projections of demand, based not on concrete plans for new investment but, for example, on the all-India output of the products of "parent" industries in subsequent Five Year Plans (suitable assumptions being made about the future share

of Asansol-Durgapur in this output); the scope for the reverse of ancillary industries, i.e., industries *using* the products of major industries (as this scope is clearly very great, and an attempt to measure it would be most useful); the raw-material resources in Asansol-Durgapur and surrounding areas, and the ancillary industries which could economically be established to make use of them; and, finally, the factors determining the exact location of existing ancillary firms in various parts of the Asansol-Durgapur area.

APPENDICES

These appendices contain the following questionnaires used in the field survey for this report:

APPENDIX A

A questionnaire to elicit information from "parent" firms and collieries in general about their demand for the products of ancillary industries.

APPENDIX B

A questionnaire used to re-interview those "parent" firms and collieries which were found to buy from *outside* the Asansol-Durgapur area spares or stores worth more than Rs. 20 lakhs annually. This second interview was intended to elicit more accurate and comprehensive information on the amounts of ancillary products demanded. The questionnaire and explanatory notes were the same as those appearing in Appendix A, but the classification lists of ancillary products were different.

APPENDIX C

The first part of a questionnaire on costs, problems and other economic aspects of ancillary firms in Asansol-Durgapur, submitted to all firms.

APPENDIX D

The second part of a questionnaire on costs, problems and other economic aspects of ancillary firms in Asansol-Durgapur, submitted to those firms willing to give supplementary information.

APPENDIX E

A questionnaire on the possible relocation in Asansol-Durgapur of selected ancillary firms located in the Calcutta Metropolitan District.

QUESTIONNAIRE ON DEMAND

"Parent" Firms and Collieries
(General)

CONFIDENTIAL

INSTITUTE OF PUBLIC ADMINISTRATION, NEW YORK,
STUDY OF ANCILLARY INDUSTRIES IN THE ASANSOL-DURGAPUR AREA*To be filled in by the interviewer*

Name of Firm

Code Number of Factory

Address of Office visited

Given address is office or factory

Name(s) of officer(s) interviewed

His/their position(s) in the firm

Date(s) of interview(s)

SECTION 1: PRESENT USE OF ANCILLARY SUPPLIERS

1. Name of input:
2. Specification if available:
3. Do you prefer to rely on other firm(s) for the supply of this item:
 - (a) because its/their costs are lower ?
 - (b) because you lack producing facilities of your own ?
 - (c) if for some other reason, please specify
4. Do you purchase this item:
 - (a) at regular intervals ?
 - (b) at irregular intervals ?
5. Do you inspect the supplying firm(s), work on this item:
 - (a) (i) during the work ?
 - (ii) after the work is finished ?
 - (b) (i) using your own staff for the purpose ?
 - (ii) using the firm(s), staff for the purpose ?
6. Do you provide assistance to the firm(s) providing this item:
 - (a) by securing supplies of raw material(s) needed by the firm(s) ?
 - (b) by providing the firm(s) with necessary tools or machinery ?
 - (c) by providing drawings of the item(s) to be produced ?
 - (d) by providing other forms of technical guidance ?
 - (e) by providing credit to finance the firm(s), purchases of working capital ?
 - (f) by placing orders over 2 years with the firm(s) ?
 - (g) if in any other way, please specify
7. What is the formal procedure for paying for this item:
 - (a) payment in cash when the order is placed ?
 - (b) you are granted up to 3 months' credit ?
 - (c) you are granted more than 3 months' credit ?
 - (d) if in some other way, please specify

SECTION 2: PRODUCTION AND EXPANSION

8. Please give details of any plan(s) you have for expanding your capacity in the production of product(s), or by-product(s), or any input(s) you require: (see separate sheet).

SECTION 3: ANCILLARY PRODUCTION BY YOUR OWN FIRM

9. Please give details of ancillary materials or components or services, sold by you (see separate sheet)

10. Do you produce this item/these items *yourself*, because:
- it is profitable to do so ?
 - you have spare capacity in this line/these lines of production ?
 - if for some other reason(s), please specify

SECTION 4: DESIRED ANCILLARY PRODUCTION IN THE ASANSOL-DURGAPUR AREA

11. Name(s) and amount(s) of ancillary product(s) you could get from the Asansol-Durgapur area (see separate sheet).
12. (a) Would you like ancillary firms in the Asansol-Durgapur area to produce all your requirements of this item/ these items ?
 (b) Or, if you would prefer to produce some of your requirements yourself, please give approximate percentages which you would like to produce yourself.
13. Why would you prefer to get this item/these items from the Asansol-Durgapur area:
 (a) if you at present get the item(s) *from outside the Asansol-Durgapur Area*, would you prefer to get it/them from this area:
 (i) because transport costs should be lower ?
 (ii) because you should have closer contact with your suppliers ?
 (iii) because deliveries should be more regular ?
 (iv) if for some other reason(s), please specify
 (b) if you at present produce the item(s) *yourself*, in any quantity, would you prefer to get it/them from the Asansol-Durgapur area:
 (i) because costs should be lower ?
 (ii) if for some other reason(s), please specify
14. Do you think production of this item/these items would be economical for other firm(s),
 (a) if this firm/these firms was/were the only supplier(s) ?
 (b) or only if it/they also supplied to some or all of the other consuming firms in the Asansol-Durgapur area ?

SECTION 5: PROBLEMS

15. Please give details of any serious problems you encounter in securing the following groups of items, specifying items in case of groups (b), (c), (d) and (e)
- supplies of water
 - please give consumption of water in recent years:

gallons	1959	1960	1961
---------	------	------	------
 - how much of your requirements do you obtain from your own sources ?

gallons	1959	1960	1961
---------	------	------	------
 - supplies of processed raw materials
 - supplies of components
 - repair services
 - any other ancillary equipment or service
16. Which of the following do you think are major obstacles to the establishment of ancillary industries in the Asansol-Durgapur area:
- lack of land ?
 - lack of housing ?
 - lack of other amenities for workers ?
 - lack of water ?
 - lack of transport facilities ?

- (f) lack of finance ?
- (g) lack of raw materials ?
- (h) lack of some types of labour ?
- (i) red tape on the part of government authorities ?
- (j) inadequate demand for ancillary products ?
- (k) irregular demand for ancillary products ?
- (l) please specify any other factors which you think are major obstacles

17. Please list any objections you may have to the use for publication of any of the information supplied above.

QUESTION 8

Name of Item	Rated Capacity when Expansion is Completed	Planned Date of Completion of Expansion
(a) Products and By-products		
.....		
(b) Inputs		

QUESTION 9

Name of Item	1959		Production 1960		1961	
	Quantity	Value	Quantity	Value	Quantity	Value
(a) for middlemen						
.....						
(b) direct to other firms						
.....						
(c) total production						

QUESTION 11

Name(s) of ancillary product(s) not at present manufactured in the Asansol-Durgapur area, which you would be willing to buy from the area if manufactured there (as long as price and quality were the same as at present, and supplies were regularly available).	Its/their specification(s)	Amount you might wish to buy from factories in the Asansol-Durgapur area, if manufactured there	
		Quantity	Value

INSTRUCTIONS FOR COMPLETING QUESTIONNAIRE

IN DETAIL

To be filled in by interviewer: Name of firm should be that under which it is registered with the Registrar of Companies.

SECTION 1

(a) Use a separate sheet for each input. Types of input to be investigated are: already processed raw materials; components for assembly; packing materials; transport equipment; transport services; repairs to, and spare parts for, transport equipment; repairs to, and spare parts for, other equipment; other services (other than labour regularly employed by the firm).*

(b) Please refer to information supplied under "input to firm" to the *Study of Calcutta and its Hinterland* (another research project)

QUESTIONS 9, 14

Dates should be financial years.

QUESTION 4

Intervals are here considered regular if the longest interval is less than twice the length of the shortest one.

QUESTIONS 8, 9, 11

Where many products are involved, group together items which are technically similar and/or require similar quantities or qualities of inputs; always try to keep major products or by-products separate, e.g., an engineering firm's output for 1960 might be listed as follows:

(i) large lathes, Rs. 2 m; (ii) small lathes for precision cutting, Rs. 1.5 m; (iii) other lathes, Re. 0.2 m.

QUESTION 9

Ancillary products are those listed in the instructions relating to Section 1 (a)

QUESTIONS 12, 13, 14 & 16

When different answers are given in the case of different inputs, indicate in each answer the input referred to (e.g., the answer to question 13 (i) might be 'because transport costs are lower: caustic soda'). If necessary, use extra sheets for this purpose.

*[See also instructions for completing questionnaire on demand in Appendix B: Classification of Products and Classified List of Ancillary Products Required by Industries/by Collieries].

APPENDIX B

QUESTIONNAIRE ON DEMAND
"Parent" Firms and Collieries
(Purchases from outside Asansol-Durgapur)

CONFIDENTIAL

INSTITUTE OF PUBLIC ADMINISTRATION, NEW YORK
SCOPE OFFERED BY LARGE FACTORIES AND COLLIERIES TO
MANUFACTURERS OF "ANCILLARY" PRODUCTS.

Code No. of Firm/Colliery

Classification No. of Product	Name of Product	Amount you would like to buy from Manufacturers in the Asansol-Durgapur Area.	Comments	
1	2	Quantity 3	Value 4	5

EXPLANATORY NOTES ON THE ABOVE QUESTIONS

Types of product on which information is requested:

In general these products are manufactured or processed items which (i) need to be purchased at regular intervals (not less than once a year), and (ii) are at present *manufactured outside* the Asansol-Durgapur area. From among such products, please select those which you would like to have manufactured in the Asansol-Durgapur area, *so long as* prices and qualities were comparable with those of the products you buy now.

Please note the following detailed points about the types of product to be included and excluded:

(a) The following are to be *excluded*—

- minerals (iron ore, coal, bauxite, etc.);
- unprocessed agricultural products (bamboos, straw, etc.);
- jute products (gunny bags, brattic cloth, etc.);
- pig iron;
- steel sections;
- refractories;
- oil, petrol and other petroleum products;
- road transport services and equipment;
- stationery, printing;
- furniture, office equipment;
- electricity;
- machinery, structures and other capital goods; and
- water.

(b) An item should be *excluded* if it is at present made for you by manufacturers outside the Asansol-Durgapur area, but will in the near future be wholly or partly made by new plant(s) in the area (either your own, or other companies'). In cases where such new plant(s) is/are being built to meet *only part* of your requirement of the item, please estimate your *residual* requirement after the new plant(s) starts/start operations that will *not* be met by it/them.

N.B. In these cases, do *not* include cases where the new plant(s) is/are not yet under construction.

- (c) *Exclude* any products where you know or think that the demand for that product from *all* the firms and collieries in the Asansol-Durgapur area is not sufficient to justify the establishment of a factory to make the product for sale *in that area alone*.
- (d) *Exclude* cases where the firm or colliery belongs to a wider group of companies, where stores and spares for this whole group are purchased for reasons of economy from one central place not in the Asansol-Durgapur area (e.g. Calcutta). If you make your purchases on your own, but decide on your purchases in Calcutta or some other place outside the Asansol-Durgapur area, information should nevertheless be given.
- (e) *Exclude* products which can be transported just as cheaply from manufacturers in the Dhanbad-Jharia area as from manufacturers in the Asansol-Durgapur area.
- (f) *Exclude* proprietary items which *must* be purchased from one maker only.

Amounts to which the figures are to refer:

- (a) The figures should, if possible, refer to 1962 or 1962-3, or failing that, to the latest year for which you have figures. If, however, in that year you had to reduce production, and hence you had to reduce your requirement of "ancillary products", because of a shortage of materials, please give the amount of each "ancillary product" which you would require in a normal year.
- (b) It is assumed throughout that locally-made products would be of comparable quality and price to those of products made outside. In the present study, the difficulties of assuring this are ignored.

- (c) Where it is hard to give figures for one year, please give figures for a longer period, say 2 to 5 years.
- (d) Please make every effort to supply figures of the *quantities* and *values* of "ancillary products" which you would like to purchase from local manufacturers.
- (e) Give details of any item of which your annual requirement is less than Rs. 10,000.
- (f) It is better for this Institute's purposes to give *approximate* figures for *all* items than to give more accurate figures for only a few.

Classification of products:

A suggested classification of "ancillary products" is given below. When classifying these products, please do the following:

- (a) Give details of individual products (e.g. electrodes, wire rope) where possible. Where this is not possible, please try to give details of groups of products which are likely to be made by the same firm. For example, suppose a firm would like to purchase locally Rs. 5,00,000 worth of cast-iron spares and stores per year, but is unable to divide this into wheels, bearings etc., then this firm could write down that it would like to purchase locally Rs. 5,00,000 of cast iron products. You will see that the classification list allows for this. Where you do this, you obviously must write e.g. cast-iron table rollers under "table rollers", and *again* write the same item under "cast iron products".
- (b) In general, you will probably find it convenient to divide ancillary products into:
 - (1) Components and materials: items like motors (for a car manufacturer), coke (for coke ovens) which are actually "embodied in" the final product; and
 - (2) stores, spares and services: things like electrodes, earth-moving equipment, welding etc., which are "applied to" the materials and components, in order to transform them into the final product. Stores and spares can be distinguished along the following lines:
 - (a) stores have a definite length of life; while
 - (b) spares do not have a definite length of life, but probably have to be replaced within a certain period of time.
- (c) In choosing items to include in the list, it is suggested that you think first of items which are in particularly short supply for you.

Definition of the Asansol-Durgapur area:

This area can be defined as:

the Raniganj Coalfield; plus
the Mugma Coalfield; plus
the Durgapur Development Authority area.

Thus information should be given only concerning products made by manufacturers operating outside that area.

CLASSIFIED LIST OF ANCILLARY PRODUCTS REQUIRED BY INDUSTRIES

A. Mainly Components:

1. Forgings
2. Stampings
3. Nuts, bolts and other fasteners
4. Packing materials
5. Electrical goods
6. Components of transport equipment
7. Components of bicycles
8. Components of other engineering products

B. Mainly Materials:

9. Ferro-alloys
10. Processed non-ferrous minerals
11. Re-rolled steel and scrap
12. Building materials

C. Mainly Stores:

13. Processed agricultural products (e.g. rope, leather safety goods)
14. Wood products

15. Glass products
16. Rubber products
17. Plastic products
18. Other safety materials
19. Wire ropes
20. Hardware and hand tools
21. Chemicals
22. Industrial gases and allied equipment
23. Earth-moving equipment
24. Scientific equipment
25. Textile industry stores
26. Miscellaneous stores

D. Mainly Spares

27. Castings
28. Machined parts
29. Metal structures
30. Spares for furnaces
31. Compressors and spares for them
32. Spares for materials-handling equipment
33. Steel plant spares
34. Engineering works spares
35. Refractory works spares
36. Other spares

E. 37. Services

CLASSIFIED LIST OF ANCILLARY PRODUCTS REQUIRED BY COLLIERIES

1. Stores and spares for coal-production equipment
2. Stores and spares for coal-loading equipment
3. Stores and spares for coal-transport equipment
4. Stores and spares for winding equipment
5. Stores and spares for ventilation equipment
6. Stores and spares for pumping equipment
7. Stores and spares for underground lighting equipment
8. Stores and spares for measuring and testing equipment
9. Stores and spares for transformers and switches
10. Cables
11. Stores and spares for signalling equipment
12. Wire ropes
13. Pipes and fittings
14. Stores and spares for steam-generating equipment
15. Stores and spares for stowing equipment
16. Stores and spares for crushing equipment
17. Stores and spares for compressed-air equipment
18. Stores and spares for workshop equipment
19. Stores and spares for surveying equipment
20. Stores and spares for electrical equipment
21. Stores and spares for steam engines
22. Belting
23. Hardware
24. Nuts, bolts and other fasteners
25. Fibre ropes
26. Props and other timber products
27. Building materials
28. Safety materials (e.g. limestone dust)
29. Packing materials
30. Miscellaneous machines
31. Metal castings
32. Metal structures
33. Re-rolled steel and scrap
34. Miscellaneous parts of machines
35. Miscellaneous stores

APPENDIX C

QUESTIONNAIRE ON COSTS, PROBLEMS AND OTHER ECONOMIC ASPECTS
OF ANCILLARY FIRMS IN ASANSOL-DURGAPUR

First Part (Submitted to all firms)

CONFIDENTIAL

INSTITUTE OF PUBLIC ADMINISTRATION, NEW YORK

Code Number of Factory.....

1. Products and By-products: Please give details of these:†

Name of Product or By-product	Output in 1961		Rated Capacity†	Amount Sold Direct to Other Firm(s)		Names of Places to which Product(s) and By- product(s) are sent	%ages going to these Places	
	Q†	V†		Q†	V†		by Road	by Rail
	(2)	(3)		(4)	(5)		(6)	(7)
(1)								

2. Problems: Please give details of your major problems, indicating which are especially serious:

- Breakdowns of your equipment
- Obtaining land
- Obtaining raw materials
- Obtaining fuel and power
- Obtaining water
- Obtaining and retaining labour
- Obtaining credit to finance your daily operations
- Obtaining transport
- Marketing your product(s)
- Quality control
- Carrying out expansion plans
- Any other problems

3. Land:

- The amount of land used for production is _____ acres, for other uses _____ acres, and unused land is _____ acres.
- The total amount of land owned or rented by you is _____ acres.
- Its value/rent* in 1961 was Rs. _____

4. Current Assets: Please give details of these:

- Cash balance on 31/1/61† Rs. _____
- Bills receivable on 31/1/61† Rs. _____; Bills payable on 31/1/61† Rs. _____
- Stock of raw materials and stores on 1/1/61† Rs. _____ and on 31/1/61† Rs. _____
- Stock of finished products on 1/1/61† Rs. _____ and on 31/1/61† Rs. _____
- Stock of semi-finished products on 1/1/61† Rs. _____ and on 31/1/61† Rs. _____
- Book value of investments on 31/1/61† Rs. _____

5. Capital Assets: Please give as full details of these as possible:

Name of Item	Present Valuation	Rent (if not owned)	Year of Purchase
(1)	(2)	(3)	(4)
(a) Machinery			
(b) Building			
(c) Others			

†See explanatory note in "Instructions for Completing Questionnaire"

*Please cross out whichever is not applicable

6. Materials, Services and Stores: Please give as full details of these as possible.

Name of Item	Amount actually used in 1961		Place(s) of Origin	% ages Shipped from this Place/ these Places:	
	Q	V		by Road	by Rail
(1)	(2)	(3)	(4)	(5)	(6)
(a) Raw materials					
(b) Coal					
(c) Electricity					
(d) Other fuel and power					
(e) Water					
(f) Lubricants					
(g) Spares & other consumable stores					
(h) Transport services					
(i) Repairs to, and maintenance of, machinery					
(j) Others					

7. Labour: In an average month in 1961, the total wages, salaries and other money payments made to casual workers were Rs.———; to regular skilled workers Rs.———; to regular unskilled workers Rs.———; to apprentices Rs.———; to other supervisory and technical staff Rs.———; to the owner(s)/manager(s) Rs.———; to other workers Rs.———

8. Assistance Received: Please give details of any help you have got from*

- (a) your customers
- (b) the Government
- (c) any other person(s) or organization(s)

9. Please give any objections you have to the use for publication of any of the information supplied in answer to this Questionnaire.

*See explanatory note in "Instructions for Completing Questionnaire".

INSTRUCTIONS FOR COMPLETING QUESTIONNAIRE

In all cases where information cannot be given for 1961, please give it for the latest year about which you have information. *The years in question should be your own financial years.*

QUESTIONS 1 AND 6

If there is not enough room to give figures for all of your products and all the materials, services and stores used by the firm, a separate sheet for extra answers can be obtained from the investigators.

QUESTION 1 COLUMN (1) AND QUESTION 6 ROW (a)

If you use several raw materials, please list each raw material, or each group of raw materials (if there are many raw materials) separately.

QUESTION 1 COLUMNS (2), (3), (5) AND (6), AND QUESTION 6, COLUMNS (2) AND (3)

“Q” stands for quantity (number of tons, litres, etc.) and “V” for value in Rupees.

QUESTION 1 COLUMN (4)

Give rated capacity in tons, lbs., litres, number of items, value of production, etc.

QUESTION 1 COLUMNS (5) AND (6)

“Amount sold direct to other firm(s)” means the amount sold on tender(s) or other contract(s) negotiated with customer firm(s).

QUESTION 1 COLUMN (7) AND QUESTION 6 COLUMN (5)

If possible, please list separately the Durgapur-Asansol-Chittaranjan-Kumardhubi-Disergarh area, Greater Calcutta (the area between Bansberia, Uluberia, Baruipur, Barasat and Kalyani), the Kharagpur-Midnapore area, the rest of West Bengal, the Dhanbad-Jharia area, Jamshedpur, the rest of Bihar, Assam, Orissa, Eastern U.P. (the Kanpur-Allahabad region), the rest of India, and exports and imports.

QUESTION 4 (b)

“Bills receivable” represents book credits and other receivables (mainly rents, interest and dividends, also various claims such as those from insurance companies, banks and other institutions, and various amounts receivable from staff or agents, such as fines).

“Bills payable” represents book debts, advances made to the firm, and other payable bills, defined in a similar way to bills receivable.

QUESTION 4 (f)

“Investments” represents Government, industrial and other securities which are readily marketable, and other financial assets purchased for the purpose of investing cash temporarily.

QUESTION 7

If you have your own definition of casual workers, please use this here; if not, please define casual workers as those employed by you for periods not longer than one week.

QUESTION 8

If possible, give the type of assistance given, its value, and the date(s) on which it was given. If possible also specify the firm, Government agency, etc. giving assistance in the fields of marketing, technical assistance, finance, and other fields.

QUESTIONNAIRE ON COSTS, PROBLEMS AND OTHER ECONOMIC ASPECTS OF
ANCILLARY FIRMS IN ASANSOL-DURGAPUR

Second Part (Submitted to all firms willing to provide additional information)

SPECIAL INSTRUCTIONS FOR THE INTERVIEWER

- (1) *Throughout*: Keep in mind that the firm may be liable to pay the following taxes—
- (i) Sales tax from which there is no exemption;
 - (ii) Income tax, for which persons are liable if their income is more than about Rs. 2,500/- per year;
 - (iii) Super tax, for which persons are liable if their income is more than Rs. 2,00,000/- per year;
 - (iv) Corporate tax, which any registered firm has to pay, mainly on its profits; and
 - (v) Excess profits tax, which was introduced in the 1963 budget and has to be paid when the rate of profits is over about 6% per year.
- (2) Keep in mind whether the firm is liable to be registered with the Chief Inspector of Factories (it is so liable if it employs more than 20 people without power or 10 with power, or if its capital assets are worth more than Rs. 5 lakhs).
- (3) Try to get information which will make it possible to calculate the cost of *each separate product* made by the firm.
- (4) Try to get information which will indicate the size of the profits being made.
- (5) Try to get information which will give some indication as to how good the firm is at responding to market incentives, e.g. in switching from one line of production to another where the price of one product falls relatively to the other, or in exploiting new markets that offer themselves when the standard of living of an area goes up, or new industries are established.
- (6) Keep in mind the desirability of interviewing workers, and try to assess whether the officer interviewed might be willing to allow interviews with workers (do not ask this question specifically, except perhaps at the end of the interview with a particularly helpful person).
- (7) Try to assess "parent" firms' attitudes towards ancillary firms, and *vice versa*.
- (8) Try to assess the quality of management.
- (9) Always try to get as full information as possible during the interview, in particular on the questions mentioned below.

Code number of factory.....

QUESTION 1

- (i) Try to get information on as large a number of products or by-products as possible.
- (ii) Try to get information on:

Name of Product or By-product	Time taken to produce it	If firm plans to expand, expected level of production when expansion is completed	If it is planned to expand output in this line of production, on what date is the expansion expected to be finished ?	If there are no expansion plans, is the market ready for the firm to expand ? If so, why does the firm not expand ?
(1)	(2)	(3)	(4)	(5)

QUESTIONS 1 & 6 (of Appendix C)

Try to get specifications of inputs and outputs. If you have to group together several inputs and outputs, group together those which are technically similar, or are manufactured or used in the same workshop, or have to be manufactured or used together (e.g. wheels and axles.)

QUESTION 2(e) (of Appendix C)

Try to see if the proposed Raniganj Coalfield Water Supply Scheme is known about and, if so, whether it is expected to ease the water shortage in Asansol-Durgapur and whether it is likely to be an important factor stimulating industrial investment in the area. But do not mention the scheme specifically unless the person interviewed talks about it.

QUESTION 2 (f) (of Appendix C)

Try to get separate information on different categories of labour as listed in Question 7.

QUESTION 2 (throughout) (of Appendix C)

Try to deal, in parts (a) to (j), only with problems of current operation and to leave all problems involved in expansion to part (k).

QUESTION 3 (a) (of Appendix C)

When getting figures of land used "for other uses" try to get separate figures of land used for offices and for other purposes. Try also to get amounts of land used for stores. acres and for offices. acres.

QUESTION 4(b) (of Appendix C)

When the amounts given in Question 4 are added up to give an estimate of the firm's total current assets, "bills payable" should, of course, be reckoned as a *negative* item. If necessary, explain that "book credits" are *amounts to be received* by the firm from its customers, agents and other parties, for materials and supplies furnished and services rendered, and *advances* for contracts, building materials, or other goods supplied or services rendered to the firm.

QUESTION 5

Also try to find out:

(i)	Name of Item	Cost price of the item (if owned)	Date when the item will be due for replacement
(1)	(2)	(3)	(4)
(a)	Types of machinery (If there are many of these, list each separate workshop)		
(b)	Buildings used for various purposes		
(c)	Others (list each type if possible)		

[In row (a) try to find out in which workshops machinery or finance is particularly scarce, quality is poorest, raw materials scarcest, etc.]

- (ii) Try to find out the firm's capital assets, when the firm was first established. Rs.
- (iii) Try to find out the percentage of the working day when particular machines or workshops are idle, *for reasons other than technical defects in the machines*. Hours.
- (iv) Try to find out the extent to which more than one shift is worked.
- (v) Try to find out the amount of second-hand machinery.

Also try to find out:

QUESTION 6

Name of Item	Amount Purchased in 1961		Name(s) and Address(es) of Supplying Firm(s)	Stock on 1.1.61	Stock on 31.1.61	Effects on all this of Expan- sion Plans	Where do Shortages Occur ?
	Q	V					
(1)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(a) Raw materials							
(b) Coal							
(c) Electricity							
(d) Other fuel & power							
(e) Water							
(f) Lubricants							
(g) Spares & other consumable stores							
(h) Transport							
(i) Repairs to, and main- tenance of, machinery							
(j) Others							

QUESTION 8

Also try to find out :

(i)	Name and Address of Customer	Product(s) Supplied

- (ii) Does the firm ever pass on to other firm(s) orders given to it ?
 (iii) If so, does it do so regularly ? or irregularly ? i.e. with the longest interval between orders being more than twice the length of the shortest such interval ? Please give details:

Name of Firm	Name of Item it Supplies	Office Address	Factory Address	Amount it Supplied:							
				1959		1960		1961		1962	
				Q	V	Q	V	Q	V	Q	V
..

- (iv) *If the firm never passes on to other firms orders given to it:*
 Is it because there are no available firm(s) in the Asansol-Durgapur area ?
 Or if for some other reason, please specify the reason.
 If the former, would the firm be willing to pass on orders to other firms if they were established in the Asansol-Durgapur area ?
- (v) *If the firm gets its orders direct from its customers:*
 What is the length of the sub-contract, in most cases ?
 What are the terms of the sub-contract, in most cases ?
 Are the goods manufactured for the firm according to specification ?
 How are the price, quantity and other terms of the contract, arrived at: by competitive tender ? direct negotiation ? If in some other way, please specify.
 How is the firm usually paid by the customer(s): by cash payment ? by being given up to 3 months' credit ? by being given over 3 months' credit ? If in some other way, please specify.
 Is the firm connected by family, financial or any other sort of ties, to its customer(s) ?
 If the firm does not restrict itself to supplying sub-contracted items, what are the reasons ?
 What percentage of the firm's output is usually accepted by the customer(s) as being up to standard ?
 What advantages and disadvantages does the firm find in working on sub-contract, from its own point of view ?
 Under what conditions would the firm like to work only on sub-contract ?
- (vi) *If the firm does not get any of its orders from its customers:*
 Is it aware of the system of sub-contracting ?
 Does it know the firms placing sub-contracts, or willing to do so ?
 What efforts did it make to get a sub-contract ?
 Why did it not succeed ?
 If it did not try this, why not ?
 Does the firm produce goods on orders or in anticipation of orders ?
 How does the firm contact its customers ?
 How does it try to get more orders ?
 Would the firm get all its orders direct from customers, if it got enough orders ?
 What is the difference in price between the price in direct contracts and in the "open market" ?
 What are the firm's future plans: Producing only for the "open market" ? Selling direct to customers ? A combination of the two ?

QUESTION 8 (a)

- (i) Try to get information for every year since 1951, especially 1961 and 1962.
 (ii) Try to get amounts the firm had to pay itself for the assistance: Rs.....

(iii) If the value of the assistance cannot be got, estimate the amount the firm would have had to pay if it had got this assistance on the open market.

QUESTION 8 (b)

Try to assess the firm's attitude to Government, both in general and towards particular agencies (e.g. the Small Industries Service Institute).

QUESTION 9

If necessary, point out that—

- (i) the completed questionnaire sheets have at the top only the *code number* of the factory being studied, not its name and address, so the firm may be willing to let other research organizations use the remaining sheets of the completed questionnaires;
- (ii) any published statistics will refer only to the *industry* in question, not the individual firms of which it is constituted.

EXTRA QUESTION ON THE FIRM'S BACKGROUND

(a) Try to get the type of ownership:

- Single Proprietor
 - Partnership
 - Private Limited Company
 - Public Limited Company
 - or Other,
- in which case please specify.

(b) Try to get the Manager's previous business experience:

Date	Name and address of firm of organization with which the Manager was working at the time (or if he was self-employed, please note this)	His position in this firm/organization	Why he left it
..

(c) Try to get the date of establishment of the firm *in any line of business*.

QUESTIONNAIRE ON THE POSSIBLE RELOCATION IN ASANSOL-DURGAPUR OF
 SELECTED ANCILLARY FIRMS PRESENTLY LOCATED IN THE
 CALCUTTA METROPOLITAN DISTRICT.

CONFIDENTIAL

INSTITUTE OF PUBLIC ADMINISTRATION, NEW YORK
 STUDY OF ANCILLARY INDUSTRIES IN GREATER CALCUTTA AND
 ASANSOL-DURGAPUR

Code number of factory.....

1. *Production*

Name(s) of Product(s) and By-product(s)	Rated Capacity when Production Starts	Location of the Producing Plant(s)
..

2. *Location*

- (a) Have you considered setting up your new plant in the Asansol-Durgapur area ?
 - (b) If "yes", why have you not in fact set up your new plant there ?
 - (c) If "no", why did you not consider setting up your plant in the Asansol-Durgapur area ?
3. Please give any objections you may have to the use of this information for publication.

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