

THE STUDY
ON
THE ESTABLISHMENT OF THE INDUSTRIAL
STATISTICS INFORMATION CENTER
IN
THE SULTANATE OF OMAN

SUMMARY

MAY 1992

JAPAN INTERNATIONAL COOPERATION AGENCY

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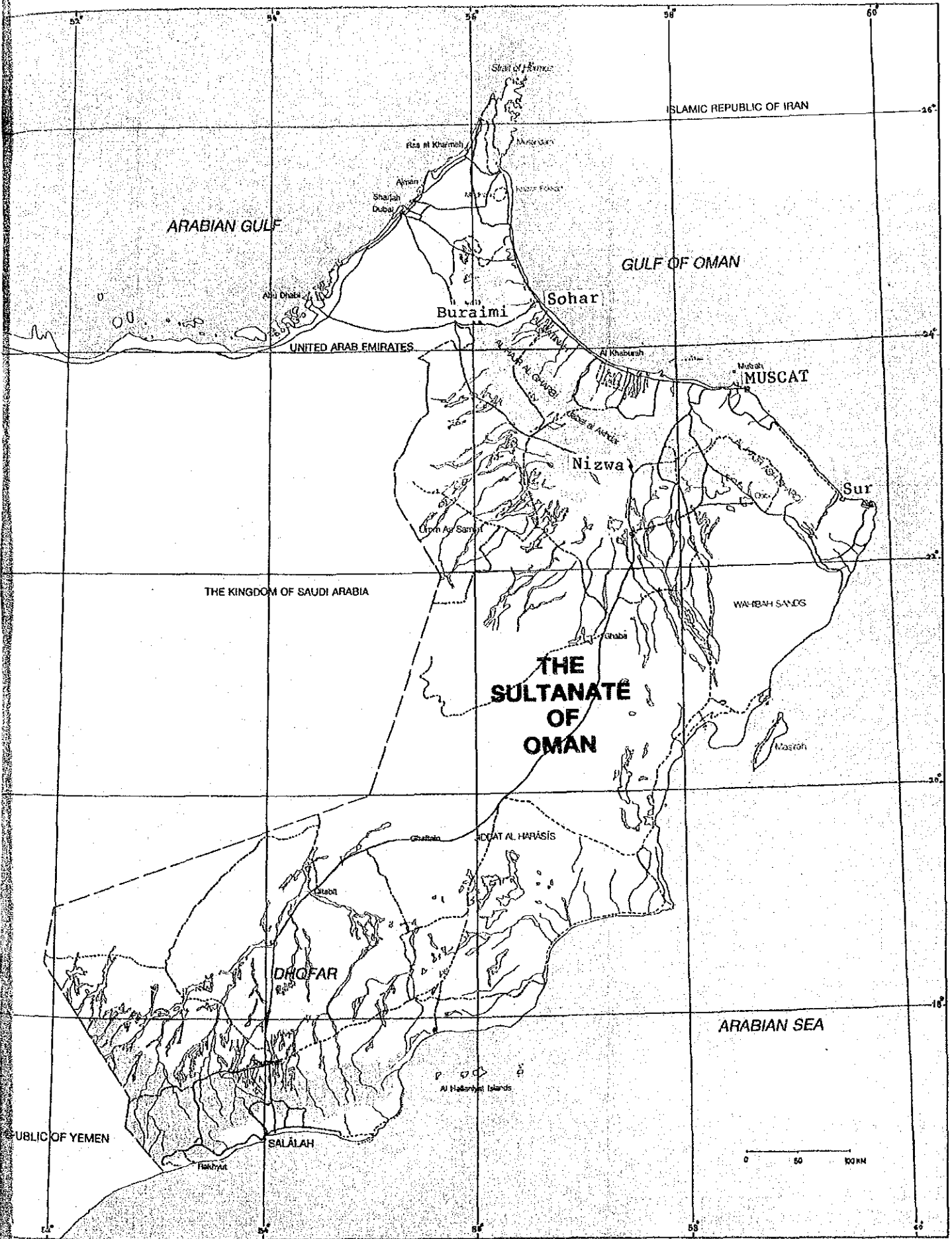
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CHAPTER 1. INTRODUCTION

1.1 Background of the Study

The Sultanate of Oman has adopted a policy of diversification of its oil-dependent economy by encouraging growth of medium and small scale industrial businesses which would enhance utilization of indigenous resources and contribute to the development of the various regions in the country.

However, it is difficult for the government to prepare effective policies since basic statistical data on the status of medium and small scale industrial businesses is limited.

Under these circumstances, the government has decided to establish an Industrial Statistics Information Center which will collect and compile industrial statistical data. Towards this end it has made a formal request for technical cooperation to the Japanese government.

In response to this request, this study has been carried out according to the scope of work with respect to The Study on the Establishment of the Industrial Statistics Information Center in the Sultanate of Oman during the period beginning March 1991 and ending in March 1992.

1.2 Objectives of the Study and its Basic Plan

The purposes of this study are to prepare a concrete program for establishing the Industrial Statistics Information Center, which is designed to provide statistical data on manufacturing industries and to

propose a code system for classification of commodities, which would provide a basic means for statistical tabulations. Simultaneously, conceptual design was made in respect with functional organization and its upkeep and maintenance of the Industrial Statistics Information Center which will be the agency in charge of implementing statistical survey.

1.3 Study Areas

The areas which were visited for the study included the Muscat capital area; the main regional cities, such as Nizwa, Ibri, Sohar, Sur, Ibra and Salalah where the Ministry of Commerce and Industry (MCI) offices are located.

1.4 The Study Team and the Parties Concerned

In addition to the JICA study team, an advisory team from the Ministry of International Trade and Industry (MITI) also participated in the study.

The counterpart agency in Oman is the Ministry of Commerce and Industry, Directorate of Industry. The Directorate of Industry established a steering committee inviting participation of representatives of the Development Council, the Ministry of Labor and Vocational Training (though reorganized in December, 1991 to become the Ministry of Social Affairs and Labor, it will be called nevertheless the Ministry of Labor and Vocational Training in this report as it was so called at the time of study), the Royal Oman Police and the Oman Chamber of Commerce and Industry.

CHAPTER 2. GENERAL OVERVIEW OF OMAN

2.1 Land and Natural Resources

Oman is the second largest country on the Arabian peninsula (310,000 sq. km) and controls the strategically important Straits of Hormuz, where the main shipping lanes to/from the Arabian Gulf pass through Omani territorial waters. The population of the country in 1989 is not officially announced up to now, however, estimated at 2 million for national financial administration planning purposes.

The majority of the Omani population is distributed across the Batina coastal plains in the north.

Oman, an oil producing country, is not endowed with unlimited oil resources, with other oil producing countries on the Arabian peninsula.

The proven reserves of natural gas have increased in the 1980s, but not yet enough to promise an export.

Apart from hydrocarbon resources, Oman is rich in various kind of mineral deposits.

Oman's fishing resources have, according to many past studies, good potential. Traditionally fishing has provided a vital livelihood for the inhabitants of the coastal region; today it provides an important source of non-oil exports.

2.2 The Economy

His Majesty Sultan Qaboos, since his accession in 1970, has been strongly expediting the development of

domestic economy. The infrastructure was prepared and some industries were established during the first Five-Year Plan (1976-80). The following Five-Year Plan (1981-85) subsequently emphasized the creation of infrastructure and promotion of manufacturing industries. The main objectives of the third Five-Year Plan (1986-90) were the creation of infrastructure in regional areas and promotion of agriculture and livestock farming, fisheries and small and medium scale manufacturing industries. Up until that time the basic infrastructure had been prepared and the priority of capital investment had been shifting from the infrastructure sector to industrial sectors.

In the fourth Five-Year Plan (1991-95) which was announced on January 7th, 1991, emphasis is placed on the consolidation of industrial base (restructuring of industrial structure) and diversification into revenue sources other than oil. Total revenues are projected to be RO 8,571 million based on an average oil price of US\$20 a barrel in the coming five years (an increase of 22.8% over 1986-90 actual) and total expenditure is projected to be RO 9,450 million (an increase of 10.2% over 1986-90 actual) supported by predictions of an increase in official revenue.

The increase in Gross Domestic Product (GDP) is an indication of the remarkable expansion of the economy during the said Five-Year Plans. Estimated GDP in 1970 was RO 105 million, but by the end of the second five-year plan in 1985, GDP had increased to RO 3,454 million. However, as a result of the sharp fall in world oil prices in 1986, GDP fell to RO 2,800 million. GDP in 1990 recovered to RO 3,522 million (provisional), due to the increase in oil revenue, and of this amount the oil sector accounted for 44%.

In Oman, dependence on oil revenue is extremely high. Of total revenue oil revenue amounted to 92% in 1980, 85% in 1985 and 81% in 1989. The chronic financial deficit has continued because an increase in expenditure could not be covered by revenue. With the intention of making up the shortage of revenue due to the fall in oil prices, the government took measures such as increasing oil production, cutting down on expenditure; postponing new projects; devaluing the Rial Omani against the U.S. Dollar and curtailing the reserve rate and withdrawal from the State General Reserve Fund. The basic characteristics of national finance are predicted to continue unchanged through the fourth Five-Year Plan, but the financial deficit is projected to decrease substantially during that period.

Following the accession of His Majesty Sultan Qaboos, Omanization is taking place in every field at an ever-increasing pace. In 1990, the labor force in Oman was estimated to number approximately 529,000, 207,000 (39.2%) of whom are considered to be Omani nationals.

The majority of the Omani national labor force is employed in the civil service, agriculture and fishing, while the non-Omani labor force is predominantly employed in private sector commerce, industry, construction, and service businesses.

In order to encourage further Omanization of the private sector, the Omani government has put into effect new measures to promote Omanization of private sector employment beginning in October 1991. The Omani government has set a target of increasing the Omani labor force to 308,000 in 1995, which will be equal to 44.7% of the projected total labor force of 690,000.

2.3 National Policies for Industrial Development

One of the long-term aims of the industrialization of Oman is to provide a firm foundation for sustainable economic growth. By the end of 1989 light manufacturing industry had achieved such remarkable growth that its contribution to the national economy was 4.2% of the GDP. There has also been considerable success in substitution for imported construction materials and household necessities.

Decentralization of manufacturing activities is a consistent strategic policy of the government in order to smooth out existing income and employment differentials between the capital area and rural areas, and to disseminate the fruits of industrial development to rural areas.

In reality however, industrial activity in rural areas seems to be significantly limited by the small size of local markets and lack of skilled manpower. And also supporting measures provided by the government to promote regional manufacturing enterprises have not yet necessarily obtained the expected results due to lack of specific local information concerning status of industrial activity in rural areas.

The following summarizes industry-related items in the fourth Five-Year Plan.

- (1) Increased commodity production sector revenues are targeted. For that purpose, 11.1% annual growth of the GDP has been targeted, except for services producing sectors.
- (2) Industries, mining, agriculture and fisheries which are related to the utilization of indigenous

resources shall be strengthened.

- (3) Well balanced development shall be implemented so that 60% of government public expenditures shall be allocated to the development of rural developing areas in order to smooth out regional differentials between areas.
- (4) Development of human resources shall be promoted in order to improve the role of Omani nationals in the national economy, while balance between demand for and supply of Omani workers shall be attained in various sectors.
- (5) Competition in the private sector shall be encouraged by providing various incentive measures, tax relief, low interest rate loans and grants for manufacturing business plans so that a free market oriented economy shall be realized.

2.4 The Government and Local Administrative Institutions

The present state administrative system comprises of a Cabinet of Ministers, the Cabinet Secretariat, Specialized Councils, the State Consultative Council and the Governorate of the Capital and Ministries.

The Cabinet of Ministers is the highest executive authority, deriving its power from His Majesty the Sultan to whom it is collectively responsible.

For administrative purposes, the Sultanate is divided into 59 Wilayats, each of which has a Wali (Governor).

2.5 Social and Economic Infrastructures

An education program has been given the highest priority over the past 20 years.

The number of schools for general education at the primary, preparatory and secondary level had increased to 363 by 1979/80 and 741 by 1989/90. The number of students had also increased to about 95,000 and 323,000 respectively. The greatest achievement in the development of the education system was the opening of the Sultan Qaboos University in 1986.

The extension of road networks has been regarded as one of the most important factors in infrastructure development. The length of paved road in 1970 was only 10km. However, it has steadily extended to about 4,600km in 1989. Now major roads from the capital area to provincial towns are paved.

Now there are two international airports, one at Seeb to the west of Muscat and one in Salalah.

There are two modern harbors for general cargo, at Qaboos and Raysut, but only one oil port at Mina Al-Fahal in the capital area.

Omani's electric generating capacity in 1970 was no greater than 4MW. However it has since steadily grown to as much as 593MW in the Muscat region, 111MW in the Dhofar region, and 270MW in other region by the end of 1989. Electric generation facilities that have been constructed in recent years are either the gas turbine or the steam turbine type, quickly replacing diesel power generation in rural areas.

As of 1987, 78 post offices had been opened. Although ISD (International Speed Delivery), a special house-to-

house delivery service, operates in the Muscat capital area, the majority of the population still depends on a post office box service. Introduction of a house-to-house delivery service is under consideration for commencement in 1992.

A telecommunication center was constructed in 1984-1985 in a suburb of Muscat. The total number of telephone channels as at the end of 1990 was 143,580, out of which 96,800 channels interconnected subscribers in various areas.

CHAPTER 3. OUTLINE OF THE INDUSTRIAL SECTOR

The Omani government has set forth a challengingly high target of 12.9% annual growth rate for manufacturing sector to be attained in their fourth Five-Year Plan. This chapter will discuss policies being implemented by the Omani government in the field of industrial sector; industry-related regulation in general; industry-related licensing and registration systems, as well as policies to encourage growth of industrial activities.

3.1 Roles and Targets of the Industrial Sector

The share contributed by the oil sector to the GDP was 59.18% in 1981 but had decreased to 45.26% in 1989. Despite this reduction, its share is still high and the oil sector is a very important element of the national revenue.

The government has been attempting to shed their monoculture type economy and to reduce the influence of oil price fluctuations on the national economy as much as possible. Promotion of manufacturing industries is a principal component of the national policy targeted to that purpose.

The dispersion of business establishments in regional areas is expected to have the following results:

- (1) To advance the regional economy and to create employment opportunities for local inhabitants.
- (2) To stabilize the regional economy and to allocate national wealth more evenly, preventing emigration of the rural population to the capital area and reducing social dissatisfaction.

In order to achieve these results, in the fourth Five-Year Plan public expenditure allocated to the capital area has been reduced in order to substantially increase allocations to regional areas.

As manufacturing industries in Oman are primarily light industries, they are expected to play an especially important role. The Omani government expects promoting light industries to have the following effects.

- Use of indigenous raw materials other than oil.
- Import substitution to save foreign currency.
- Creating value added through industrial activity.
- Creating investment opportunities for internal and external investors.
- Accumulating production technology and know-how, and factory management by Omani nationals.
- New market development internally and externally, especially in Arabian Gulf countries.

3.2 Industrial Licensing and Registration Systems

(1) Industrial-Relation Laws

The following is a brief description of the characteristics and particulars of principal Omani laws, with respect to commercial/industrial activities.

1) Commercial law

The Commercial Law is positioned as a nucleus of commercial activity-related laws. The law stipulates that commercial books - a day book and a stock book at least - must be kept by an

enterprise. Despite this legal stipulation, actual final account statements and balance sheets are not usually so well prepared, especially in establishments with fewer than 10 employees, according to sample interviews.

2) Commercial Registration Law

The Commercial Registration Law stipulates the legal basis of the commercial registration system.

3) Commercial Companies Law

Commercial Companies Law defines five forms of commercial companies: general partnerships, limited partnerships, joint ventures, joint stock companies and limited liability companies. It stipulates the conditions of establishment, organization and management of these companies. According to the Statistical Year Book 1989, 80.9% of all companies in Oman take the form of sole proprietorships.

4) Law for the Organization and Encouragement of Industry

This law was enacted in 1979 for the purpose of further development and diversification of the industrial sector. It gives a legal basis to the industrial licensing and registration system and the various government policies encouraging industrial companies.

5) Royal Decree No. 40/87 - Financial Support System for the Private Sector in the Field of Industry and Tourism - stipulates detailed regulations for governmental interest-free loans for industrial

projects (one of the policies encouraging industrial companies).

- 6) Law of Income Tax on Companies stipulates taxation on the business profits of all "Companies" and "Sole proprietorship entrepreneurs" in Oman.

The law was instituted and amended several times during the 1970s, but has not been put into force so far, except for taxation of foreign companies and Omani companies with a certain proportion of foreign equity to total capital. However, it was finally decided, in May 1991, that all fiscal 1992 income of Omani sole proprietorship entrepreneurs and companies wholly owned by Omani nationals shall be subject to taxation in 1993.

- 7) Omani labor law covers a wide range of regulations applicable to employees, employers and their interrelations.

(2) Licensing and Registration Systems

Oman has licensing and registration systems for industrial activities.

1) The Commercial registration system

Subjects of registration are all business establishments in Oman, including foreign establishments, with the exception of those of less than RO 3,000 capital. Each applicant applies to the Ministry of Commerce and Industry or one of its regional offices to register its name, location, proprietorship and other details within one month of the date of commencement of business. The Ministry of Commerce and Industry

checks each application and gives a registration number to each establishment.

As for renewal of registered data, the Commercial Registration Law stipulates that each amendment or change with respect to any items in the registration shall be reported by the establishment within one month of their occurrence. However, this legal requirement is not actually fulfilled by the establishments. Because the valid period of registration is decreed not to exceed 5 years for each establishment, registration data is updated at least every five years by re-registration.

According to the Statistical Year Book, 1989, the number of registered establishments was 39,397.

2) Industrial licensing and registration

In addition to commercial registration, all manufacturing establishments are required to apply for industrial licensing and registration.

Each applicant, prior to starting his business operation, must submit particulars of the proposed establishment to the Ministry of Commerce and Industry. After check and examine the industrial license is issued with a license number. Thereafter, the establishment should begin operations within six months of receiving the license.

Within three months from the start of operations, the establishments must apply to Ministry of Commerce and Industry for industrial registration with more actual information than that required for the licensing application.

When the Ministry of Commerce and Industry has received the application, tentative registration is achieved after an initial inspection by the Follow Up and Control Section of the manufacturing site. When the initial inspection is completed satisfactorily the registration is formally completed.

Approval and registration of industries is primarily administered by the head office of the Ministry of Commerce and Industry, but regional offices also administer approval and registration of certain industries. Since September 1991 however, the power has been modified to encompass twelve types of industries with capital investment no greater than RO 100,000.

Foundation of manufacturing establishments with capital investment greater than RO 250,000 requires approval of a committee organized by the Ministry of Commerce and Industry, Directorate General of Industry and any relevant governmental agencies, in order to prevent unnecessary competition.

3) Labor clearance and labor card system

Labor clearance must be obtained from the Ministry of Labor and Vocational Training or its regional offices by every employer employing expatriate workers. Before obtaining labor clearance the employer must submit a questionnaire including a detailed description of the employment situation and information on its management.

A labor card must be obtained and renewed every year by each expatriate worker. It is given to each expatriate worker through the employer. The labor card lists name of the firm, commercial registration number, the worker's name and nationality, the location of the firm and the International Standard Classification of Occupation (ISCO).

4) Foreign business and investment law

Any non-Omani individual or company who plans to engage in business must obtain a permit from the Ministry of Commerce and Industry before starting business, under the provisions of the Foreign Business and Investment Law.

5) Membership in the Chamber of Commerce and Industry

Every establishment granted commercial registration must join the Chamber of Commerce and Industry. However, membership is not enforced by law.

3.3 Industrial Development Policies of the Ministry of Commerce and Industry

In line with national strategies, the Ministry of Commerce and Industry (MCI) protects infant manufacturing enterprises, in direct or indirect ways, from import competition.

Direct protection measures consist of:

- Custom duty exemption for imports of materials required for domestic production activities

- Introduction of tariff protection, in very special, exceptional causes.
- Provision of interest-free or low interest loans to industrial firms
- Subsidized utility rates for production activities.

An indirect package of incentives to local enterprises is summarized as follows:

- Exemption from income tax for five years from the commencement of the operation
- Provision of industrial estates in prospective industrial regions
- Encouragement of local investors and entrepreneurs through preparation of feasibility studies for promising industrial projects

3.4 Activities and Structure of the Industrial Sector

It is not exaggerating to say that the industrial sector in Oman is composed primarily of manufacturing industries (light industries), with the exception of the oil producing industry. The number of large scale manufacturing enterprises and/or nationalized enterprises is very limited and details of their activities are known with relative accuracy. What is problematic is the activities of small size enterprises and/or sole proprietorship which comprise the majority of industrial enterprises in Oman. No information is available for their activities other than industrial registration records.

The total number of registered manufacturing establishments was 3,342 at the end of 1989.

(1) Characteristics of Industrial Establishments as Revealed by Industrial Registrations

1) Capital size of establishments

The majority of establishments are small scale establishments whose capital is not greater than RO 25,000.

2) Legal status

Establishment by sole proprietorship is the predominant form. More than 80% of registered establishments are of sole proprietorship. Conversely, limited liability companies and joint stock companies are few in number as shown in the following table.

Legal status	Number	%
Sole proprietorship	2,703	80.9
General partnership	383	11.5
Limited partnership	87	2.6
Limited liability	135	4.0
Joint stock	34	1.0
Total	3,342	100.0

3) Types of industry

Manufacturers of non-metallic mineral products are in the majority. This category, including concrete block and brick manufacturers, comprises 54.8% of establishments. The second ranking category is carpentry, 22.1% and the third is fabricated metal products, 16.3%. These three industries cover 93.2% of the total.

(2) Manufacturing Industry in Oman as seen through the Study

- 1) The number of registered establishments mentioned above includes a considerable number which have discontinued or changed their trades. On the other hand, a number of establishments which are operating without registration is relatively small, so that the number of establishments actually operating is much smaller than that indicated by the 3,342 industrial registrations.
- 2) Industrial registration records indicate that the large majority of establishments is engaged in the manufacture of non-metallic products (concrete blocks, bricks), construction-related carpentry and manufacture of fabricated metal products. These kind of establishments operate with very few Omani employees and simple manufacturing facilities, sensibly responding to business trends. Also they discontinue or change their trades very frequently.
- 3) Manufacturing industries which can utilize indigenous raw materials are very few including manufacture of concrete blocks and aggregates. A large majority of manufacturing industries import raw materials, however the cost of imports is relatively higher than that the competitors in Dubai and similar places.
- 4) The amount of capital investment indicated in industrial registration records represents a projected amount as entered in the application form by applicants. It is therefore probable that the projected amount and the actual amount invested vary considerably, and the actual distribution of establishments according to

amount of capital investment may differ considerably from that indicated by industrial registration records. However, it is the case that small scale sole proprietorship enterprises form the large majority as indicated by registration records.

5) Very few enterprises are found to be well managed by Omani national entrepreneurs or by Omani national managerial staffs. Omanization of the private sector leaves something yet to be desired both qualitatively and quantitatively.

6) Manufacturing businesses are rarely linked with each other through a system of division of work. No linkage system has been observed so far. The main reasons would be:

. The history of industrialization is very short.

. The majority of establishments are small scale and there are few large scale factories with relatively large amounts of capital.

. Almost all manufacturing processes in use are very simple.

(3) Overview of the Traditional Handicraft Sector

The system of industrial registration in Oman as administered by the Ministry of Commerce and Industry does not include the handicraft sector because of the definition of industries to be registered.

According to the International Standard Industrial Classification (ISIC) however, the handicraft sector should be categorized for inclusion in the manufacturing sector, and therefore it was intended

to investigate the status of the handicraft sector in Oman to determine whether or not the handicraft sector should be included in industrial statistics.

Insofar as the study conducted by the Study Team is concerned, the contribution of the handicraft sector to the national economy in terms of employment and/or products is considered minimal. No ministry controls comprehensively this sector, however, the Ministry of National Heritage and Cultures and the Ministry of Social Affairs have started some supporting programs and surveyed partially.

3.5 Exports, Imports and Competitiveness

The total value of exports from the Sultanate of Oman in 1989 was 1,512.2 million Rial Omani (hereinafter denoted MRO in this section), while the value of imports was 868.0 MRO. Foreign trade in 1989 showed a favorable balance of 644.2 MRO. A favorable balance was stably maintained throughout the 1980s, except in 1986 when price of crude oil fell.

Export of crude oil earned 1,344.4 MRO in 1989, accounting for 88.9% of total exports. The remaining 11.1% consisted of cars re-exported, base metals and articles thereof, and live animals and animal products.

The leading category of imported goods was machinery and mechanical appliances, accounting for 180.7 MRO.

The second largest category of imports was vehicles, accounting for 133.1 MRO, of which re-export of imported passenger cars amounted to 30.8 MRO (of which re-exports to the U.A.E. totaled 29.2 MRO).

The third largest category of imports was base metals and articles thereof, accounting for 78.7 MRO. Iron

and steel and articles thereof, and aluminum and articles thereof marked 50.6 MRO and 20.2 MRO respectively.

The fourth largest category of imports was edible plant products, the fifth largest category of imports was live animals and animal products and imported items in categories six to ten were products of chemical or allied industries, prepared foodstuffs, beverages, etc., textiles and textile articles, precious metals and stones, pearls, etc. and articles thereof, and optical or photographic instruments, clocks, watches, etc.

3.6 Roles of Industrial Statistics

As was mentioned earlier, the Omani government is implementing various measures to encourage the development of industries and is therefore urgently in need of industrial statistics in order to review impact of the measures already implemented and to plan more effective measures.

Concrete examples of how to utilize industrial statistics are:

- To classify industries into those which are in need of governmental assistance in terms of capital investment and those which are self-supporting by having been able to substantially contribute to the national economy, having already established conditions required to support themselves. This will enable them to take a second look into the program of governmental assistance in terms of capital investment.

- To identify segments of business with a high bankruptcy failure rate after having made capital investment in order to review the effectiveness of the current industrial registration system.
- To monitor by way of industrial statistics the level of employment of expatriate workers and their economical weight.
- To monitor the ratio between indigenous raw materials and those imported for input into manufacture.

Furthermore, the private sector in Oman which consists primarily of medium and small scale establishments is not capable of collecting macroeconomic information of market trend by itself and this is necessary for introducing marketable products and developing prospective businesses.

In view of the above, there is an urgent need for administrative government agencies to establish such an Industrial Statistics Information Center not only for their own use but also in order to provide timely statistical information to the private sector which is in need of such information.

CHAPTER 4. THE NEED FOR INDUSTRIAL STATISTICS AND THE STATISTICAL SURVEY ENVIRONMENT

4.1 The Need for Industrial Statistics

At present, the only industry related data sources available to statistics users are the industrial registration records and the expatriate labor clearance data files. However, the registration data is not sufficiently up-to-date to give a comprehensive picture of the Omani manufacturing industrial sector, since the renewal system does not work effectively for updating registration data.

Meanwhile, the expatriate labor clearance data file, despite its better annual renewal system, does not contain a rich variety of data when viewed from the industrial statistics point of view.

The survey data collected by the Directorate General of National Statistics from sample establishments is biased to a small number of large scale enterprises and to those located in Muscat capital area. Thus it has limited value as reliable industrial statistics data.

Consequently, the need of users for reliable statistical data on the industrial sector can only be satisfied by a newly planned, comprehensive Industrial Statistical Survey.

(1) General needs

- 1) Accurate statistical data on manufacturing establishments is required for measurement of the national economy (SNA). So far, only limited statistical data, limited both quantitatively and qualitatively, have been available.

- 2) Needs exist to correctly identify the comprehensive status and structure of manufacturing industry's input and output, as well as impact of governmental policies and response of industry to governmental policies.
- 3) The general future trend is towards more frequent surveys of trends in production, inventory, productivity and prices in the manufacturing industry. Industrial statistical data are expected to provide a framework (universe) useful for determining representative sampling of establishments to be surveyed.

(2) Detailed needs

- 1) To statistically identify indigenously available raw materials for use in production.
- 2) To statistically identify finished goods for export and for local consumption, and to statistically identify export oriented processing industries.
- 3) To statistically identify the extent of Omanization in various production resources, in particular in capital and manpower.
- 4) To identify the situation of enterprises which are supported by governmental loans.
- 5) To identify the pattern of distribution of manufacturing establishments in capital area and in rural areas.

- 6) To analyze the value added by various sectors, classified by type of industry, region, and size of establishment.
- 7) To statistically supplement items of data which reflect market trends.
- 8) To identify trends in demand for electricity, water and fuel required for manufacturing activities.
- 9) To identify the fixed capital owned by enterprises as a representative indicator of capital investment in manufacturing activities.
- 10) To consult entrepreneurs adequately for establishing and managing medium and small scale manufacturing establishments by using industrial statistical data.

4.2 The Statistical Survey Environment

Implementation of the Industrial Statistical Survey Program will be affected, more or less, by the social environment including: availability of institutional and human resources; positive or negative attitudes of the respondents (proprietors or managers of establishments); the extent of bookkeeping or business record keeping; possible coordination between various statistical and administrative data files controlled and maintained by different governmental agencies; and the address system and the extent of dispersion of establishments.

(1) Legal and Institutional Basis

The Statistics Law is the sole law currently in effect in the Sultanate of Oman to govern a statistical survey. The Statistics Law stipulates, among other things, the following points.

- 1) The tasks to be fulfilled and duties to be carried out by the Directorate General of National Statistics
- 2) The duty to keep all collected data strictly confidential
- 3) Prohibition of the use of all collected data for any purpose other than statistics
- 4) The duty of governmental agencies, enterprises and individuals to provide all data other than that related to national security to the governmental agencies in charge of implementing the statistical survey
- 5) Penalties chargeable to those who violate the above-mentioned duties, in order to ensure implementation of a smooth and accurate statistical survey
- 6) Stipulations concerning statistical surveys other than those under the jurisdiction of the Directorate General of National Statistics
 - Stipulations concerning statistical surveys carried out by individual governmental agencies
 - Stipulations concerning marketing surveys taken by enterprises and establishments and publication of the results thereof

(2) Availability of Institutional and Human Resources

It should be recognized that the regional offices are in the best position to know the status of manufacturing establishments dispersed and operating within the region of their jurisdiction. In addition, the extent of power and authority sanctioned to regional offices is gradually being expanded under a process of decentralization of the administrative organization. Consequently, direct participation of regional offices in the implementation of the comprehensive industrial statistical survey program is indispensable for the success of forthcoming Industrial Statistical Survey.

No redundant reserve to supply the number of field enumerators that may be required for conducting the Statistical Survey is found in any existing governmental institution or any other related institutions. However, the number of people required for the Industrial Statistical Survey is not so many, and the required human resources reserve may be much smaller than what may be required for the National Census survey. No difficulty is foreseen in securing human resources as long as appropriate administrative steps would be taken.

(3) Attitude of Respondents and the Extent of their Bookkeeping and Business Record Keeping

Results of the study are as follows.

- 1) On the whole, key personnel at surveyed establishments responded favorably and assured that they would cooperate with the forthcoming Industrial Statistical Survey to be conducted by the Ministry of Commerce and Industry. However,

small scale manufacturing establishments, have no full-time working managers.

Hence, it may be necessary to visit establishments 3 - 4 times for enumerators to finish their duties.

- 2) A typical small scale establishment is operated by one proprietor and three to four expatriate workers; office business record files consist only of invoices and receipts. Under those circumstances, it is therefore easy to see that the handling of these small scale establishments will have a serious impact on the duration and accuracy of the survey.
- 3) Very few establishments have ever produced financial reports in the past. However, many expressed their readiness to produce financial reports by the end of fiscal 1992 in preparation for the implementation of the company income tax system. The general trend would thus be favorable for the forthcoming Statistical Survey. However, it is not clear that the accounting system has commodity ledger book which indicates individual commodity's receipt and delivery.

(4) Status of Computerization in Oman

- 1) Computers have been put to large scale use in Oman only since five or six years ago, primarily by government agencies and major enterprises such as banks. Those institutions are mainly using general purpose medium size computers and mini-computers.

The use of personal computers is becoming pervasive, primarily for business transactions.

The curriculum of computer schools located in Muscat around the use of software for tabulated calculations or data base, thus encouraging pervasive use of personal computers.

2) Status of the utilization of computers by the Ministry of Commerce and Industry

The Ministry of Commerce and Industry established its own Computer Department in order to promote ministerial computerization using general purpose mini-computers. The staff currently consists of nine members including one project leader, one system analyst, four programmers and three miscellaneous staff members. There are nine software systems being developed or operated by the Department including a commercial registration system, an industrial registration system, an agent information system, a personnel affairs and payroll system, a project evaluation/loan evaluation system and three systems of miscellaneous characters. Various department of the Ministry have requested that the Computer department develop systems for them, hence it is quite busily occupied by trying to cope with those requests in a timely manner.

(5) Existing Governmental Statistics and the Program of Reinforcement

The Statistical Year Book, published by the Development Council, carries all available governmental statistics. Besides the Year Book, there exist only a very few governmental statistics publications, such as the "Quarterly Bulletin on Main Economic Indicators" published by the Development Council, and "Foreign Trade Statistics" put out by the Royal Oman Police.

Various kinds of records and data are collected by the individual ministries as a result of their activities, such as licensing, registration, issuing permits and so on. However, those source data are directly compiled and published by the ministries themselves. In addition, according to the statistics law, individual governmental agencies shall supply copies of results of statistics to the Directorate General of National Statistics.

However, the Ministry of Defense and other public security agencies are in principle exempt from obligation to disclose data in their hands. Customs data held by the Royal Oman Police are not exempt.

The principal statistical survey programs planned by Omani governmental agencies include the following.

- 1) Comprehensive National Census program administered by the Directorate General of National Statistics, Directorate of Population Survey

The first national census in Oman is scheduled for implementation in 1993. Preparatory work by the Directorate General of National Statistics of the Development Council, including restructuring of its own internal organization, is under way, and a new Royal Decree concerning implementation of the National Census Program has been issued.

The Development Council signed an agreement with UNDP at the end of 1991 with respect to financial and technical assistance to the National Census Program.

2) Annual Statistical Survey of Industrial Establishments by the Directorate General of National Statistics, Directorate of Economy and Finance

The Survey has been under way since 1990. The primary objective of the Survey is to collect industrial establishment data that can be used in measurement of the national accounts.

During the survey conducted in 1991, the questionnaire was distributed to a sampling of 300 establishments of relatively large scale, and 200 questionnaires were collected.

3) Agricultural Census Program administered by the Ministry of Agriculture and Fisheries

The Ministry of Agriculture and Fisheries' Directorate of Statistics is expected to implement a second agricultural census program in 1992. A two and a half year period is scheduled for the survey.

The census will be conducted comprehensively by a private consulting company under contract to the Ministry of Agriculture and Fisheries. During the survey, staff of the Directorate of Agricultural Statistics will be given training so that they can directly conduct a future survey of the same kind by themselves. A steering committee has been established within the Ministry in preparation for and for internal coordination of the Survey.

Table 4-2-1 summarizes the status of governmental statistics.

Table 4-2-1 Existing Governmental Statistics and Programs of Reinforcement

Governmental Statistics	Data collection	Publication	Other Notes
(1) Trade Statistics			
* Foreign Trade Statistics	By Royal Oman Police Department of Customs Based on invoices and packing lists	Independently published by Royal Oman Police	HS code; coding by traders can be increased to 8-digits.
* Quarterly Bulletin on Foreign Trade Statistics	ditto	Through Development Council every three months	Data are transferred to Development Council by magnetic tapes. Petroleum-production is excluded.
(2) Labor Statistics			
* Monthly Statistical Bulletin	Based on Expatriate Labor Card Data System of Ministry of Labor and Vocational Training and Industrial Registration data of MCI	Through Development Council monthly statistical Bulletin and Oman Statistical Year Book	Employment of Omanis in private sector is not clear.
(3) Statistics on Establishments			
* Annual statistics of manufacturing establishments	Data is collected by Directorate General of National Statistics, Directorate of Economy and Finance by the survey of sampled large scale establishments	Not published	
* Industrial Establishment Registration System of MCI	Based on Industrial Establishment Registration records Transferred to Development Council (Yearly)	Through Development Council's Year Book Glance on Industrial in Oman	
(4) Agricultural Census	Every 5 years	Through Development Council's Year Book	
(5) Statistics on Household Economy	Development Council samples randomly households to be surveyed		Irregular survey of randomly sampled households

(6) Other Governmental Statistics and Administrative Data Files

Governmental statistics and administrative data files that have some relation to the industrial statistics are as follows:

- Commercial Registration, Industrial Licenses and Registration (controlled by the Ministry of Commerce and Industry).
- Application for Approval of Expatriate Laborer and Labor Card system (controlled by the Ministry of Labor and Vocational Training).
- Import/Export Statistics (controlled by the Royal Oman Police).
- National census (planned by the Development Council, Directorate General of National Statistics) (census of population, households, and enterprises)

Appropriate mutual coordination is required for working with statistics, data files and the forthcoming industrial statistical data to prevent unnecessary duplication of data and to maintain proper linkage and comparability.

In fact, study of possible coordination among these statistics systems has been just started by two committees in Oman, one being the Consultative Committee for Statistics sponsored by the Development Council, and the other being the Industrial Statistics Steering Committee sponsored by the Ministry of Commerce and Industry.

1) The Consultative Committee for Statistics

The committee, which was organized in 1991 under the jurisdiction of the Development Council, consists of representatives from the Development Council, the Ministry of Commerce and Industry and seven other ministries, the Muscat Municipality, the Royal Oman Police, the Central Bank, the Chamber of Commerce and Industry and Sultan Qaboos University.

The committee started to operate quite recently and the actual case of coordinating activities it has undertaken are not known.

2) The Steering Committee in relation to the Industrial Statistics System

The Committee was organized in June, 1991 within the Ministry of Commerce and Industry in order to coordinate and link the industrial statistics system, soon to be established in Oman. There will be statistical and administrative files concerning the manufacturing industry and products under the jurisdiction of ministries other than the Ministry of Commerce and Industry. The Committee consists of representatives at the departmental director level from the Ministry of Commerce and Industry, the Royal Oman Police, the Ministry of Labor and Vocational Training, the Chamber of Commerce and Industry and the Directorate General of National Statistics of the Development Council.

The Committee will follow the progress of planning for the industrial statistics system and will discuss and resolve any and all problems presented to it for coordination.

(7) Building Addresses and Maps

Correct building addresses and accurate maps of areas to be surveyed are indispensable for conducting a statistical survey.

Institution of an address system, together with building and road maps, is complete in the Muscat capital area, but no address system has yet been introduced in other regions of Oman. Certain maps drawn up by regional offices of the Ministry of Housing for use in planning new towns can be utilized as the basic maps for conducting the industrial statistical survey.

(8) The Pattern of Distribution of the Establishments

The general trend in Oman is to separate factories from residential and commercial districts and relocate them in dedicated industrial districts.

In the Muscat capital area, most manufacturing establishments have been relocated in special purpose manufacturing blocks, leaving only a small number of small scale bakeries and print shops still located in residential and commercial blocks.

A similar trend is taking place in rural regions and is expected to progress even further. Nationwide, the pattern of distribution of manufacturing establishments is not towards dispersion.

Because the pattern of population distribution in Oman is dependent upon the distribution of water resources, people are concentrated in dotted villages, and manufacturing establishments are located in those same dotted villages. Such a pattern

of location is favorable for a survey of the total number of establishments.

However, as mentioned earlier, since no address system is in use in rural regions, it is rather difficult to visit specific establishments.

CHAPTER 5. ISSUES CONCERNING THE STATISTICAL SURVEY

This chapter discusses issues to be resolved in order to implement the Statistical Survey.

5.1 Institutional Aspects

In the Sultanate of Oman, the Statistics Law is currently the sole legal basis.

The law includes no provisions for the detailed administrative procedures that may be required in order to plan the industrial statistical survey. It is therefore necessary to issue an additional Ministerial Decree and/or legal actions to define such administrative procedural details as may be required to implement the planned survey.

Though it appears certain that the Industrial Statistics Unit, after having completed its duty as a preparatory body for the Industrial Statistics Information Center, will eventually be integrated into the Center, whether the Center will remain as a part of the Ministry of Commerce and Industry, the Directorate General of Industry, or will be upgraded to an independent organization, or will be positioned as a staff organization attached to the Minister of Commerce and Industry can not be determined simply by consideration of its functions.

For the time being, the Directorate General of Industry, the counterpart agency, is believed to favor organizing the Center within the Directorate General of Industry in consideration of practical, administrative and organizational aspects.

Although this choice is the best one for the time being, the Center should be upgraded to higher than directorate status, possibly as a consultative staff attached to the Minister of Commerce and Industry, in the next stage of implementing industrial statistical survey or planning commercial statistical survey.

It is indispensable to enlist the participation of the regional offices of the Ministry of Commerce and Industry in the Statistical Survey. It is necessary to request cooperation of those offices in finding the human resources available for enumerators in each region, as early as conveniently possible, in confirmation of the policy of the Ministry of Commerce and Industry.

5.2 Statistical Planning

(1) Scope

No problem is foreseen in identifying the "manufacturing industry" as the subject of the Survey. Whether or not handicrafts are included would have a considerable impact on the volume of survey work. The current definition used by the Omani industrial registration system does not cover handicrafts. Nor are handicrafts included in the jurisdiction of the Ministry of Commerce and Industry. They are under the jurisdiction of the Ministry of National Heritage and Culture and partially under the jurisdiction of the Ministry of Social Affairs and Labor. Accumulation of administrative data is expected to commence soon.

Inclusion of traditional art and handicraft manufacturers into the Industrial Statistical Survey should be delayed for the time being. This is

because value of production does not affect on statistical results so much although they have large number of establishments and because of avoiding duplication with surveys by other Ministries. However, three establishments operated by the government using mechanical means to produce these articles should be included, though they are not yet included in the industrial registration system.

(2) Directory of establishments

Though it is necessary to prepare a directory of establishments before conducting any industrial statistical survey, the sole data source available at the moment is the industrial registration data. As is well known, however, the industrial registration data is believed to have many shortcomings in its coverage of establishments and the up-to-dateness of its data, especially those concerning small scale establishments, since it lacks an effective data renewal system. The Industrial Statistical Survey program, if and when implemented, will produce a complete and updated directory.

In Oman, since small scale establishments are generally operated by only a few workers with extremely simple equipment and tools, these establishments can easily suspend or terminate operations depending on the demand trend for their products. Therefore, they are not a stable target for statistical survey and the matter presents a very serious problem for the future maintenance of a directory list.

A systematic method of maintaining the directory list, if established, would alleviate a considerable burden placed upon enumerators in conducting yearly statistical survey.

(3) Identification of manufacturing industry

In Oman, the manufacturing industry is legally defined. In theoretical terms, no problem exists regarding the identification of manufacturing industry. However, in an actual statistical survey, guided by an incomplete directory list, many establishments not included in the directory list would be identified during field enumeration. Individual enumerators will be obliged to judge whether or not those establishments ought to be included.

The type of judgment most likely to cause confusion for enumerators is the distinction between repair work (part of the service industry) and manufacturing work. To avoid this confusion, it is important to train enumerators by way of concrete examples (refer to 3.2.2 (2)-3)) so that they will be able to make a correct judgment.

5.3 Data Collection

(1) Survey Frequency

The manufacturing industry in Oman, which is the subject of the industrial statistical system are still unstable so that they are quite likely, year by year, to undergo changes in response to the condition of national economy and trends in market demand. For this reason, if the interval between industrial statistical surveys is unreasonably long (say, more than 2 years), the data will soon become out of date and will not fulfill the purpose of the industrial statistical system nor fully satisfy the needs of users. On the other hand, in Oman, no firm base for monthly or quarterly statistical surveys is yet

available. Consequently, it would be best to conduct industrial statistical surveys every year.

(2) Supply of Enumerators

The Ministry of Commerce and Industry and other government agencies do not have sufficient redundant human resources to furnish enumerators in large numbers.

It is anticipated that mobilization of enumerators will be most difficult in Muscat capital area. In that area, there is no choice but to begin the survey by mobilizing enumerators from multiple sources and to establish a system of enumerator registration in order to upgrade number and quality of enumerators through gradual training and accumulation of experience.

(3) Lack of Address Markings and Difficulty in the Search for Establishments

It can be observed that systematic numbering signs are being assigned to and displayed on roads and houses in increasing numbers in Muscat capital area, although those numbers have not yet been introduced into the address declaration system used for industrial registration or any other registrations.

(4) Enumeration Maps

The maps which would be available for the industrial statistical survey, are the block maps approximately 800 published and controlled by the Muscat Municipality. It has been confirmed that the regional offices of the Ministry of Housing are using detailed maps for land utilization planning in certain regions other than Muscat. However, detailed

maps are not always available in every region.

Enumerators will be required to prepare detailed sketches during their survey in the areas where no detailed maps are available. In general, rural towns and villages have few roads and buildings are not congested. To prepare sketches is considered relatively easy and not overly burdensome for enumerators.

(5) Anticipated Delay in the Filling-Out of Questionnaires by Establishments

Many establishments, in particular those of small scale, are not always cooperative in returning filled-out questionnaires because their bookkeeping is not always adequate and they often find it burdensome. The fact that the person responsible for completing the form is not always present in many small scale establishments may also result in delay in returning questionnaires.

It is therefore necessary recruit enumerators who are capable of effectively urging quick return of questionnaires and to review the design of questionnaires and it's manual.

(6) Reliability of Entry

Though data is obtainable with considerable accuracy with respect to employment, sales amount, investment cost and consumption of utilities, other data is often not very accurate even when made available, especially so in the case of small scale establishments.

Enumerators should be required to thoroughly check and examine filled out questionnaires when they have been submitted.

(7) Efficiency of Survey Activities

The field survey was conducted together with part time enumerators by distribution, collection, check and examination of questionnaires through the visit to establishment. This experience shows efficiency of survey activities is significantly affected by methods to control the behavior of enumerators. It is necessary, in addition to providing manuals for enumerators, (Appendix 12), work procedures (Appendix 11) and management records (directory list, control record), to structure an organizational hierarchy for the management and control of enumerators in order to oversee every enumerator in direct contact with establishments, to ensure the efficiency and rationality of survey activities.

(8) Language

The basic principle of recruiting Omani national enumerators only might result in difficulty in communicating with expatriates in charge of establishments. Considering about Omani national owners and expatriate managers, use of bilingual (English and Arabic) questionnaires and instruction for respondents, and advance notification to absentee owners, are necessary.

5.4 Data Processing

In building up a computer system within the center to examine, sum up and analyze industrial statistical survey data it will be extremely difficult to secure computer engineers as regular staff for the Center because majority of computer engineers working in the country are expatriates and human resources in this

field are definitely scarce. As the current staff of the counterpart agency can only manipulate personal computers at best, it will be extremely difficult for the Center to independently develop software of its own and to operate and manage computer systems.

Considering the current situation, it is necessary to have the technical cooperation of the Computer Department within the Ministry of Commerce and Industry, and to utilize its computer systems in order to build a statistics data processing system.

Furthermore, even if the department computer systems are not usable commonly with the Computer Department, it will be mandatory to obtain some form of assistance from the Computer Department of the Ministry to solve problems related to data processing.

5.5 Publication

Results of the Industrial Statistical Survey are to be published as the Industrial Statistical Tables. In many industrial segments in Oman, the number of establishments encompassed in a segment is limited. If the number of establishments belonging to a certain industrial classification is no greater than one, all information concerning that establishment would be disclosed. If the number of establishments is two, one establishment could learn details about the other by deducting its own figures from those of the industrial classification as a whole. It is therefore necessary to protect confidentiality by not publishing totalized statistics for the segments encompassing only one or two establishments.

There are a considerable number of industrial segments supporting only one or two establishments in Oman, primarily due to the small domestic market.

The Year Book published by the Development Council primarily gives macro-industrial data. The need to protect confidentiality of statistical data has never been discussed in Oman.

However, collection and publication of detailed micro-data, when implemented, would encourage users of statistical data to become more interested in micro-analysis. Thus the statistical agency should discuss the principle of confidentiality.

CHAPTER 6. DRAFT PLAN FOR INDUSTRIAL STATISTICS INFORMATION CENTER

The Omani government is implementing various measures to encourage industrial development. The need is growing for an industrial statistical system capable of providing whatever data may be required to evaluate the effectiveness of those industrial development measures and plan more effective policies, by reviewing the results of economic activities.

At the same time, the private manufacturing sector consists primarily of small and medium scale enterprises that are not capable of collecting information on macroeconomic trends by themselves, and thus find it difficult to embark new manufacturing business and markets, attract capital investment or generally expand their businesses. Hence government agencies in charge of policy planning urgently need to establish an Industrial Statistics Information Center not only for their own statistical needs, but also to provide information to private enterprises.

This chapter describes the framework and the fundamental functional elements required for the Industrial Statistics Information Center (hereinafter called the "Center"), such as planning, implementation, collection and processing of data, review, and publications.

The principal work of importance to be done by the Center is to carry out the industrial statistical survey. The need will eventually arise to implement a commercial statistical survey as well. The experience gained in carrying out the industrial statistical survey will be applicable to establishing a commercial statistical survey. Discussion will be made, therefore, pertaining to the industrial statistical survey.

6.1 Positioning the Center

The Industrial Statistics Information Center is the central agency in charge of various statistical surveys to be administered by the Ministry of Commerce and Industry. It mediates the flow of information from statistical subject units to statistical users.

6.2 Functions of the Center

Outline of the basic functions of the Center is as follows.

(1) Industrial statistical planning and drafting

To produce plans for design of statistical survey and plans for the implementation of statistical survey including statistical survey questionnaires and design of industrial statistical tables.

(2) Field surveys

To implement surveys using prescribed methods; to collect data entered into questionnaire from survey target establishments and input data for statistical processing.

(3) Examining and summing statistical survey data

To examine and sum up input data by using computers, and prepare statistics.

(4) Analyzing survey results

To analyze statistical survey results obtained and process them for publication.

(5) Publishing survey results

To process survey results and publish them as industrial statistical survey reports.

(6) Accumulating statistics data

To compare statistical data with that of proceeding years

(7) Classifying industrial classification

To clarify industrial classifications and commodity classification codes which correspond to the purposes of statistical surveys and coordinate them among related ministries.

(8) Collecting statistical information other than industrial statistics

To collect information on import/export statistics and other statistics related to industrial statistics.

(9) Providing education/training to personnel involved in statistical survey

To provide education/training regarding statistical surveys to enumerators and Center staff, and also to provide education/training to people other than the Center staff such as survey target organization personnel and users of the statistics.

6.3 Organization of the Center and Related Organizations

The Center organization will be positioned within the Directorate General of Industry. The operation of the industrial statistical survey as described in the preceding section cannot be carried out solely within the organization of the Center itself. It is therefore necessary that the industrial statistical survey should be implemented by coordinating the following functions with related organizations.

- (1) Coordination required for the implementation of field survey

In order to comprehensively implement the industrial statistical field survey, it is necessary that coordination should be made among the Center, the Directorate General of Commerce and Industry in the southern region and the regional offices. In particular, coordination regarding recruiting and training of enumerators is necessary so that the survey can be conducted comprehensively, with distribution, collection and examination of questionnaires disseminated throughout all regions.

- (2) Recruitment and employment of enumerators

Recruitment and employment of enumerators falls under the Department of Personnel Affairs. The Center is requested to take the necessary actions to request employment of enumerators by showing the following items to the Department of Personnel Affairs.

- Number of enumerators required in the Muscat region and by each regional office
- Qualification and experience required for enumerators

- Timing and period of employment

(3) Industrial statistical data processing.

The Center needs technical support from the Computer Department under the jurisdiction of Diwan Affairs for the development and maintenance of application softwares required for industrial statistical system.

Fig. 6.3.1 illustrates organization of the Center and the system of coordination reflecting the three above-mentioned items.

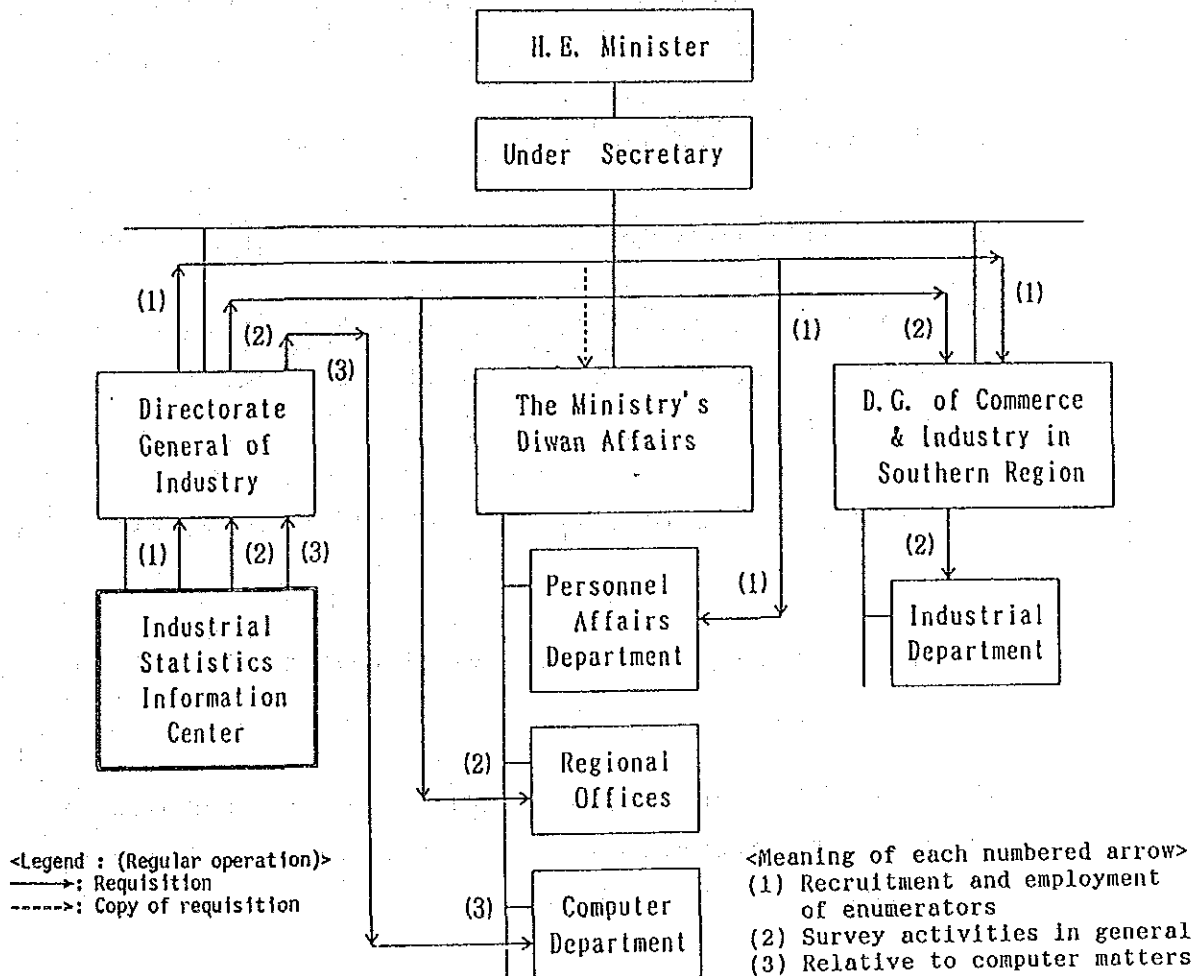


Fig. 6.3.1 Organization of the Center and Coordination System reflecting relations with other organizations in conducting statistical survey

(4) Functions of Regional Offices

Regional offices (and organizations in charge of the field survey in the Muscat capital area) are in charge of the five Center functions mentioned below and shall conduct the survey in coordination with the Center.

- 1) Conducting survey activities
 - Collection of up-dated information concerning directory of establishments
 - Distribution, explanation and collection of questionnaires
- 2) Management and control of enumerators
- 3) Examining contents of collected questionnaires
- 4) Updating computer directory of establishments and entering data from collected questionnaires (in future)
- 5) Communicating and exchanging information with the Center

(5) Internal Organization and Division of Duties of the Center

Duties of the Center are divided and carried out by internal organization units. Division of duties is illustrated in Table 6.3.1.

Table 6.3.1 Internal Organization of the Center and
Division of Duties

Functional unit		Duty
Center head		(1) Long term business planning (2) Negotiation with external organizations (3) Management and control of the Center
Planning/Control		(1) Business planning/Budgeting (2) Preparation of regulations/rules (3) Inspection/Auditing of businesses
Publication/ Public Relation Section		(1) Publication of statistical survey results (2) Preparation of public relations materials and implementation of public relation activities (3) Issue of various publications such as reports
Education/Training		(1) Planning and implementation of training (2) Those to be trained: enumerators, center staff, survey targets, users, staff from regional offices
Statistical Survey	Survey planning	(1) Planning and implementation of annual survey (2) Design of questionnaires, statistics and clarification of statistics classification
	Survey schedule	(3) Planning of survey methods and preparation of survey manuals
	Statistical survey	(1) Requisition of employment, appointment, training, management of enumerators (2) Preparation of list of establishments to be surveyed (3) Examination/summing up of questionnaires (4) Implementation of survey in Muscat region
	Result analysis	(1) Analysis of statistical survey results (2) Tabulation of tables
Computer Processing		(1) Data input (questionnaires, directory of establishments) (2) Preparation of statistics and directory of establishments

6.4 Center Staff

Preparatory work for starting and operation of the Center will be greatly affected by the quality of Center staff. Therefore, recruiting a sufficient number of staff of the required quality and raising their level through proper education and training is an issue of extreme importance.

(1) Recruitment of Center staff

Prior to establishment of the Center and commencing preparations for opening, sufficient number of staff must be recruited. The work to be done during the period of preparation for commissioning, upon the establishment of the Center, is to assign, train and educate, and give preparatory experience to recruited staff. Therefore, sufficient number of staff must be assigned.

After the commissioning of the Center, no substantial changes are expected in routine operations. However, it is necessary to improve continuously the quality of work throughout the year, such as through trying get more accurate information and coverage and monitoring of long-term statistics where preparatory experience can effectively be utilized.

(2) Required Number and Qualifications of Center Staff and Timing of Assignment

1) General staff of the Center

The Center staff is defined such a person who is working regularly in the Center.

For implementation of the industrial statistical survey, joint work with the staff of regional offices of the Ministry of Commerce and Industry

is required in addition to the working staff of the Center.

The staff of regional offices is deemed to be part of the Center staff insofar as the industrial statistical survey is concerned. However, regional offices are local agencies of the Ministry of Commerce and Industry and their staff is not exclusively in charge of the industrial statistical survey. Consequently, the term "Center staff" as used herein is understood to mean "working Center staff", and not include the staff of regional offices.

2) Computer related staff

In view of the following, no staff shall be recruited for the development of software which is required for the processing of industrial statistics data. The development of the required software shall be contracted to a third party (the Computer Department within the Ministry of Commerce and Industry).

- Omani national computer specialists are extremely scant.
- Personnel cost for the development of application software could be extremely high.
- The Computer Department within the Ministry of Commerce and Industry is sufficiently capable of software development and have good experience of system development.
- Sufficient time is allowed for software development so that work schedule can be accordingly coordinated within the Computer

Department.

Accordingly, computer related staffing shall be as follows.

- One computer specialist (with about 5 years experience)
- One person exclusively in charge of computer matters (to be trained by computer specialist)
- Four supporting staff (for data input, however two of them to routinely work as secretaries and others to perform computer operation as well)

3) Enumerators

Enumerators in the Muscat capital area and at regional offices are classified as "part-time Center staff" employed for a limited period of time and will be assigned to the field survey.

4) Number and qualifications of Center staff

The number of working Center staff including general staff and computer related staff shall be sixteen in total. The number and required qualifications of Center staff are shown in Table 6.4.1 "Number and Qualifications of Center Staff."

Table 6.4.1 Number and Qualifications of Center Staff

Job classification	Qualification	Experience	Education	No. of staff	Remarks
Center head	Knowledge of statistics	One year	University degree	1	
Planning and management	Knowledge of statistics and computing	One year	University degree	1	Note 1
Publication/PR	Knowledge of statistics	One year	University degree	1	Note 2
Training	Skill in statistics	Five years	University degree, mathematics or economics major	1	
Statistical planning	Techniques for statistics	Three years	Higher than high school degree	1	Note 3
Statistical survey	Techniques for statistics	Three years	Higher than high school degree	3	
Statistics analysis	Techniques for statistics, computer skills	Three years	Higher than high school degree	2	
Computer technician	Knowledge of computing	Five years	University degree	1	
Computer technician	Knowledge of computing and statistics	One year	University degree	1	
Computer operation	Computer skill		Higher than high school degree	2	Note 4
Secretary	Computer skill		Higher than high school degree	2	Note 5
				Total 16	

Note 1: Center head is to hold an additional post to manage and support planning and management.

Note 2: One of three planning and management, publicity/PR, and training staff members to hold an additional post in training.

Note 3: Six staff members are to cover statistical planning, statistical surveys, and statistics analyses.

Note 4: Staff members are to acquire knowledge of computing during inactive period in order to assist preparation of directory of establishments and any other statistical work.

Note 5: Staff members are to be exclusively responsible for computer operation during the busy data input period.

Note 6: General staff to have higher than high school degree for publicity/PR through statistics analysis in the Table are preferably to have a university degree. Those having a vocational college degree are preferred for computer operation and secretary.

(3) Assignment of Center staff

Additional employment of Center staff and timing of their assignments are shown in Table 6.4.2 "Timing of Center staff assignments."

Table 6.4.2 Timing of Center staff assignments

Schedule Staff	Number of staff	Job classification	Qualification and experience	Those encircled by dotted line: Long term schedule	
				Timing of employment/assignment and job classifications to be assigned to	
Number of staff currently assigned to Statistics Unit	7	1 Center head 1 Planning and management 1 Publication and PR 1 Training 3 Statistics analysis		1992 : Opening of the Center - Period of preparation 1993 : Implementation of pilot survey 1994 : Implementation of first formal survey	
Number of additional staff requisitioned	3	2 General staff (*1)	Higher than high school degree	as soon as possible	To be assigned to statistical survey work and trained on the job training
		1 Secretary (*2)	"	as soon as possible	To be trained for computer operation and to be in charge of data input
Number of staff to be employed till January, 1994	6	1 Computer specialist (software engineer)	Five year experience	By the end of June 1992	To be in charge of coordination and direction of computer related development and operation. Knowledge of statistics is not required
		1 In charge of computer	University degree (any computer field)	By the end of June 1992	To be trained for computer operation and to be in charge of data input
		1 General staff (*1)	Higher than high school degree	By the end of 1993 - Beginning of 1994	To be assigned to statistical survey work and trained on the job
		1 Secretary (*2)	"	As soon as possible	To be trained for computer operation and to be in charge of data input
		2 Computer operator (*3)	"	By the end of 1993 - Beginning of 1994	Same as above
Total	16				

Note (*1): Vocational college degree or university degree is preferred.
 (*2): Two secretaries are to be in charge of data entry and computer operation when computer operation is busy.
 (*3): Two operators are to be in charge of computer operation including of data entry. Vocational college degree is preferred.

(4) Training of Staff and Instructors in charge of Education/Training

The objective of training staff is to satisfy the common standard essentials to carry out assigned jobs other than statistics techniques as shown in Table 6.4.1 "Job classifications and qualifications", and to qualify such staff members for appointment as instructors to provide training to enumerators and other staff members of the Center.

Staff members in regional offices who are assigned to the survey will have to be trained accordingly.

Table 6.4.3 Training Standards

Training course	Time required for training	Attendants	Instructors		Curriculum	Level to be reached at the end of the course
				Staff in charge of curriculum		
General regulations	One week	All the staff members in the Center	Center head	Planning and management	Moral and purpose/ contents of common and individual regulations for types of work	Attitude towards abiding by regulations is checked.
Overall actual work for statistical survey	One to three months	All the staff members in the Center Regional Office staff	Training supported by expert from overseas		Outline of industrial statistics Introduction to statistics Knowledge of actual work for statistics survey	To achieve the purpose of industrial statistics, basic knowledge of actual work for statistical survey, and to be eligible to be an instructor for enumerator education
Training of enumerators	Two weeks to two months	Enumerators Regional Office staff	Statistical survey	Training	Purpose of industrial statistics General knowledge about the actual work for statistics surveys	To be able to be engaged in survey work and examination of questionnaires as a statistics enumerator
Statistics analyses	One to two months	Staff members in charge of statistics analysis	Persons who have completed overseas training supported by expert from overseas		Fundamentals of numerical analyses Fundamentals of statistical analyses Use of computers	To acquire skills in statistical analysis and computers such as the use of software packages
Computer skills	Two weeks to one month	Staff members in charge of planning and management, statistics analysis	Persons who have completed overseas training supported by expert from overseas		Outline of processing clerical work Use of database functions Use of personal computers	To operate computer systems and maintain application softwares
Enlightenment of survey target (external)	One day		Statistical survey		Outline of industrial statistics Introduction to statistics	To understand the purposes of industrial statistics and how to clarify the data to be included in questionnaires
Enlightenment of statistics users (External)	Two days	Statistics users	Statistics analysis		Outline of industrial statistics Introduction to statistics Operation of computer terminal	To understand the purposes of industrial statistics To acquire knowledge of how to use statistical tables

(5) Recruitment and Training of Enumerators

Since enumerator's survey work is temporary and a relatively short survey period of three to four months a year, it is difficult to spread the volume of work evenly over one year.

1) Employment

Not all enumerators can be employed on a full-time basis of the Center staff. Also, it is impossible to recruit all enumerators having experience in this kind of survey.

Those considered qualified to be enumerators are people who have previous survey experience, especially in this identical survey, who are familiar with the contents of the survey and the local situation, and who can be employed repeatedly.

Those to be newly hired should be questioned as to whether they wish to be repeatedly employed after the quality of their work has been confirmed. If they wish to be repeatedly employed, it is advisable to confirm whether they would be prepared to apply during the next recruitment period for preferential consideration prior to public invitation. The same applies to those who have previous experience. This system of enumerator employment is called the "Enumerator Registration System."

2) Training

Basic training in survey activities is required for newly employed enumerators. Those who have previous experience in working for the survey

also require training before the survey begins, including understanding any differences from previous surveys.

6.5 Center Facilities

Facilities to be owned or utilized by the Center are classified as follows.

- (1) Buildings ----- (Offices etc.)
- (2) Furnishings/fixtures ----- (Office tables etc. to be arranged in offices)
- (3) Office equipment ----- (Telephones, audio-visual equipment etc.)
- (4) Information communication facilities --- (Computer system)

The required facilities and furnishings/fixtures are summarized in Table 6.5.1 "List of Center Facilities." Those already installed and in use or those which can be diverted are shown in brackets { }.

Table 6.5.1 List of Center Facilities (1)

Type	Description	Quantity/Specification
Office	Office of Center head, General office, Information room	{Existing}
	Enumerators' room (Muscat capital area only)	{ditto} Approx. 50m ² for 4 months only
Build- ing	Computer room (including 2 terminals, power supply and air conditioner)	{Approx. 15 m ² of existing office} * Partition and door is necessary
	Data storage room	{Approx. 6 m ² of existing office} * Partition and change of door is necessary
Computer system	< Summarized in 6.7 >	< To be shown in 6.7 >
*Statistics data processing	Small mini-computer system	
Hardware	Main frame and terminals	Mainframe, monitor, line printer 1 set
Software	Operating system (OS: Control software)	UNIX base 1 set
	Database management system (DBMS)	Relational model 1 set
	For statistics data processing	{Note 1} 1 set
Terminals	4 in office, 2 in computer room	6
Power supply	In computer room	2 KVA 3
Air conditioner	In computer room	2
*Personal computer	In office	{4}
Office equipment and audio-visual equipment (For education/training)	Shredder: For information security	1
	Facsimile: For survey use	G3 standard 1
	{Copying machine}	Both sides with 25 stacker {1}
	{Telephone}	{Several}
	OHP projector/screen	1 set
	Video cassette player and TV monitor	VHS 25 inches 1 set
Safety facilities	* Reception counter to be provided in office entrance By furnishings/fixtures	
Fire fighting facilities	* Locking and security control for computer room and data storage room By refurnishing	
	(Entry of outsiders, entry into computer room and data storage room shall be regulated by procedural regulations to be enforced)	
Furnishings/ Fixtures (Furniture)	* Center head office/General office	{To utilize existing tables/chairs}
	* Reception counter {Note 2}	w1200 x d450 1 set
	* Table for computer	w1800 x d900 4
	Chairs without arm rest	7
	* Shelving rack for data storage room	h1800 x w900 x d450 4
* Table for enumerators/Conference room	{Existing 1}	
Additional table	w2400 x d100 1	
Chairs {Note 3}	{Existing 25} 13	
Motor vehicle for survey	4 wheel drive car	{Note 4} * {4}

[Note 1] Development shall be subcontracted to the Computer Department of the Ministry of Commerce and Industry.

[Note 2] To be installed to control entry of outsiders.

[Note 3] (1) To be expanded as a room for enumerators during the survey period.
* To accommodate approx. 40 enumerators for morning gathering and delivery of operation instructions.
* To be used by enumerators for examining questionnaires.
(2) To be of construction capable of being dismantled and stacked in a minimal storage space when not in use.

[Note 4] Two of four vehicles are available for statistical survey.

6.6 Conceptual Design of Computer System

(1) Computer Operations

Computer staff:

- General computer expert (5 years experience) One (1)
- Person of general computer responsibilities (university degree) One (1)
- Data entry operators (including two to serve concurrently as secretaries and two to serve concurrently as computer operators) Four (4)

Two general computer experts shall be in charge of computer related matters (System specification design, responsibility of system development, responsibility of system operation after completion of system development) representing Industrial Statistics Unit and shall not be in charge of software development itself. Work of software development shall be contracted to Computer Department within the Ministry of the Commerce and Industry. Accordingly, division of responsibility shall be as follows.

1) The functions and responsibilities of the Center

- The Center shall be responsible for conceptual through detailed design of software during the development process.
- The Center shall be responsible for the design of specifications applicable to the software maintenance.
- The computer for industrial statistics data processing and related facilities shall be

installed within the Center.

- The Center shall be responsible for operating the industrial statistics system.
- Installation costs including software development and operating costs shall be borne by the Center.
- The Center shall have the function of coordinating the progress of those activities.

2) Items with which the Computer Department is to assist and offer support

- Choice of hardware specifications and hardware configuration
- Choice of operating system (Basic control software)
- Choice of database management system
- Preparation of the installation site (Site preparation)
- Back-up system for obstruction/emergency and system upgrade
- Training of operation staff/operators
- Development of industrial statistics software in compliance with the system specification determined by the Center

(2) Factors Related to Data Input Hardware and Software

Elements which may affect performance of the Center are not limited to the condition of Center facilities. Human factors will have substantial impact. For example, the number of questionnaires, accuracy of filled in data, time required for the collection of questionnaires, length of time from data input until completion of summation, knowledge level of enumerators concerning the statistical survey, completeness of the application software,

skill level of data input operators and so on may affect performance of statistical operations.

Among others, as the efficiency of questionnaire data input is directly related to the hardware system, a basic policy must be established as soon as possible. An itemized discussion follows.

1) Small computers for regional offices

It is expected that small computers will be installed in regional offices in the near future for distributed input of commercial registration data.

Those small computers can also be used to input industrial statistics questionnaire data, which is similar to inputting industrial registration data.

2) Data input

The type of hardware proposed for the Center, is identical to the small computers proposed for installation in regional offices. No difficulty is foreseen in connection with the compatibility of software to make it technically feasible to use that hardware for questionnaire data input.

In view of the fact that each regional office is already equipped with small computers, data input is best to be made at locations which are as near as possible to where data are generated (viz., regional offices) with view to the need to question and confirm error data. However, it is recommended that data input shall be centralized at the Center at least during early stage of

industrial statistical survey operation in consideration of possible modification of the system and possible occurrence of obstructions during early stage of system operation.

It is safer to progressively decentralize data input to regional offices step by step (viz., distributed data input system) only after the system has been debugged and stabilized.

3) Design of the data input system

Establishment of a data input system using terminals must take into consideration the following in choosing the type of terminals to be used.

- The directory of establishments, name of commodity in commodity classification, and name of establishment on questionnaire must be input in the Arabic language. Because coding systems are diverse among computers, it is preferable to standardize on a type of terminal so that interchangeability of the coding system can be coordinated.
- The sooner input data is examined by computer, the sooner a clean data file can be completed. Data input unaccompanied by computerized examination is therefore not recommended unless no alternative is available.
- A system using personal computers as off-line data input terminals for data input and computerized examination would be confronted with the same problem of interchangeability of Arabic codes as data input by on-line terminals. In addition, the problem of

coordination between performance and functions of each personal computer and the system configuration as a whole must be dealt with.

In conclusion, a system that locally connects several on-line terminals to a small computer installed in the Center in order to immediately examine data input from those terminals and output the results of that computerized examination is considered optimal.

6.7 The application Systems for Industrial Statistics

(1) Composition of Application Systems

Application systems for industrial statistics are to be composed of the following four subsystems.

- Support system for preliminary work to ensure the smooth implementation of the industrial statistical survey
- Data processing system for collected questionnaires
 - a) Questionnaire data entry system
 - b) Data transaction/processing system
- Industrial statistics tabulation system
- System for supplying data base files and data retrieval system for end users

1) Support system for preliminary work to ensure the smooth implementation of the industrial statistical survey

a) Creation and update of the directory of establishments to be surveyed for industrial statistics

Purpose: This system supplies complementary information, the directory of manufacturing establishments, to help enumerators canvas all establishments efficiently within the period they are allotted.

b) Creation and update system for commodity classification master file, ISIC master file

Purpose: These master files shall be used to check each input data item at the time of computer input of collected questionnaires and to list commodity names and ISIC classification names when they are printed out.

The commodity classification master file shall be printed as a manual on how to write the name/code of main products for filling out questionnaires, listing main product names and codes by each industry, and shall be distributed to each establishment together with the questionnaire.

2) Data processing system for collected questionnaires

This system constitutes the nucleus of the industrial statistics system and consists of the questionnaire input system and the statistics data processing system.

Functions: Each item of the collected questionnaires is input through terminals in on-line mode. Input items are checked using various kinds of master files (ISIC master file, directory of industrial establishments, commodity classification master file, numeric value range check master file).

3) Industrial statistical tabulation system

Objective: System to prepare various industrial statistical tables to be offered to computer users and data base files for retrieval.

4) System for supplying data base files and data retrieval system for end users

a) Objective: The system is to provide data a retrieval to end users at terminals.

b) Functions:

- Data in public data base files must be consistent with the data published in statistics tables. Special care must be taken in manipulating confidential data.

- In the case of specially permitted end users of common data base files who are permitted to access confidential data values, the data retrieval system must be capable of providing a means of access.

- Data access must be controlled in order to protect data security. When statistics data is to be disclosed to the private sector, use of available software providing data protection and access control functions will have to be studied.

- In the case of end users outside of the ministry utilizing the data retrieval system, a computer use accounting system of will have to be introduced for fee calculation.

Whether or not to actually collect fees is subject to political decision. Nevertheless, an accounting system is needed in order to understand the pattern of computer systems, and parties to bear expenses.

(2) Prerequisites for the Systems

- 1) Preparation of guidebooks on how to use each application system and implementation of a training program for the use of the computer system by end users
- 2) Utilization of data tele-communication equipment will be indispensable when open use of the computer is made available to end users outside of the Ministry of Commerce and Industry.

- 3) An easy to use data base system such as a relational data base or a Fourth Generation Language shall be made available. The overall efficiency of system operation (in particular, the ability to operate multiple terminals simultaneously) shall be taken into consideration when studying the optimal combination of a third generation procedural computer language (COBOL, PL/I, C etc.) with a fourth generation language which may be more efficient for system development but more resource-consuming, on the basis of given system resources, human resources, and term of system development.
- 4) The system shall be capable of providing data security and an accounting system.
- 5) It is considered necessary to consider standardization of the following items when a detailed system is designed, or program is worked out.

- . Unification of file name and item names to be used in the program
- . Unification of functions of PF-Key (Program Function Key)
- . Unification of the method to display multiple displays
- . Provision without fail of confirmation display whenever various master files have been renewed

6.8 Details of Operations

An outline of monthly operations (excluding quarterly plan and its review) and annual operations (excluding annual plan and its review) after the commissioning of the Center, which are directly related to the main

business of the Center, the industrial statistics information system, but excluding the Center head and planning and management is shown in the following tables.

Details of Publications and Public Relations Table 6.8.1
 Details of Training Table 6.8.2
 Details of Statistical Survey Table 6.8.3
 Details of Computer Processing Table 6.8.4

Table 6.8.1 Details of Publications and Public Relations

Details		Objective	Method/Contents
Publication/ Public relations	(1) Publication of results of statistical survey	To notify survey subjects and users of information objectives and results of statistical survey	To edit, print and publish results of statistical survey in outline comment edition and reference information edition
	(2) Preparation of public relations materials	To let users of statistics and survey subjects understand objective and timing of industrial statistics and role of Industrial Statistics Information Center	To carry advertisement in Government publications and bulletin of Chamber of Commerce and Industry, various advertisement media
	(3) Issue of other publications	To issue as materials for enlightenment and explanation of industrial statistics	To issue pamphlets every year as materials for enlightenment and explanation of industrial statistics
	(4) Counter for consultation	Counter for consultation of questions concerning questionnaire and use of industrial statistics	Acceptance of direct consultation by telephone and direct over-the-counter consultation

Table 6.8.2 Details of Education and Training

Activity	Objective	Details/Contents
Education and Training	1) Education for consciousness of survey subjects	a. Targeted to survey subjects. To secure understanding and cooperation for statistics survey
	2) Education of users of industrial statistics data	b. Targeted to users of industrial statistics. (Government agencies, enterprises) Promotion of enlightenment of significance and use of industrial statistics
	3) Education of enumerators and guidance of training tutors	Upgrading of questionnaire accuracy through education for knowledge of enumerators and survey technique and examination procedure
	Basic education of new recruits, transferees	Quick mobilization of new recruits and transferees by study of standard operation procedures and knowledge in general
	Knowledge of duties in charge of held by working Center staff	Education and training by Center staff 1. For new recruits 2. Upgrading of those with previous experience 3. Education immediately prior to survey
		a. Supplementary study of knowledge and skill b. Assistance to self-study of knowledge c. Study of standard operation procedures, use of computer

Table 6.8.3 Details of Statistical Survey

Activity		Objective	Details/Contents
Survey Planning	1	Yearly survey planning	Systematic execution, enhanced survey accuracy
		Planning and execution management	Enhancement of consistency with objective and accuracy
	2	Establishment of classification system	Perfection of statistics system
		Design of statistical table	Preparation of statistical table
		Design of questionnaire specification	Design of questionnaire Preparation/renewal of manuals for entry into questionnaire
Survey Plan	3	Planning of survey method	Methods compatible with local conditions
		Preparation of survey manuals	Enhancement of entry accuracy
		Planning/plan for recruitment of enumerators	To secure enumerators
Statistical survey	1	Preparation for survey	Preparation of guidance manuals for distribution, collection and examination by enumerators
		Execution of survey	Enhancement of entry accuracy
Statistics analysis	1	Preparation for survey	Preparation for survey including listing of survey objects
	2	Execution of survey	Collection of original statistical data and enhancement of their accuracy
Statistics analysis	1	Analysis of survey results	Explanation of statistical table
	2	Preparation of statistical survey report	Publication of statistics results
			<ul style="list-style-type: none"> - Preparation of directory of establishments to be surveyed - Preparation of maps showing locations of establishments - Registration system of experienced enumerators and recruitment system of temporary enumerators - Planning of education/training - Distribution, collection and examination of questionnaires by enumerators - Application of statistical analysis technique - Printing and publication as report - Provision of electronic information by terminals

Table 6.8.4 Contents of Computer Processing

	Activity	Objective	Details/Contents
Computer processing	1	Software development	For computer processing of questionnaire input, examination, sum-up, statistical table - To subcontract to in-house computer department of the Ministry - Use of system development tools
	2	Data input and examination/correction	- Enhancement of correctness of information - Speed-up and correctness of data input Formality examination of each item of questionnaire and logic check including minus check, code check, cross check
		Statistical table output computer processing	Preparation of statistical table - Edit output for printing - Preparation of data for reference by terminals
	3	Data accumulation	Response to time series analysis - Storage on magnetic disk up to 10 years - Storage on magnetic tapes beyond 10 years
		Data back-up safe-keeping	Enhancement of information preservability Program and data to be copied on magnetic tapes for outside safe-keeping
	4	Maintenance of software	Response to system change To be in accordance with change procedures of in-house computer department of Ministry
	5	Operation management, resource management and resource planning	- Leveling of load to avoid load concentration - Preparation of basic plan of resource planning - Systematic execution of resource augmentation To be in accordance with in-house operation management procedures, resource management procedures of computer department of Ministry
		Safety assurance	Prevention of accidents and occurrence of obstructions and minimization of subsequent impact on equipment & data - Establishment of procedures to deal with obstructions and to recover - Control of entry into computer room - Control of access from terminals
		Inventory management of consumables	Proper management of materials including sheet, information media Establishment of management system

6.9 Period of Preparation and Preparation Work

(1) Objective of the plan

Systematic execution of preparation is indispensable for the completion of preparation work within the preparation period.

The objective of the preparation work plan is to implement smooth preparation and to ensure timely start-up of the Center by clarifying in advance the sequence, content, timing, method and so on of preparation work to be carried out by the Center head and each responsible person, towards commissioning of the Center.

The plan must cover the conditions required to smoothly complete preparation work as a whole by the target date by planning all preparation work (Plan), by executing preparation work (Do), by detecting differences between plan and actual events (Check), and by coordination to recover from any differences or delay so detected (Action).

(2) Method of planning

Center head and person in charge of planning/management shall analyze and estimate the total workload of principal processes of preparation work to be completed by the projected commissioning date of the Center. And they shall determine apportionment of the task and allocate preparation work to each staff.

Each person in charge shall prepare a work schedule with contents of the period of each work item, such as procurement and installation of equipment, training of staffs and so on. Any delay in a process

would result in subsequent delays to all processes to follow. It is therefore necessary to prepare a work schedule which flexibly takes into consideration some spare time for critical processes and unexpected events.

(3) Apportionment of Preparation Work and Contents of Work

Apportionment of preparation work and contents of work are summarized in Table 6.9.1 "Contents of Preparation Work Plan".

Table 6.9.1 Contents of Preparation Work Plan

Work item	In charge of plan/work	Contents of work
<p>1. Management of overall plan</p> <ul style="list-style-type: none"> - Long-term basic plan - Preparation work plan (Preparation period only) - Management system in general - Mobilization plan - Inspection system 	<p>Center head Person in charge of planning/management</p>	<ul style="list-style-type: none"> - Planning of operation policy and long-term policy - Clarification of elements of industrial statistics system as a whole - Stepwise expansion of operation and improvement - Overall plan schedule and method to manage progress - Identification and monitoring of critical path - Coordination of contents of work and work period/personnel/skill - Coordination of scope of external/internal operations - Plan of recruitment - Operation to be inspected, contents of inspection, rules and regulations applicable
<p>2. Publication public relations</p> <ul style="list-style-type: none"> - Public relations Advertisement - Publications etc. 	<p>Person in charge of publication and public relations</p>	<ul style="list-style-type: none"> - PR on establishment of the Center, PR on implementation of statistical survey - Enlightenment materials targeted to survey objects/statistics users
<p>3. Training</p> <ul style="list-style-type: none"> - Overall plan - Each in-house job classification - Regional office staff - Enumerators - External personnel 	<p>Person in charge of training</p>	<ul style="list-style-type: none"> - Establishment of training system - Training course corresponding to each job classification/preparation of texts - Newcomer's training course/preparation of texts - Regional office staff training course/preparation off texts - Establishment of qualification criteria for instructors of enumerators - Enumerator training course/preparation of texts - Survey objects/statistics users enlightenment materials

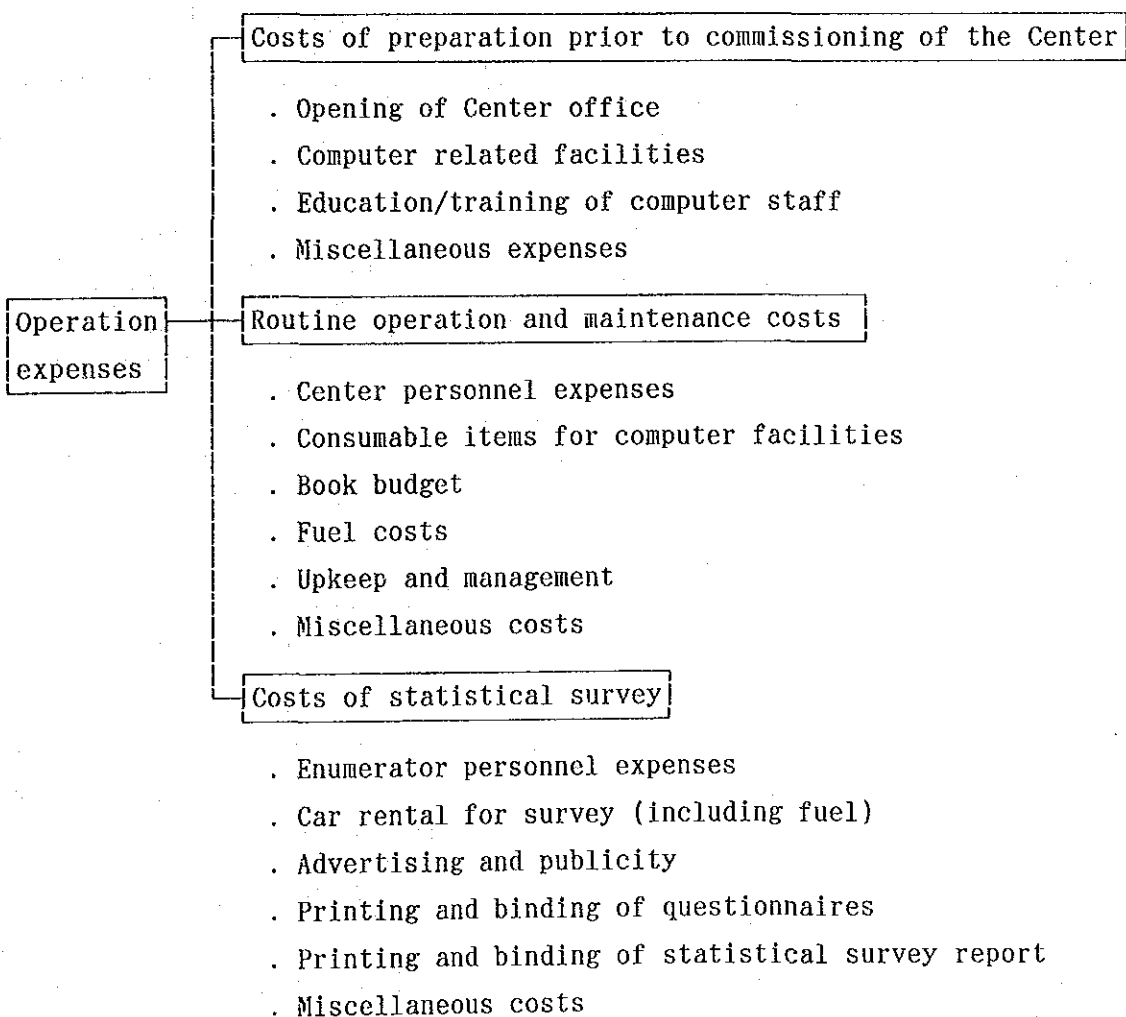
(to be continued)

Work item	In charge of plan/work	Contents of work
<p>4. Statistics, survey</p> <p><Survey planning></p> <ul style="list-style-type: none"> - Planning, execution policy - Establishment of classification system <p><Survey design></p> <ul style="list-style-type: none"> - Specification design <p><Survey plan></p> <ul style="list-style-type: none"> - Survey method <p>- Survey manual</p> <ul style="list-style-type: none"> - Recruitment and training of enumerators <p><Statistics survey></p> <ul style="list-style-type: none"> - Preparation for survey <p><Statistics analysis></p> <ul style="list-style-type: none"> - Analysis of results <ul style="list-style-type: none"> - Preparation of report 	<p>Person in charge of statistics, survey</p>	<ul style="list-style-type: none"> - Systematic execution, enhancement of survey accuracy - Systematization of survey operation as a whole - Upgrading of coordination with other statistics <ul style="list-style-type: none"> - Design of questionnaire/statistical table <ul style="list-style-type: none"> - Establishment of chain of command and area assignment - Appointment of person in charge of training and establishment of contents - Determination of qualifications/timing/method - Plan of preparation for directory of establishments and enumeration map <ul style="list-style-type: none"> - Plan of distribution/collection/examination of questionnaires by enumerators <ul style="list-style-type: none"> - Explanation of statistical table, design of analysis technique <ul style="list-style-type: none"> - Printing, publication/Electronic data supply system
<p>5. Computer processing</p> <ul style="list-style-type: none"> - Software development - Software maintenance - Installation, adjustment of hardware - Staff training - Overall test - Inspection/Acceptance - Operation management system - Information management system - Full-service staff training - Support staff training 	<p>Person in charge of computer processing</p>	<ul style="list-style-type: none"> - Basic plan, coordination with computer department - Confirmation of specification - Coordination with computer department <ul style="list-style-type: none"> - ditto <ul style="list-style-type: none"> - Training plan using the software - Overall test plan using test data - Inspection plan, determination of inspection items - Long-term facility plan, coordination with computer department - Long-term operation plan <ul style="list-style-type: none"> - Training plan <ul style="list-style-type: none"> - ditto

6.10 Operating Costs

Operating costs were calculated for: (1) preparation prior to commissioning of the Center; (2) routine operation and maintenance costs; and (3) separate costs of annual statistical survey. Calculations were intended to reflect actual conditions in the Sultanate of Oman.

Major cost components are shown as follows:



(1) Annual operating costs can be summarized as follows.

Unit : RO

Cost item	1992	1993	1994
1. Setup costs for the Center (Total RO 114,210)	15,500	96,020	2,690
2. Routine operation and maintenance costs	67,590	83,890	105,390
3. Cost of statistical survey	----	25,160	148,010
Total	83,090	205,070	256,090

(2) Annual operating costs can be broken down as follows.

Unit : RO

Cost item	1992	1993	1994
1. Setup costs for the Center			
(1) Center office	6,160	2,990	--
(2) Computer related (Total RO 98,540)	7,520	88,460	2,560
(3) Education/training related	1,080	--	--
(4) Miscellaneous expenses (5% of total of above)	740	4,570	130
Sub-total	15,500	96,020	2,690
2. Routine operation and maintenance costs			
(1) Personnel expenses for Center staff	60,400	75,000	83,700
(2) Consumables for computer	--	1,000	2,000
(3) Book budget	1,500	1,500	500
(4) Fuel	470	390	350
(5) Upkeep	--	--	11,820
(6) Other consumables	2,000	2,000	2,000
(7) Miscellaneous (5% of total of above)	3,220	4,000	5,020
Sub-total	67,590	83,890	105,390
3. Cost of statistical survey			
(1) Personnel expenses for enumerators	--	1,800	40,950
(2) Cost of motor vehicles	--	1,380	55,320
(3) PR and advertising	--	3,180	7,950
(4) Printing, binding of questionnaires	--	17,600	17,600
(5) Printing, binding of statistics report	--	--	19,140
(6) Miscellaneous (5% of total of above)	--	1,200	7,050
Sub-total	--	25,160	148,010
Total	83,090	205,070	256,090

Note: Miscellaneous costs include cost of maps to be used for the identification of establishments and travel expenses.

CHAPTER 7. DRAFT PLAN FOR INDUSTRIAL STATISTICAL SURVEY

Plan (Draft) of the industrial statistical survey which will be the immediate activity of the Center shall be discussed in this chapter. After a pilot survey is implemented concrete action plan should be reviewed and finalized.

7.1 Objective and Scope of Industrial Statistical Survey

Objective of the industrial statistical survey in Oman is to augment knowledge, in terms of both quality and quantity, of the actual status regarding currently existing manufacturing sector in Oman, and to fully comprehend profile and structure of currently existing manufacturing sector. The statistical survey will also clarify the contribution of manufacturing sector to national economy, for instance in the areas of production, shipments, employment, fixed assets formation and value added and gross value added, which will provide information indispensable for determining economic and industrial policies and will provide means to measure effectiveness of implemented national policies.

The industrial statistics covers all types of manufacturing industry which current industrial registration system of the Ministry of Commerce and Industry covers. In addition, it also covers oil refining industry which does not fall under the administrative jurisdiction of The Ministry of Commerce and Industry.

Manufacturers of traditional handicraft articles are excluded for the time being, except those are operated by mechanical means. Manufacturers of fire arms should