

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

No. 40

MINISTRY OF COMMERCE AND INDUSTRY
THE SULTANATE OF OMAN

**STUDY
ON
MASTER PLAN FOR INDUSTRIAL DEVELOPMENT
IN
THE SULTANATE OF OMAN**

(SUMMARY)

DECEMBER 1994

UNICO INTERNATIONAL CORPORATION

TOKYO, JAPAN

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Abbreviations

ABS	Acrylonitrile Butadiene Styrene
ADB	Asian Development Bank
ASEAN	Association of South-East Asian Nations
BBL	Barrel
BTU	British Thermal Unit
CAD	Computer Aided Design
CAM	Computer Aided Manufacturing
CCR	Continuous Catalytic Regeneration
CIF	Cost, Insurance, and Freight
CKD	Completed Knock Down
CSP	Common Service Project
DH	Dirhem (U.A.E.)
DWT	Dead-weight Tonnage
EC	European Community
ECU	European Clearing Unit
EDC	Ethylene Dichloride
F/S	Feasibility Study
FAO	Food and Agriculture Organization, United Nations
FRC	Fiber Reinforced Concrete
FRP	Fiber Reinforced Plastic
FZEs	Free Zone Establishments
GCC	Gulf Cooperation Council
GCF	Gross Capital Formation
GDP	Gross Domestic Product
GGS	Government Gas System
GOIC	Gulf Organization for Industrial Consulting
HDPE	High-density Polyethylene
HS	Harmonized Commodity Description and Coding System
IBRD	International Bank for Reconstruction and Development
IDU	Industrial Development Unit
IRR	Internal Rate of Return
ISIC	International Standard Industrial Classification
ITMF	International Textile Manufacture Federation
JETRO	Japan External Trade Organization
JICA	Japan International Cooperation Agency
L/C	Letter of Credit
LDPE	Low-density Polyethylene
LLDPE	Liner Low-density Polyethylene
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
MCI	Ministry of Commerce and Industry
MFA	Multi-Fiber Arrangement

MNC	Multinational Corporation
MPM	Ministry of Petroleum and Minerals
MTBE	Methyl Tertiary Butyl Ether
NAFTA	North American Free Trade Agreement
NIES	Newly Industrizing Economies
OCCI	Oman Chamber of Commerce and Industry
ODB	Oman Development Bank
OECD	Organization of Economic Cooperation and Development
OEM	Original Equipment Manufacture
OJT	On the Job Training
OMCO	Oman Mining Co LLC
ORC	Oman Refinery Company
PDO	Petroleum Development Oman
PE	Polyethylene
PEIE	The Public Establishment for Industrial Estate
PS	Polystyrene
PVC	Polyvinyl Chloride
R&D	Research and Development
REM	Replacement Equipment Market
RFCC	Residual Fluid Catalytic Cracking
RIE	Rusyle Industrial Estate
RIEA	Rusyle Industrial Estate Authority
RO	Rial Omani
ROI	Return on Investment
S/W	Scope of Work
SCF	Standard Cubic Feet
SGRF	State General Reserve Fund
SITC	Standard International Trade Classification
SMI	Small and Medium Industry
TEU	Twenty-Foot Equivalent Unit
UAE	United Arab Emirates
UN	United Nations
US	United States
USA	United States of America
VCM	Vinyle Chloride Monomer

Conversion Factors

1 cu. ft. = 0.028317 m³
 1 BBL = 0.15899 kl
 1 BTU = 0.252 kcal

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Executive Summary

1 Industrial Development Scenario and Its Basic Strategy

Future vision

Given the limited size of domestic demand and lack of resources necessary to support the long-term sustainable growth of economy, it is crucial to develop both resource and non-resource based industries. Sustainable growth of these industries should be based not only on domestic market but also on overseas markets.

In this case the emphasis of development should be placed on the industry based on the overseas market. It is suitable also in view of making most of locational advantage of Oman.

This benefit can be materialized through various types of development measures including, the encouragement of multi-national companies to set up their regional operation centers, technical service centers and distribution centers and the establishment of export processing zone for transit trade. It may be conceived for Oman to function as "International Industrial and Trade Center in the Mid-East Region". These centers and export processing zones will create demand for industrial products and industrial services not only from the domestic market but from the overseas market as well.

For making most of these locational advantages, Oman has to make efforts to build up the following functions:

- 1) Distribution functions
- 2) Precision engineering functions
- 3) International communication functions
- 4) General supporting functions
- 5) Research and testing functions

Immediate task

The existing functions in Oman are only a few among the foregoing supporting industries. Given the present situation of the industry standing on limited fields and number of establishments, however, Oman should not be impatient over development by contemplating the establishment of those supporting industries within a short period of time, since it may adversely affect sound growth of the industry. Such supporting industries require the existence of an industry that can bear their costs to some extent.

Thus, the immediate task for the industrial development is to expand the scale and fields by fully utilizing the available yet limited resources and markets. With this

objective, the immediate step for development should focus on the upgrading and strengthening the existing industries for sustainable growth, as well as the promotion of industrial investment (mainly private investment) to establish new industries that will cater to both the domestic and export market.

In expanding the industry, the use of capability of foreign firms' capacities is also important particularly in ensuring market, obtaining efficient management and advanced technical know-how.

Another immediate task is to take appropriate preparatory actions in developing the foregoing functional industries, as well as in deepening of industrial structure and providing the technological basis upon which long-term development process will revolve.

Basic strategy for the industrialization

The basic strategy for the pursuance of industrialization, which guides industrial development based on the foregoing basic elements and scenario for the development, can be highlighted as follows:

- (1) Industrialization with close linkage to industrial capitals in foreign countries and prospects in overseas markets
 - 1) Promotion of export industries based on resources available in Oman, and industries that are based on geographical advantages and business environments existing in Oman
 - 2) Promotion of industries which can serve as production bases for foreign industries for the purpose of transit trade
- (2) Selective promotion of local supply industries led by the development of market and usage for selected products
- (3) Simultaneous promotion of the large-scale resource-based export industries, and small and medium-scale light industries (particularly manpower-saving with mechanization and for which diversification towards higher value added product lines is possible)
- (4) Undertaking by the government of overall supports for promoting industrial development

2 Industrial Development Plan

2.1 Macroeconomic target for the industrial development

The long-term economic development policy targets to sustain the economic growth at an average of not less than 5% per annum in real terms. In order to achieve this goal, assuming an average annual rate of economic growth of 6% in nominal terms in the future, the manufacturing industry as well as other non-oil sectors should grow at rates higher than those set for the Fourth Five-Year Plan. Assuming that the growth of the oil sector at 4% per annum during the Fifth Five-Year Plan period and 3% per annum during the Sixth Five-Year Plan period, the manufacturing industries should grow at 13% per annum, and at least 13.5% per annum respectively, during these two Five-Year Plan periods.

The existing manufacturing industries perform far below the scale to achieve the targeted increases in output and value-added. Hence to achieve this goal, the primary task should be focused on identifying investment opportunities particularly by the private sector. It is estimated that the targeted growth of the manufacturing industries will require investments in the order of RO.420 million (US\$1.09 billion) during the Fifth Five-Year Plan period and RO.860 million (US\$2.23 billion) during the Sixth Five-Year Plan period.

In view of the past investment trend for the manufacturing sector, it is assumed that the investment in that sector will continue in the order of RO. 25 to 30 million annually (RO. 250 to 300 million in aggregation for the aforesaid 10 years). In addition, the industrial investment will be realized in the order of RO. 500 to 600 million if the development of the gas-based petrochemical and hydrocarbon industries are materialized, while additional investment in the order of another RO. 300 to 400 million will be realized with the promotion of other proposed projects during the 10-year period. In view of this prospect, the foregoing target is expected to be attained with the proposed development.

Indicative Target for Growth of Manufacturing Industries

	1995*	2000	2005
1. Growth Target (RO. ml.)			
GDP (at factor costs)	4,875	6,524	8,730
– Oil Sector	2,021	2,459	2,851
– Manufacturing Sector	275	507	955
2. % to GDP			
– Oil Sector	41.5%	37.7%	32.7%
– Manufacturing Sector	5.6%	7.8%	10.9%
Growth Rate Assumed			
(% p.a.)	(1995–2000)	(2000–2005)	
GDP	6%	6%	
– Oil Sector	4%	3%	
– Manufacturing	13%	13.5%	
Investment Requirement			
	(1996–2000)	(2001–2005)	
for Manufacturing Industries			
(Aggregated for 5 years)			
(RO. ml.)	420	860	

Note: * Target figures in Fourth Five-Year Plan

Source: Estimated by JICA Team

2.2 Basic direction for the development of prospective industrial projects

Development of export markets for indigenous (non-oil) minerals

The exploration work conducted until the present did not find any metal resources which have great prospect for commercial production and utilization. Endowment of a large variety of metal resources has been reported, but their reserves are too small for commercial exploitation. As for the non-metal mineral resources, gypsum and aggregates resources have great prospect to exploit for export to certain countries where the domestic supply is short.

Nevertheless development prospect of these projects is dependent greatly on the

location of exploitation sites, since costs for transportation up to destined markets are the most critical factor affecting feasibility. Thus, it is crucial for the projects to seek means of operating at least costs for transportation, such as by: 1) selecting the site enabling production and shipment at economic cost, 2) selecting the reserves to be exploited in economic scale, and 3) minimizing the transportation cost by combining the exploitation of other resources or combining with other projects. Investment on these projects must be determined by conducting more detailed studies on the project sites and market. Nevertheless, the preliminary study indicates a positive prospect of exporting those materials, suggesting to carry out a detailed project study for investment decision by project sponsors. At the same time, intensive export promotion on those materials should be launched.

Production of new products from Indigenous resources

For developing projects geared at producing new products from any resources available in Oman, the domestic market alone is too small to make the projects viable. Only exception is oil and natural gas, which are available for production in international scale.

With the development of the new natural gas fields in which huge gas reserves have been proven with the latest exploration work, a large volume of natural gas will be supplied from the new fields combining the supply from the existing gas fields. In this event the development of natural gas-based hydrocarbon industry such as ammonia/urea fertilizer and chemical methanol could be possible in addition to the natural gas-based olefin petrochemical complex project which is under final investigation by project sponsors. As these are large projects with all produced products for export, it is required to carry out detailed feasibility studies including detailed studies on export markets to arrive at a decision of implementation. Notwithstanding all these, the current trend and future outlook of the international markets indicate bright prospect for these projects.

There are no other mineral resources which have bright prospect for commercial development, because these are non-rare minerals endowed with relatively small reserves. However, Oman has an advantage in transporting cargoes to the countries in South-east Asia and East Asia at a comparatively low transportation cost by using return container to be transmitted empty, for which shipping companies offer lower freight because cargo inflow volume far exceeds the outgoing volume. It implies possibility to produce any products by utilizing available resources for export to those regions which will expand into large import markets along with the rapid growth of economy. In this regard, the

production of gypsum boards and rock wool may be possible projects which are worthy to conduct detailed studies on feasibility.

As for the agricultural resources, there may be possibility for farms to undertake cultivation in moderate scale of selected crops for exports under subcontracting from buyers, since those farms can produce quality products in adequate quantity with managed farming to meet every shipping requirement. Meanwhile, the products can be transported to destination at competitive cost benefiting from well established inland road network and also lower ocean freight for container as mentioned above.

As for the development of marine resource-based projects, there is a possibility to develop projects for efficiently utilizing small-size fish resources, which are not used efficiently, for pet foods for an example.

In general, there are several opportunities from which projects may be identified such as producing small items for exports by using mineral resources, agricultural resources and marine resources.

However, for developing such projects, it is important to upgrade the ports in Oman into a port of call for international container lines while intensifying government supports for small export business.

Promotion of import substitution projects

The development of import substitution industries has been actively promoted since early 1980's, and the existing industry covers almost all of the fields which can be feasible for import substitution.

A project for the domestic production of glass bottles for beverages are among the possible projects which can be developed for the domestic production to substitute for increasing imports.

Project for utilizing traditional technologies

In Oman there are a variety of traditional technologies, which have been inherited from indigenous heritage industries. But these technologies are hardly adaptable to the current industrialization.

Promotion of export industry based on Oman's advantages for industrial location

Industrial projects which can be promoted based on Oman's advantages for industrial location would be 1) those based on advantage for transit in international or regional distribution, 2) those for exporting by using return containers at favorable ocean transportation cost, destined to Southeast Asia and East Asia to which the return containers

are transmitted, and 3) those promoting to relocate some fields of production base from India by Indian investors due to high production costs resulting from highly complicated procedures for import and export, high import duties and restriction on import of production equipment and raw materials. For instance, prospective projects include those 1) manufacturing high-value knitwear for exports by using cotton or blended yarns imported from India and other countries, 2) producing snack foods and other processed foods for exports by using agricultural products imported in bulk from neighboring countries, and 3) undertaking the re-packing of medicines and agricultural products imported for re-export.

However, the said produced products are transported to export markets far from Oman, making it important to focus on high value products. At the same time, in order to support those industries, the government should take intensive efforts to upgrade the port facilities and be able to attain a position of a hub port in ocean container transport so that the industry can benefit from favorable container freight while promoting the development of relevant industries which can supply the export industries at economic cost with required inputs such as high quality packaging containers and printing.

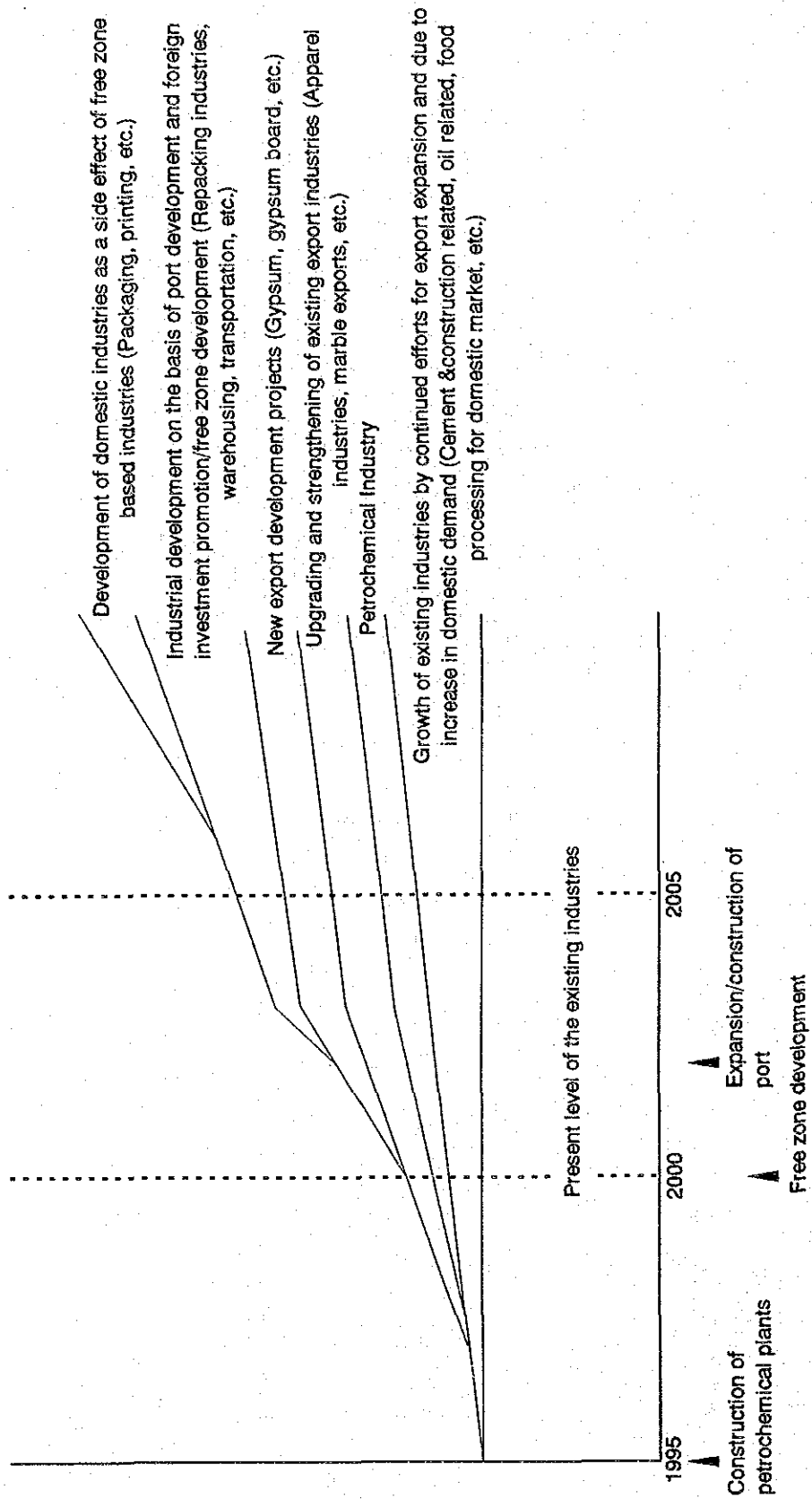
Project requisite for pursuing balanced industrial development

Development of supporting industries is essential for pursuing the industrial development. In particular, the development of high-tech industries requires high level metal-working and precision machinery engineering industry and plastic processing industry. It is of vital importance for the government to promote the development of these supporting industries, as well as the development of industrial infrastructure. However, as the existing demand for these supporting industry is nearly nil. From the industrial strategy context of pursuing sound growth of the industry, it would be more effective for the government to take indirect measures for promotion, particularly, 1) by promoting the development of mainstream industry which creates demand for supporting industry, and also 2) by intensifying human resource development and the establishment of technological basis which serve to build up technical capabilities of the supporting industry.

Macroeconomic target and component industrial projects

The industrial development scenario put emphasis on the growth of existing industries as an initial step for development in light of its possible contribution to immediate growth of the industrial sector, as well as forming the industrial base for strides. It is primarily based on (1) industrial growth spurred by public investment with its multiple effect, particularly in cement, aggregate and other construction-related industries, (2) increase in production of export products by existing industries, such as oil, cement, and foodstuff for

Growth of Industry Sector and its Components - Growth Strategy Concept -



other GCC countries, and (3) growth of the domestic market-oriented industries producing foodstuff and other consumers' goods which resulted from increases in domestic demand along with a rise in peoples' income level induced by growth of these existing industries.

At the same time the existing export industries could possibly grow within a few years if efforts are made to strengthen these industries, including diversification towards higher value-added exports in the garment industry and upgrading of marble products for export drive in the marble industry. Also, the natural gas-based chemical industries can greatly contribute to industrial growth as well as increases in exports by around 1998, if contemplated projects in these fields are launched with the implementation of plant construction by 1995.

On the other hand, projects that need to be further studied, such as the export of gypsum, and the production and export of gypsum boards, will take more time for realization so that these projects can contribute to increase in industrial output only after 2000.

Some industries can be developed with the improvement or development of relevant infrastructure such as establishment of a container port functioning as a regional hub, improvement of port facilities, and set-up of a free zone. However, since the development of these infrastructures needs further study and plan, such industries will bring their effect on industrial growth in 2005 or later.

The intensification of foreign investment promotion including the set-up of free zone will accelerate industrialization, and it will induce the development of linkage industries for sustainable growth. However, this subsequent effect will come later than the above.

2.3 Government Programs to Support Industrial Development

(1) Ensuring Export Market

Program 1-1: Institutional setup for export promotion

It is proposed to establish an Export Promotion Center which carries out export promotion activities. The expected functions of this institution include undertaking of general supporting activities for local (and foreign in the future when the foreign investment is encouraged in the Sultanate) manufacturers and traders established in the Sultanate.

At the same time, the center will play a role to maintain or improve the reputation of Omani export business to be efficient and reliable in the international trading by assisting small-scale Omani trading houses through extension of consultancy services in close collaboration with the National Trading House to be recommended in the following.

Program 1-2: Trading company development

Establishment of a trading house to be operated under the intensive government support. The trading house will take the lead in promoting and exporting Omani products. It provides foreign buyers with assistance in product sourcing, quality assurance, and logistical services, and offers Omani manufacturers product development, technical and marketing assistance utilizing its worldwide marketing network.

In Oman many seeds of developing small-scale export industries and potential investors in such ventures are available, but their realization fails in actuality. Hence, support seems to be effective in bringing such business opportunities into reality.

(2) Encouraging Foreign Investment

Program 2-1: Legislative preparation for the improvement of foreign investment conditions to make more attractive for foreign investors

(1) Legislation for foreign investment promotion

Foreign investors require a legal basis explicitly stipulating legal assurance on foreign investment and also incentives and privileges to be provided. For intensive promotion of foreign investment, it is recommended to examine the set-up of an omnibus legislation for foreign investment promotion.

(2) Improvement of foreign investment conditions

Comparing foreign investment conditions between Oman and UAE., there are some areas in which improvement would be necessary in order to make the environment more attractive for foreign investors.

Program 2-2: Institutional set-up for promotion of foreign investment

The objective of this program is to set up institutional functions which undertake systematic activities for foreign investment promotion so that foreign investment can be induced for the development of industries in Oman.

In Oman, domestic capitals will have adequate capacity to finance industrial projects except for huge investment projects which require project finance from abroad, and therefore, the role of foreign investors is to provide the management of ventures as project partners, particularly technical management for operation and marketing of products for exports as well as equity participation. Hence, the objectives of the program are primarily focused on identifying and inducing such foreign partners who are interested in industrial operation in Oman and assist in export marketing of the produced products.

Program 2-3: Promoting the set-up of Free Zone

The proposed industrial development strategy calls for the promotion of manufacturing industry for exports and re-packing industry for re-export which could foster the development of packaging industry as well as packaging materials manufacturing industry in Oman.

For the promotion of foreign investment particularly for the development of export processing industry and re-packing industry for re-export in Oman, it would be effective to set up a Free Zone in Oman similar to Jebel Ali Free Zone at Dubai, UAE., which functions as a business enclave facilitating free trade and industrial operation by foreign capital.

(3) Intensifying financing programs/schemes for industrial development

Development of financing system to provide long-term loan avail to finance adequate funds to cater investment demands, and enhancement of financing scheme to provide short-term loan for working funds required for export-oriented small and medium industries.

Recommendation

(1) Intensification of financing functions to finance large industrial projects

In order to promote the large investment projects, it is recommended to take immediate actions in intensifying ODB's financing capacities to finance those projects.

(2) Expansion of financing functions for medium-scale projects

Intensifying the ODB's project finance scheme and the Government Soft Loan scheme, particularly review of, 1) lending limit on projects, 2) fund raising to meet increasing financing demands, and 3) interest structure

(3) Pre-shipment export finance

Review of the existing system

(4) Human Resource Development

Program 4-1: Long-term technical skill acquisition program

The proposed program will provide a long-term on-the-job training in public-implemented projects or abroad, and churn out ready-to-work technicians/engineers before they perform their jobs. The measures to achieve this are as follows:

- 1) Send trainees to public-implemented projects, or abroad for on-the-job training in the actual work place
- 2) For public-implemented projects, the government makes the public-implemented projects with the obligation of undertaking training of a certain number of Omani trainees for two to three years for each
- 3) For sending trainees abroad, tie up with regional industrial communities/associations in industrialized countries, and request to receive trainees for long-term training (at least 2 years, but depending on the required period for mastery) in their actual work place

Program 4-2: Management skill improvement program

This program is designed to mobilize qualified young people who aspire to become business owners or managers, and to provide them with continuous training so that they can do management by themselves in the future. Candidates include young employers, sons of business owners, bank or government employees, who intend to start their own business, but not necessarily limited to particular qualification.

Major areas of training are:

- 1) Exploitation of market needs and seeds of new business opportunities: organized tour on pioneer businesses in the country as well as abroad, presentation of R&D results at domestic and overseas research institutes, etc;
- 2) Provision of the place for information exchange between different industries and fields to which participants belong;
- 3) Management training, including business planning and administration, production control, marketing, etc.

(5) Establishment of Technological Basis

Program 5: Establishment of technological research and product development assistance function

The program entails the setting up of an institute which carry out (1) R&D for the development of technologies that promote the efficient utilization of locally available resources, and also for establishing product specifications to meet the local conditions, and provide (2) technical assistance and guidance to industries for product development as required by them.

The program has two principal objectives. The primary objective is to carry out R&D activities for the development of appropriate technologies related to the products specialized in Oman for which there is are foreign technologies readily available. The

results of these R&D activities will be disseminated to the industries. Another objective is to develop competent R&D personnel through implementation of the foregoing R&D activities.

The main theme for R&D are enumerated below.

- 1) Technologies for processing some indigenous resources in which available foreign technologies are not directly applicable; due to special quality or limited reserves of materials to be processed, or due to speciality of materials which are not available in industrialized countries.
- 2) Development of product specifications and applicable technologies to meet special market requirements (such as small markets, special climate conditions, etc.) which are not readily satisfied by available foreign specifications and technologies.

(6) Further Grading up of Infrastructure

Recommendation for expansion/construction of port

- Upgrading of port facilities not only to cope with the increase in cargo handling volume expected in the future, but also to make most of the locational advantage of Oman:
 - a) Upgrading of port to be able to receive major international container lines
 - b) Promotion of major container lines to make a stop over to the port

The following considerations should be taken for port expansion and new port construction projects

- 1) Implementation program for the port expansion and new port construction project must be drawn to meet the growth of throughput cargo volume. Nevertheless, in order to attract international container lines, consideration should be made to satisfy minimum requirement.
- 2) A candidate site may be located within an area extending from Sur to Sohar via Muscat or an area in or around Salalah. Container lines may prefer a location near an arterial line, which makes Salalah the most suitable. Considering the distance of subsequent inland transportation, however, a site should be selected near Muscat on the northern coast generating the largest container demand.

Recommendation for development of Industrial estates

In view of inducing various business activities from abroad, further development of the industrial sites will be necessary, especially the preferential treatment for export industries, and industrial estates specialized for specific industries.

The former is discussed as "Establishment of Free Zone" in Program 2-3.

The latter type of industrial estates designed for specific industries will contribute to the modernization and higher productivity of the industry. It includes industrial estates specialized in apparel industry with common facilities for upgrading the operation, as discussed as "Industrial Project for Upgrading an Existing Apparel Industries", and that of metalworking industries, which will particularly be required as supporting industrial basis sometime in the future with accumulation of industry. Food industries often enjoy the provision of facilities specifically prepared for the industry, such as water supply facilities, packaging assistance center, raw material storage facilities, etc.. The provision of such facilities might attract foreign investments in this field, though a marketing research is required in advance to confirm the demand.

These industrial estates designed for specific industries may be a part of the zones within the existing/planned industrial estates, depending on the demand size.

3 Recommendation on Implementation of Government Support Programs for Industrial Development

3.1 Phased Implementation

Since the government support programs recommended in the foregoing cover various areas of activities, they are necessary to be implemented one by one according to the extent of importance. In addition, there are some programs which will not be effective unless the prerequisite conditions are fulfilled in advance, and therefore, phased implementation is more adequate from this point of view.

3.2 Organizational Setup for Program Implementation

The enforcement of various support by organizations centering the Government, is essential in one hand, but due attention is necessary on the other hand to avoid over investment in implementing the programs which is often caused by small size of the market. The organizational setup is necessary to be integrated among the programs with similar activities and functions, and to prevent develop independent organizations for each required functions regardless of its size. The organizations should be either expanded or established as a separate organization, when the necessity arises, in accordance with increase in their activities.

1 Background, Objective and Scope of the Study

1.1 Background and Objective of the Study

Traditionally, Oman's economy has heavily depended upon oil exports. The government has spent sizable portions of oil revenues in construction of infrastructure and investment in selected enterprises in basic industries, while encouraging private investment in the industrial sector. These initiatives have brought about moderate expansion of some industrial sectors, but dependency on the oil sector is still formidable, accounting for 42% of the country's GDP. In the meantime, depressed oil prices have squeezed the government finance and forced the government to take austerity measures through budget cutbacks since 1987.

Thus, the country is facing an urgent task of accelerating post-oil economic development, thereby freeing the economy from reliance on oil resources as lifeline. This entails the development of a new and effective industrialization strategy.

The country's fifth five-year national development plan, scheduled to start in 1996, is considered to serve as a benchmark in this direction. Prior to the drafting of the new plan, the Government of Oman requested the Government of Japan to provide assistance in preparing the Industrial Development Master Plan.

In response, Japan International Cooperation Agency (JICA) sent a study mission tasked in the selection and identification of mining and manufacturing projects in February 1993. The mission conducted field survey and investigation to identify and select promising areas of new industrial development and to confirm the intent of the government as to what role is expected in the proposed project. In May 1993, JICA sent a pre-feasibility study team to Oman, which agreed and signed the Scope of Work with the Government of Oman. Based on the Scope of Work that defines detailed contents, activities, and responsibilities related to the study, JICA sent a study team organized by UNICO International Corporation to Oman. This report has compiled the result of field survey and related analyses conducted by the study team.

1.2 Scope of the Study Agreed

The scope of the Study is defined in the Scope of Work which has been agreed between the Sultanate Government and JICA as shown in the following:

- (1) Review of General Background
- (2) Review of Industrial Development

- (3) Survey on Industrial Sector
- (4) Formulation of a Comprehensive Master Plan
- (5) Conclusion

2 Economic Development Plan and Industrial Sector

2.1 Current State of Economy

The Oman's economy has substantially expanded registering a steady growth over the last two decades since the First Five-Year Development Plan was launched in 1975. Nominal GDP has grown at 12.2% per annum in average during the First to Third Five-Year Development Plan period from 1976-1990. Accordingly, GDP per capita increased more than threefold from RO.780 (or US\$2,258) in 1975 to RO.2,719 (or US\$7,072) in 1990. Further, the GDP per capita nominally increased to RO.2,984 (or US\$7,760) in 1993. The real growth of GDP in 1978 constant price recorded 8.3% per annum in average for 12 years from 1978 to 1990, and increased by 9.2% and 6.8% respectively in 1991 and 1992.

Though the relative share of the oil sector in GDP has currently been reduced to below 50%, the Oman's economy is virtually dependent on oil to a considerable extent. In 1991 the nominal value-added of the oil sector decreased by 16.6% from that in 1990 since oil prices have fallen to the range of US\$17 to 18 per barrel. Once it increased by 13.0% in 1992, but decreased by 10.7% in 1993. Thus the relative share of this sector declined to 37.4% of GDP in that year.

In 1993, the non-oil industrial sector accounted for 14.0% of GDP, of which the manufacturing industry accounted for 5.1% of the nominal GDP, followed by the building and construction (4.2%), agriculture and fisheries (3.2%), electricity and water (1.3%), and mining (0.2%).

The manufacturing, mining as well as fisheries industries are important sectors in accelerating diversification of the economy, particularly in the development of non-oil income generating industries, since agricultural production appears to hardly attain substantial growth in the future. Contributions of the manufacturing industry and mining, however, are still small despite substantial growth achieved in the last 15 years. Intensive development of these sectors would be essential for sustaining steady growth of the economy with diversification.

2.2 Economic Development Plan

The Sultanate of Oman has launched the National Economic Development program in

1975 with the setting up of the Development Council chaired by the Sultan, in accordance with the Economic Development Law enacted in the same year.

Following the three previous Five-Year Development Plans, the Fourth Five-Year Development Plan was implemented in 1991. The Plan was formulated with the following broad guidelines:

- (1) Achieve a CDP of not less than 5% per annum in real terms, on the average.
- (2) Pursue the policy of diversification of national income; reduce dependence on oil; link the oil production ceiling with technical capacity; work towards extending the expected life of oil reserves as much as possible; continue to exert efforts to change the structure of the Omani economy by placing emphasis on investment in other non-oil income producing sectors, particularly agriculture, fisheries, manufacturing and tourism, as well as the services sector in order to increase their contribution to GDP, and to widen the production base.
- (3) Ensure regional development by directing investments to the various regions, especially outside the region of Muscat.
- (4) Pay regard to developing human resources in order to raise the level of participation of national workers in the various economic and social activities. Achieve a balance between the targeted rates of economic growth and the needs of the work force on the one hand, and the output of the educational and training system on the other.
- (5) Support the capabilities of the various sectors and activities of the national economy (government and private) to provide work opportunities in all avenues wherein the national work force may be used, so that it will result in raising the level of participation of national labor force while realizing the aims of Omanization.
- (6) Achieve a balance between total public expenditure and the government revenues available, and place a maximum limit on the annual deficit permissible. At the same time work towards developing non-oil revenues so that its level of contribution to overall revenues is not less than 20% during the next two Five-Year Development Plans.
- (7) Emphasize the adoption of an economic system, based on free market economy which will ensure fair competition and raise efficiency; by correcting any distortions in the economic structure that will strike the balance between revenue and expenditure or the balance of current and commercial operations and; by promoting the role of private sector and encouraging its contribution to the various areas of economic activity.
- (8) Continue the necessary research, surveys and studies as the best means of

developing natural water resources and optimizing their uses.

- (9) Determine the balance of State debt so that it does not exceed allowable limits, either in its total amount or the costs of servicing the debt itself.

2.3 Industrial Subsectors in Oman

Promotion of the industrial sector in Oman has become full-fledged under Royal Decree No.1/79 (Organization and Promotion of Industries) issued in 1979. During the first five-year plan period (1976 - 1980), various food processing plants, including flour milling, production of dates, and processing of sea food were constructed under government initiative. Also, construction of large-scale industrial plants such as a cement mill, a copper smelting plant, and an oil refinery were commenced.

As a result, the manufacturing sector that account for less than 0.3% of GDP in 1975 started to grow in the 1980s, by 2.3% in 1985, 3.7% in 1990, and 4.3% in 1992.

The initial stage of industrial development was led by the government sector, explaining why 43% of total capital formation in the manufacturing sector came from the public sector between 1981 and 1985. Then, partially due to the decline in oil revenue, the public sector's share dropped to 21.7% between 1986 and 1990, and 11.7% in 1991-1992.

Measured by domestic market size, metal products subsector is the largest sector, earning RO. 500 million, followed by chemical products and petroleum products subsector (RO.280 million each), and food and beverages subsector (RO.250 million).

Non-metallic mineral products subsector shows the highest self-sufficiency rate of 84%. On the other hand, subsectors with low self-sufficiency rates are basic metals (7.3%), metal products (6.7%), and food and beverages subsectors (16.0%), except for other manufacturing products subsector.

The largest subsector by value of imports for domestic consumption, excepting imports for re-exports, is metal products subsector (RO.469 million as of 1992), followed by food and beverages subsector of RO.244 million. Subsectors with annual imports over RO.100 million are those of chemicals and chemical products, basic metals, and other manufacturing products.

So far as industrial products are concerned, finished products account for only 19.1% of total imports, but this figure does not include transportation equipment (mostly motor vehicles), and parts that represent 28.5% of total.

(1) Food and Beverages

The food industry in Oman are mostly located near their markets, while the fish processing/canning industry alone is located near production sources. Fish processing is the sole subsector mainly targeted for the export market.

The extent of processing is relatively limited in most of subsectors, which mainly produce ordinary food materials. Only few of them develop their own products in response to market needs.

The relatively large enterprises have successfully introduced technology, equipment and experts from foreign countries at an early stage of operation. They are now manufacturing relatively high quality products, which are distributed to the domestic market, or are exported when a surplus arises. However, most of them relied on foreign companies for technology transfer but only at the initial stage where expatriate engineers are depended upon for operations.

There are 104 small enterprises and micro enterprises with a capital of RO.25,000 or less, accounting for 50% of total. 60 enterprises of these are bakeries, 23 are flour mills, and 20 are engaged in spice and coffee milling and packaging.

Medium-size enterprises with a capital between RO. 25,000 and 100,000 totalled 51 (25% of total), of which 29 are bakeries. Others are classified to have been engaging in other food products, which are relatively large enterprises producing ice and confectionery. The small- and medium-size enterprises on the other hand are engaged in ice and confectionery production, milling and repacking of spice, coffee and beans. The remaining 9 enterprises are catering in the areas of meat processing, dairy products, fish processing/canning, and soft drink production. Many of them have a capital of RO.50,000 or more, and their characteristics are similar to those of the above-mentioned enterprises with a scale of RO.100,000 and over. The only main difference is that these latter enterprises serve local demand.

(2) Wood Products and Furniture

There are 173 registered enterprises in the furniture production category (metal furniture is classified as metal products, thus not included here), of which 159 (92%) are small enterprises or micro enterprises with RO.25,000 or less. Most of these small furniture makers focus on "custom-made" business to produce relatively small furniture for local customers in communities they are operating. The manufacture of furniture involves a lot of manual work, and these makers use only simple woodworking machinery and employ mostly foreign workers.

Large furniture makers with a capital of RO.100,000 or over, on the other hand, conduct their business in a different manner from smaller ones. Most of them have started their business as furniture importers. While some of them are oriented towards marketing of manufactured furniture in stores, most of them are more or less characterized as contractors specialized in interior furnishing work and supplying furniture for hotels, commercial buildings, and large mansions.

They adopt management techniques and production technology from industrialized countries, import materials from various countries, and design and manufacture products by themselves. Their products are excellent in design and quality and are exported to foreign customers in GCCs on a contract basis.

Large companies have high potential to export high-grade furniture and parts by using their design and production capabilities. The key to international competitiveness in this case lies in availability of wood materials (hardwood in particular), i.e., whether they can secure reliable supply sources.

Theoretically, resumed growth of large companies based on export drives would produce a trickle-down effect to small enterprises which can serve as subcontractors or suppliers. However, given their limited quality consciousness and the surplus production capacity of large companies, it is difficult to expect such vertical linkage to be established for the time being.

(3) Textile and Apparel

The textile and apparel industry in Oman is categorized into textile manufacturers processing imported yarn into cloth, consignment processors of exported apparel products based on a contract with foreign buyers, and tailors mainly serving the domestic market.

The sole textile plant weaves cloth using imported yarn, for distasha and other products of Oman and other GCCs. It is also the only plant in the GCCs weaving cloth on a commercial scale utilizing modern facilities and equipment. However, it faces intensive competition with imported products, but manages to hold a 20% share of the domestic market.

The largest number of registered enterprises is found in the consignment processing business, which is further divided into the sewing of buyer-designed cotton/synthetic fiber cloth furnished by buyers, and the knitting operation. Of the 30 enterprises registered, 24 have a capital of RO.100,000 or over, and most of the remaining

enterprises with RO.75,000 or larger. Only 5 enterprises have been clearly identified as knitted garments makers.

Consignment processing is mostly directed to the US market. Most of products are shipped to middle and low-end markets, and are sold at supermarkets or discount stores in the US. These products are sewn by foreign workers from Sri Lanka and India. Their wages are presumably much higher than in their home countries.

Under the NAFTA, low-cost products from Mexico, not subject to import quota, are expected to flood the US market thus, it will become increasingly difficult for products finished in Oman to maintain their sales. Possible measures include, 1) to enter the EC market; 2) to explore a high-end market by manufacturing high-grade products by improved design and quality control, and; 3) to manufacture children's cloths and women's dresses, which are currently imported in large quantities for domestic and GCC markets. Dependence of this industry on the foreign skilled-labor and its availability may ensure the supply of quality labor, making market diversification feasible despite high labor costs relative to the wages of workers in their home countries.

(4) Paper and Paper Products, and Printing

Due to limitations of forest and water resources, the paper and pulp industry is not likely to establish itself in the country. The paper product industry in this country consists of secondary or tertiary processing of imported paper, and printing.

Growth of demand for packaging containers and paper products can be expected only with the expansion of industrial activity, the rise in personal income, changes in lifestyle, and increased demand for printing and publication.

The printing industry in the country has grown through a relatively high level of printing technology due to the absence of restriction on imports of ink, paper and other materials, as well as printing machinery and equipment. In the entire GCC region, more than 200 enterprises are in printing business and are competing intensely.

Again, growth of printing demand depends heavily on the expansion of industrial activity. Already, the printing industry on the basis of domestic demand, can be regarded as fully established in Oman.

Thus, the industry's future growth potential lies in export markets as it offers high quality service, particularly outside the GCCs, such as India and African countries on the east coast.

(5) Chemicals and Chemical Products Industry

There are 48 enterprises registered in the chemicals and chemical products manufacturing sector. Thirty-eight have a capital of RO.100,000 or more which seems

to have been established for the purpose of attaining import substitution.

Given a limited size of domestic demand, the number of enterprises in most of subsectors is relatively small, ranging between 1 and 4, excepting industrial chemicals (9 enterprises), soap/perfumes/cosmetics (9), and plastics (11).

Generally, chemicals and chemical products' demand grew with expansion of industrial activity. In a country with limited industrial concentration like Oman, however, high growth potential can be expected in chemical products used as household goods and packaging containers, as well as industrial products and parts.

(6) Non-Metallic Mineral Products

Enterprises registered in the non-metallic mineral product sector are divided into 4 subsectors, namely: 1) glass, 2) structural clay, 3) cement, lime, and plaster, and 4) others. All of the subsectors manufacture construction materials. Also, they heavily utilize domestic resources.

There are 18 enterprises in the glass manufacture industry. All these large enterprises but one manufacture glass fiber products such as tanks and boats. The other produces ornament glass for building. Other smaller enterprises are presumably producing mirrors, small glass products, and glass fiber products. These manufacturers mainly employ manual processing, and have potentiality to further diversify products depending on the expansion of domestic demand.

There is no local production capacity for glass bottles and containers. Although domestic markets are not very large, imports of glass bottles have reached almost 18,000 tons annually. In addition, demand for carbonated beverages increased recently and glass bottles remain to be preferred than cans. Therefore, if demand in the GCCs is added, an appreciable demand can justify a minimum level of local production.

The cement manufacturers are partly exporting owing to the growing foreign demand. Because neighboring countries have also established their respective cement industries, expansion of domestic demand, which is likely to be stable in the future seems to hold the key to further growth of this subsector.

At present, aggregate business is mainly serving domestic demand, but the lack of major aggregate resources in the GCCs, excepting the UAE, suggests future growth opportunity to establish itself as an export industry.

(7) Metalworking Industry

550 enterprises are registered in the fabricated metal products industry. Only 37 (7%

of total) are relatively large in size (RO.100,000 or over) while 451 (more than 80%) have a capital of RO.25,000 or smaller.

Generally speaking, larger enterprises (mainly RO.75,000 or larger) have introduced relatively modern machinery and technology, and served the local market, as well as the export market. On the other hand, many of the smaller enterprises including the micro enterprises (RO.50,000 or smaller) mainly serve local demand in small quantities, and engage in workshop-type of operations involving manual processing and utilizing a limited number of simple machinery.

Enterprises registered in each subsector normally hold a 60% - 85% share of domestic demand accounting for their business base, and export 30% - 45% of total production to the GCCs. Oman have to compete with products imported from the GCC, but they generally maintain a higher range of market share by offering quality products. Also, many of them use off-the-shelf materials for processing, making the raw material cost very small in percentage of total cost. These enterprises are not much automated to maintain production flexibility required of a small market operation. They adjust production as skilled workers re employed in various parts of the production process. As a result, they generally attain a high level of value added. At the same time, they often use specialized machinery in some processes. In such a case, their ability to divert into other products will be limited.

Theoretically, as these enterprises offer an increasingly diverse product mix or adopt a complex production line, they shall start to contract out some of processing work to subcontractors. This marks the beginning of horizontal diversification. In practice, however, internal processing and assembly are still common, partly because production lines are relatively simple, and metalworking enterprises capable of serving as outside manufacturers have rarely emerged.

In addition to the fabricated metal products and machinery industry, there is a subsector specializing in metalworking-related engineering. This subsector is divided into relatively large enterprises (not classified as large-scale enterprises, but larger than enterprises in other segment) who perform machining and repairing services mainly for oil industries, such as PDO and ORC, on a contract basis; and small-scale enterprises and micro-enterprises which do automobile repair like machining and adjustment of automotive parts. Enterprises in this subsector also own a variety of general-purpose machine tools. The former is recognized by customers as having a relatively high level of workmanship and reliability. They have the ability to complete the entire process of

work within the country, rarely contracting out to foreign manufacturers. Nevertheless, their major customers are oil and refinery industries, which do not require a high level of precision as required by machining and assembly work for automotive and electronics industries.

3 Industrial Development Strategy

3.1 Comparative Advantages and Constraints for Industrial Development in Oman

(1) Political and macro-economic conditions and geographic characteristics

The political and macro-economic stability of the Sultanate of Oman has established conducive environment for industrial investments, and this is one of Oman's fundamental advantages in promoting both domestic and foreign investment to foster industrial development. It is a general perception that Oman is located in an area which is less susceptible to potential conflicts in the Middle East.

Further, Oman's geographic location has advantages for external trades, particularly as a strategic point connecting South-west Asian countries especially India and African countries on the east coast, in movement of people and goods.

However, the industries in industrialized countries have little knowledge about Oman. Generally, they show less interest in industrial investment in GCC countries except for oil and gas related industries because of limited regional markets. For the promotion of foreign investment, it would be essential to conduct intensive promotion activities in attracting interest of potential foreign investors from target countries.

Oman is in an advantageous position in terms of ocean transportation. The volume of outflow ocean container is far smaller than that of inflow volume, and the preferential freight rates are available, particularly to Southeastern and Eastern Asian countries.

(2) Endowment of natural resources available for industrial development

The oil and natural gas resources have given an impetus for steady growth of the Oman's economy up to the present.

The efficient utilization of these resources is a critical ingredient for future economic development. Since Oman's reserves of these resources are limited unlike in other GCC oil-producing countries, the development of non-oil industries is a vital task for the state to sustain economic growth. This is clearly indicated as a major economic development policy.

There are various mineral resources found in Oman, but those available for commercial exploitation are limited. Further, the commercial exploitation of those

minerals requires the development of additional infrastructure since most of the deposits are located in remote areas.

The country has water resources, but its potential supply capacity is scarce.

Agricultural production in Oman is very limited in variety and so is the capacity to develop agro-based industries using indigenous agricultural products, with the exception of dates. Oman has potentials for commercialization of marine resources, but the fishery industry is yet to be developed to ensure adequate supply of marine products which serve as stable inputs for the marine processing industry.

(3) Markets for manufactured products

The limited size of the domestic market owing to a small population is an inherent constraint in the promotion of industrial development, specifically on the development of import-substitution industries in Oman. This implies the importance of industrial development based on export-oriented industries.

Some products may be common for both Oman and other GCC countries and for such products, the production could be embarked for supply not only for the domestic market but for other GCC markets as well. Nevertheless, as the size of these markets is relatively small, even if all GCC markets is are combined, efforts should be exerted to penetrate into other export markets.

In future, India and east coast countries in Africa are expected to emerge as new trade partners.

India has shifted itself away from the traditional self-reliance-based industrialization policy to a new industrial policy based on open market economy, upon which the government pursues selective industrial promotion confined only to the industries that can undertake economic production in competition with imports while pursuing the liberalization of imports.

In view of the new industrial policy of the Indian Government and the current conditions of the major industries in the country as cited above, the Indian market could provide prospective opportunities for Oman's exports given its advantage of proximity, and should Oman be able to produce the products that meet their requirements. As large number of Indian workers working in Oman remit their earnings to India, Oman's exports to the Indian market will not adversely affect the balance of external payments between the two countries.

(4) Capital, technology and human resources available for industrial development

1) Present stage of industrialization

The existing manufacturing industries in Oman are dominated by light processing industries which undertake the production of final products such as food and beverages, general consumer goods, building materials and metal products or appliances for domestic use which are small to medium in scale. These industries, except the garment industry have been established entirely for exports, and were originally intended for the production of supplies to domestic markets, some manufactures of which have started to export at least part of their products in recent years.

The large-scale heavy and chemical industry existing in Oman is limited to only a few. These are the oil refinery, copper smelting plant and cement plants which belong to the public sector.

In general, the size of the existing industries is still small in terms of the number of establishments, production capacities as well as the extent of industrial branches, and they are concentrated in downstream industries. Majority of the industries use raw materials and industrial inputs imported from abroad, except for a few industries processing indigenous resources because upstream or supporting industries which manufacture industrial inputs have not been established yet in Oman. There are some factories which undertake the production of ancillary components, but these are produced in small units only for their self-uses. Further, Oman's industries are based on conventional technologies, and high-tech industries do not exist yet in Oman.

This situation implies that Oman is still at an early stage of industrialization and it has not yet reached a stage that can encourage the development of linkage industries or upstream industries towards diversification and deepening of industrial structure.

2) Technological accumulation and management capabilities

Most of the Oman's industries have not been long since their establishment, which operate manufacturing units acquired from abroad while using expatriate supervisors and operators. This situation limits the accumulation of technologies as well as upgrading of management capabilities in individual manufacturing enterprises.

Most of manufacturers, at present, undertake the production of customary products employing conventional types of established process technologies transferred from

abroad or based on product designs provided by foreign partners or buyers. The present level of production can be sustained even without accumulation and upgrading of technologies. However, the accumulation and upgrading of technologies as well as the enhancement of R&D activities would be of vital importance for the existing industries to raise productivity and quality and also to diversify the product lines.

Similarly, most of the manufacturing enterprises depend on expatriate managers employed for factory management. The national entrepreneurs and managers who have experiences in industrial management are still limited. Enterprises, however, cannot entrust expatriate managers with entire management no matter how they are capable. Moreover, because managers provide their services only during a contract period, those enterprises hardly build up confident management systems and skills and marketing know-how based on expertise. Hence most of the existing industries, particularly small- and medium-scale enterprises, are vulnerable to any changes in markets and business climates as well as to competition with foreign competitors.

3) Productivity

The industry is broadly classified into three types. These are:

1. Process-plant-based industry;
2. Metal fabrication and assemble industry; and
3. Light processing industry.

The process-plant-based industry existing in Oman includes the oil refinery, copper smelting plant, cement plants and some types of food processing plants. In this type of industry, productivity largely depends on the existence of captive markets that can ensure steady plant operation with high capacity utilization. In Oman, most of the existing process plants except the oil refinery have fallen in low capacity utilization due to small domestic markets and keen competition in the GCC markets which have been the major markets for Omani exports.

The metal fabrication and assemble industry in Oman is still at an early stage of development. Most of the existing metal fabrication and assemble works use raw materials, intermediates and major components imported from abroad, since upstream industries as well as linkage industries are not developed yet. These works are equipped with small units of machinery and undertake a variety of metal fabrication works requiring low level of precision, on the basis of job order in small scale. Hence their productivity is poor. Captive markets for these industries are related to the oil and

gas exploitation work and oil refinery, and there exists no assembly industry represented by electric, electronics and automobile industries which require a high level of quality and production control.

The light processing industries dominantly existing in Oman include those engaged in the manufacturing of various consumers' goods. Most of these industries undertake labor-intensive operation based on conventional technologies and expatriate labor, and using imported raw materials. Though labor costs paid for expatriate labor are much higher than those in South West Asian countries, productivity is relatively high because of efficient operation performed by skilled expatriate labor employed.

4) Capital resources available

The oil revenues have generated adequate capital resources to finance the public and private investments in all sectors up to the present. The Omani private sector has ample financial capacities with relatively high financial savings enough to realize the investments needed for expanding the manufacturing industries, provided that these are small to medium in scale. Nevertheless, for the development of export-oriented industries, foreign investment will also play important roles like transfer of technologies, as well as enhancement of management and marketing. Towards this end however, intensive activities for foreign investment promotion would be needed.

5) Human resources

The manufacturing industry did not contribute much to the employment of Omani labor force despite rapid growth of the labor demand to date. This is due to the scarcity of Omani labor force available to industries, since the number of Omani labor force is limited not to mention that majority of these labor force has no industrial training and discipline. It is predicted that the number of workable Omani labor force will substantially increase in the next ten years, so that an adequate number of national labor force will become available for the industries if appropriate education and vocational training are provided. It would be important to take appropriate measures for the development of human resources while establishing the system for encouraging the employment of these labor force by the industries.

(5) Infrastructure and institutional support relevant to the industry

Oman has well developed internal road systems connecting major cities and industrial centers. A potential bottleneck lies in port facilities. The existing ports are small to accommodate large international commercial vessels, and therefore most of

exports and imports are transported through Dubai, causing extra freight charges.

The strategic location of Oman allows the country to serve as a regional distribution center for the Gulf area allowing it to share this present role of Dubai in the future. To this end, location advantages must be maximized by upgrading the port facilities to meet increasing transport demand while establishing air routes to link the country with neighboring countries in the Middle East, Europe and Asia.

Electricity supply meets increasing demand with the set up of additional power plants being under construction or planning. However, electricity cost charged in Oman is much higher than that offered in other GCC countries, although it is still lower than that charged in other regions.

Although the water supply is adequate to meet the requirements of the existing industries and their foreseen expansion, it would hardly cater to any new industry that will consume a large quantity of water.

The government has facilitated the entry of industrial investments with the provision of fiscal incentives including exemption from import duties and income tax while protecting the local industries with imposition of import duties on the competing imported items. In addition, the government has simplified or deregulated several administrative procedures and licenses to facilitate the establishment and operation of industrial units. These institutional support as well as incentive systems can attract domestic and foreign investors to enhance industrial investments in Oman.

3.2 Industrial Development Scenario and Its Basic Strategy

3.2.1 Industrial development scenario

(1) Future vision

Given the limited size of domestic demand and lack of resources necessary to support the long-term sustainable growth of economy, it is crucial to develop both resource and non-resource based industries. Sustainable growth of these industries should be based not only on domestic market but also on overseas markets. There are two possible ways of developing the industry based on overseas market. One is via the promotion of export-oriented industries, and another is through infusion of foreign industries to Oman as a relocation site for their production base for exports. As the

domestic market oriented industry requires the existence of domestic demand sufficient to support stable production, an industry based on the overseas market seems to be more appropriate in Oman where domestic demand is limited. This also holds true given the geographical advantage of Oman. This benefit can be materialized through various types of development measures including, the encouragement of multi-national companies to set up their regional operation centers, technical service centers and distribution centers covering the Mid-eastern region and the establishment of export processing zone for transit trade. It may be conceived for Oman to function as an "International Industrial and Trade Center in the Mid-East Region" in the future. These centers and export processing zones will create demand for industrial products and industrial services not only from the domestic market but from the overseas market as well.

However, Oman lacks technological and managerial basis which is indispensable in exploring the full potential of its geographical advantages. In order to accomplish the above future vision of industrialization and making the most out of its geographical advantages, Oman should make every effort to develop and establish industrial infrastructure which is scarcely available at present.

Dubai in UAE is situated in an advanced position in terms of industrialization as well as economic development based on above-mentioned considerations, especially because its industrial infrastructure including the Free Zone has been developed. There are a number of foreign investments in the Free Zone, including a regional center set-up by multi-national companies, and production bases by foreign operators for their export or re-export business. Further Dubai is the hub of ocean container lines whereas the Muscat port and other ports in the Gulf are feeder ports. In recognition of this situation Oman should primarily undertake port development which can supplement Dubai's function so that it can play the role as a sub-center which will share with Dubai in satisfying the increasing demands in the region. With this development step, Oman can establish its position as the regional center standing side by side with Dubai in the future.

For making most of these locational advantages, Oman has to make efforts to build up the following functions:

- 1) Distribution functions: ocean transport lines, ocean container lines, bulk transport system, general cargo ocean transport system, freight forwarders, bulk storage, cold storage, common warehouses, etc.
- 2) Precision engineering functions: manufacturing of machine tool and machinery

components, metal working, etc.

- 3) International communication functions: computer networking, printing, packaging, advertising, warehousing and distribution, and legislation for the protection of intelligent property, etc.
- 4) General supporting functions: industrial design, automation, packaging, metal stamping, plastic processing, tool and die manufacturing, etc.
- 5) Research and testing functions: standards-related tests, applied research on manufacturing technologies, standard development, etc.

(2) Immediate task

The existing functions in Oman are only a few among the foregoing supporting industries. However, this situation is similar in neighboring countries in this region. Oman can establish these industries if appropriate actions are taken for the immediate task and continuous efforts to achieve the mid- and long-term target.

The immediate task indicates the initial step in the development process which Oman has to pursue towards the achievement of its future vision. Given the present situation of the industry standing on limited fields and number of establishments, however, Oman should not be impatient over development by contemplating the establishment of those supporting industries within a short period of time, since it may adversely affect sound growth of the industry. Such supporting industries require the existence of an industry that can bear their costs to some extent. Thus, the immediate task for the industrial development is to expand the scale and fields by fully utilizing the available yet limited resources and markets. With this objective, the immediate step for development should focus on upgrading and strengthening the existing industries for sustainable growth, as well as the promotion of industrial investment (mainly private investment) to establish new industries that will cater to both the domestic and export markets.

In expanding the industry, the use of foreign firms' capabilities is also important particularly in ensuring market, obtaining efficient management and advanced technical know-how.

Another immediate task is to take appropriate preparatory actions in developing the foregoing functional industries, as well as in deepening of industrial structure and providing the technological basis upon which long-term development process will revolve.

(3) Mid- and long-term target

The immediate development step as discussed above will entail the creation of markets for industrial inputs including raw materials, intermediates, and supporting services required by the established industries. This will generate the demand that can support the development of upstream industries and supporting industries in economic scale in the future. Thus, along with this evolution, the future tasks will be directed to the development of upstream industries and supporting industries, while continuing the expansion of established industries.

Through the aforementioned development steps, Oman's manufacturing industries will be built up with competitiveness and efficiency towards diversification of industrial structure and deepening of the industrial base in the future.

However, in Oman, as discussed earlier, the demand actually generated from such industry will not be sufficient for development of up-stream industry and supporting industries due to limited scale of downstream industries. Unlike other countries, the development of up-stream industries and supporting industries should also depend partly (often mostly) on the demand from abroad, including export to overseas markets. Thus, in Oman the deepening of industry should be pursued on a selective basis, focusing on the sub-sectors essential for realizing the future vision of industrial development.

3.2.2 Basic strategy for the pursuance of industrialization

The basic strategy for the pursuance of industrialization, which guides industrial development based on the foregoing basic elements and scenario for the development, can be highlighted as follows:

(1) Industrialization with close linkage to industrial capitals in foreign countries and prospects in overseas markets

It is crucial to promote industrial investments, including those that would upgrade and diversify existing industries, as well as the establishment of new industries with close linkage to industrial capitals of foreign countries while standing on overseas markets, which include the following two directions:

- 1) Promotion of export industries based on resources available in Oman, and industries that are based on geographical advantages and business environments existing in Oman.
- 2) Promotion of industries which can serve as production bases for foreign industries for the purpose of transit trade including re-export, fully utilizing the Oman's geographical advantages.

- (2) Selective promotion of local supply industries led by the development of market and usage for selected products

There are some fields of industries which can be developed for local supply if intensive efforts are devoted to the development of local markets, particularly on new products which have not been penetrated yet in Oman or those for which the domestic demand is likely to increase.

Some existing industries based on indigenous resources have possibilities for product diversification for more efficient use of resources, while there are still some resources which have not been used yet as industrial inputs because the downstream products utilizing such resources have not penetrated yet the local market.

For these fields of industries, it is important to undertake intensive development of markets and product usage, thereby promoting the development of industries which can supply locally.

- (3) Simultaneous promotion of the large-scale resource-based export industries, and small and medium-scale light industries (particularly manpower-saving with mechanization and for which diversification towards higher value added product lines is possible)

Along with the promotion of large-scale resource-based industries such as, natural gas-based petrochemical and hydrocarbon industries including ammonia/urea fertilizer and chemical methanol; and large-scale mining of gypsum for exports; simultaneous promotion of a wide variety of small- and medium-scale light industries, particularly, modern light industries including the rationalization and diversification of the existing industries, to achieve manpower saving with mechanization and diversification towards higher value added product lines.

- (4) Undertaking by the government of overall supports for promoting industrial development

Government should not only take the initiative to promote the development of large projects which seem hard to be promoted by the private sector, but it should also undertake overall support for promoting the development of other industries. These supports involve the investment promotion measures particularly for foreign investment, enhancement of industrial finance system, human resource development, the establishment of technological basis, and the upgrading of industrial infrastructure.

4 Industrial Development Plan

4.1 Macroeconomic Target for the Industrial Development

The following table gives the macroscopic target (growth target of investment and sectoral value added in the manufacturing sector) as an indicator for the proposed industrial development plan.

Indicative Target for Growth of Manufacturing Industries

	1995*	2000	2005
1. Growth Target (RO. ml.)			
GDP (at factor costs)	4,875	6,524	8,730
– Oil Sector	2,021	2,459	2,851
– Manufacturing Sector	275	507	955
2. % to GDP			
– Oil Sector	41.5%	37.7%	32.7%
– Manufacturing Sector	5.6%	7.8%	10.9%
Growth Rate Assumed			
(% p.a.)	(1995–2000)	(2000–2005)	
GDP	6%	6%	
– Oil Sector	4%	3%	
– Manufacturing	13%	13.5%	
Investment Requirement			
for Manufacturing Industries	(1996–2000)	(2001–2005)	
(Aggregated for 5 years)			
(RO. ml.)	420	860	

Note: * Target figures in Fourth Five-Year Plan

Source: Estimated by JICA Team

The oil sector still has a great impact on the economic growth of the state in the future, since it accounts for about 42% of GDP in 1992 and this relative share will be maintained by 1995 when the Fourth Five-Year Plan ends. If oil production remains at the present level of around 700,000 BBL/day in the future, the sectoral value-added in the oil sector will virtually be affected by international oil prices. The Fourth Five-Year Plan projects

the growth of the oil sector at 4.9% per annum on the average and reaching RO.2,021 million by 1995. Whereas the international oil prices are unlikely to rise in conspicuous upward trend, it is likely that the production of natural gas will substantially increase with the development of new gas fields, supplementing the sectoral value-added to some extent. Thus, it is assumed that the oil sector will continue to grow to some extent, although the growth rate will be lower than the projection in the Fourth Five-Year Plan.

The long-term economic development policy targets to sustain the economic growth at an average of not less than 5% per annum in real terms. In order to achieve this goal, assuming an average annual rate of economic growth of 6% in nominal terms in the future, the manufacturing industry as well as other non-oil sectors should grow at rates higher than those set for the Fourth Five-Year Plan, making the manufacturing industry the most important sector since it has the most vigorously growing potential surpassing agriculture, fisheries and services sectors. Assuming that the growth of the oil sector at 4% per annum during the Fifth Five-Year Plan period and 3% per annum during the Sixth Five-Year Plan period, the manufacturing industries should grow at 13% per annum, and at least 13.5% per annum respectively, during these two Five-Year Plan periods.

The existing manufacturing industries perform far below the scale to achieve the targeted increases in output and value-added. Hence to achieve this goal, the primary task should be focused on identifying investment opportunities in a wider scope of industries to promote and encourage industrial investments, particularly by the private sector. It is estimated that the targeted growth of the manufacturing industries will require investments in the order of RO.420 million (US\$1.09 billion) during the Fifth Five-Year Plan period and RO.860 million (US\$2.23 billion) during the Sixth Five-Year Plan period.

In view of the past investment trend for the manufacturing sector, it is assumed that the investment in that sector will continue in the order of RO. 25 to 30 million annually (RO. 250 to 300 million in aggregation for the aforesaid 10 years). In addition, the industrial investment will be realized in the order of RO. 500 to 600 million if the development of the gas-based petrochemical and hydrocarbon industries are materialized, while additional investment in the order of another RO. 300 to 400 million will be realized with the promotion of other proposed projects during the 10-year period. In view of this prospect, the foregoing target is expected to be attained with the proposed development.

4.2 Basic Direction for the Development of Prospective Industrial Projects

(1) Development of export markets for indigenous (non-oil) minerals

Mineral resources excluding oil and natural gas are divided into two categories of metal resources and non-metal mineral resources.

The exploration work conducted until the present did not find any metal resources which have great prospect for commercial production and utilization. Endowment of a large variety of metal resources has been reported, but their reserves are too small for commercial exploitation. Copper has been mined for smelting in Oman, but the mined reserves are currently reaching its depletion. Thus, in order to continue the operation of the existing copper smelting plant, it is crucial to find new reserves with continuous exploration work. Under this situation there is no prospect for developing industry based on metal resources available in Oman.

In Oman there are a variety of non-metal mineral resources, among which gypsum, lime-stone and stones for aggregates are abundantly available, although these are low value resources available in many countries. Gypsum and aggregates have great prospect to exploit for export to certain countries where the domestic supply is short, as enumerated below.

- 1) **Gypsum:** Japan and some countries in South-east Asia import a bulk of gypsum including low grade gypsum due to short supply from local sources. In this region, Thailand is the only exporter of gypsum since other countries are unable to export their indigenous gypsum due to high costs of exploitation and transportation.
- 2) **Aggregates:** Quarrying at wadis is the supply source of aggregates in Oman. As there are a number of operating quarries which are no longer permitted to continue operation or quarrying beyond the permitted maximum depth of 1.5 m, quarrying at wadis will hardly meet large demand for aggregates in the near future. The GCC countries except Oman and a part of UAE lack stones suitable for aggregates, while there are large demand for aggregates with construction of infrastructures including roads and ports in these countries. This situation implies bright prospect of developing a large-scale stone quarrying at a stone mountain rather than quarrying at wadis in small scale.

Nevertheless development prospect of these projects is dependent greatly on the location of exploitation sites, since costs for transportation up to destined markets are the most critical factor affecting feasibility. Thus, it is crucial for the projects to seek means

Summary of the Selection Process of Potential Projects

Criteria for identifying projects	Identified potential projects for development			Factors considered in the project screening
	Existing industry with expansion prospective	Prospective projects identified for further study	Projects not prospective at the current stage of industrial development	
1 Making use of endowed natural resources 1.1 Development of new resources not utilized yet - Metal resources - Non-metal mineral resources - Fishery resources - Agricultural resources 1.2 Development of export market for the potential resources - Non-metal mineral resources - Agricultural resources 1.3 Development of new application of available resources - Non-metal mineral based - Natural gas based - Metal based		Pet food Small scale, contract-based projects	Kaolin	No prospective resource available R&D work required for industrial processing Further study required on availability of resources No prospective resource available for industrial processing in large scale.
	Cement	Gypsum Marble Aggregates	Dates	R&D work including market research required
		Gypsum board Rock wool Ammonia and urea Methanol C ₂ downstream	Refractory bricks Basic copper products	Should be an export oriented project Should be an export oriented project Demand size limitation w/diversified demand Demand size limitation
2 Making use of potentiality of domestic market 2.1 Supply to the existing large scale industries for deepening of import substitution - Oil & NG sector - Copper refining sector - Cement sector - Basic food sector - Government services 2.2 Furtherance of import substitution - Food & beverage - Consumer products - Construction/housing materials				Not prospective yet due to demand size limitation
		Glass bottles	Assembly of passenger cars Metal products used for construction Small electric appliances	Small size due to diversified demand Demand size /supporting function limitation due to immature accumulation of industry Demand size /supporting function limitation due to immature accumulation of industry
3 Development of traditional technology 4.1 Pottery 4.2 Textile 4.3 Wooden furniture 4.4 Fishing boat				No firm technology basis for export oriented commercial operation
4 Capitalized on locational advantage of Oman in the international business 4.1 Locational advantage on access to export markets 4.2 Advantage on production condition		Snack food Printing Pharmaceuticals formulation/ repacking Knitted wear	Wooden furniture	Prospective hard wood resource is not available
5 Formulation of the basis for balanced industrial development 5.1 Industries related to metal working 5.2 Industries related to plastic processing			Metal engineering Small electric appliances	Demand size /supporting function limitation due to immature accumulation of industry Demand size /supporting function limitation due to immature accumulation of industry

of operating at least costs for transportation, such as by: 1) selecting the site enabling production and shipment at economic cost, 2) selecting the reserves to be exploited in economic scale, and 3) minimizing the transportation cost by combining the exploitation of other resources or combining with other projects. Investment on these projects must be determined by conducting more detailed studies on the project sites and market. Nevertheless, the preliminary study indicates a positive prospect of exporting those materials, suggesting to carry out a detailed project study for investment decision by project sponsors. At the same time, intensive export promotion on those materials should be launched.

(2) Production of new products from indigenous resources

For developing projects geared at producing new products from any resources available in Oman, possible markets in general, should be identified not only in the domestic market but also in export markets because of small size of the former. However, except oil and natural gas, there are no other resources available for production in international scale. In view of these constraints the development of projects for utilizing resources available in small scale should be possible only in the case of: 1) taking advantage of exporting products by using return container offered at lower freight, or; 2) producing any high value products which can be sold widely in small quantity.

With the development of the new natural gas fields in which huge gas reserves have been proven with the latest exploration work, a large volume of natural gas will be supplied from the new fields combining the supply from the existing gas fields. In this event the development of natural gas-based hydrocarbon industry such as ammonia/urea fertilizer and chemical methanol could be possible in addition to the natural gas-based olefin petrochemical complex project which is under final investigation by project sponsors. As these are large projects with all produced products for export, it is required to carry out detailed feasibility studies including detailed studies on export markets to arrive at a decision of implementation. Notwithstanding all these, the current trend and future outlook of the international markets indicate bright prospect for these projects.

There are no other mineral resources which have bright prospect for commercial development, as mentioned earlier, because these are non-rare minerals endowed with relatively small reserves. However, Oman has an advantage in transporting cargoes to the countries in South-east Asia and East Asia at a comparatively low transportation cost by using return container to be transmitted empty, for which shipping companies

offer lower freight because cargo inflow volume far exceeds the outgoing volume. It implies possibility to produce any products by utilizing available resources for export to those regions which will expand into large import markets along with the rapid growth of economy. In this regards, the production of gypsum boards and rock wool may be possible projects which are worthy to conduct detailed studies on feasibility. However, as those resources are available in many countries, competition with local products in destined markets is expected, or from exports in other surrounding countries. In such event Oman, will be handicapped caused by long distance transportation despite favorable container freight. These projects should be well conceived to produce high quality products with high efficiency in order to overcome competition.

In Oman, cultivation of agricultural resources are just as limited as its seasons. Small production units and inherent constraint in expanding agriculture in large scale are due to scarcity of water supply. However, there are a number of existing estates cultivating in relatively large scale. There may be possibility for those farms to undertake cultivation of selected crops for exports in moderate scale under subcontracting from buyers, since those farms can produce quality products in adequate quality with managed farming to meet every shipping requirement. Meanwhile, the products can be transported to destination at competitive cost benefiting from well established inland road network and also lower ocean freight for container as mentioned above.

As for the development of marine resource-based projects, it seems difficult to identify any large projects, because there are no survey data showing details of marine resources available and, furthermore, the present legislation strictly controls fishery for preservation of marine resources. However, there is a possibility to develop projects for efficiently utilizing small-size fish resources, which are not used efficiently. For instance, there is a possibility to produce higher value added-products such as pet foods from sardines which are being used only as fertilizer at present, but this require a gathering system since sardines are caught in small quantity by a number of individual fishermen.

In general, apart from large projects based on natural gas, there are several opportunities from which projects may be identified such as producing small items for exports by using mineral resources, agricultural resources and marine resources. However, for developing such projects, it is important to upgrade the ports in Oman into a port of call for international container lines while intensifying government supports for

small export business.

(3) Promotion of import substitution projects

The development of import substitution industries has been actively promoted since early 1980's, and the existing industry covers almost all of the fields which can be feasible for import substitution. Further steps for encouragement of import substitution could be implemented for, 1) the production of products for which the domestic demand has grown to the scale that supports economic production and also for, 2) the production of raw materials and intermediates for existing industries to substitute from those imported.

A project for the domestic production of glass bottles for beverages are among the possible projects which can be developed for the domestic production to substitute for increasing imports. Another possible import substituting production involves metal products for buildings, plastic components and small electric appliances, but the demands for these products are still not large enough to support the domestic production competitive with imports which are mass-produced in other countries. However, as these industries function to support the production of other industries, the government should consider promoting them by providing appropriate supporting measures despite their less competitiveness on the basis of production costs. At present there are no possibilities for the domestic production of raw materials and intermediates that can substitute for imports.

Personnel who are engaged in the existing industry should seek to identify possible projects for expansion or diversification to expand import substitution along with the expansion of the domestic economy. Toward this end, it is important to nurture capable Omani human resources who work as top and middle managers and engineers in the industry.

(4) Project for utilizing traditional technologies

In Oman there are a variety of traditional technologies, which have been inherited from indigenous heritage industries. But these technologies are hardly adaptable to the current industrialization. Typical heritage industries existing in Oman are: 1) wood-working (including furniture), 2) dhow-boat building, 3) ceramic and 4) fabric weaving.

Traditional wood furniture is featured with Arabic patterns shaped by manual carving, but precision of manufactured articles is substandard. Further, there are no more Omani nationals who undertake the furniture making. Instead, expatriate skilled workers who have practiced carving techniques in their home countries are engaged in this manufacturing, but there is no assurance on how long they will continue this job in

Oman. Under this situation the traditional furniture technology can be used only for making furniture to meet limited local demand.

Demand for dhow-boats has been decreasing, and manufacturers of dhow-boats are currently seek to diversify their product lines, including the manufacturing of FRP boats. As seen in the traditional wood furniture and wood-working industry, dhow-boat building is currently carried out by expatriate workers.

Traditional ceramics are biscuit ware which cannot be used for holding water. Experiment on glazing is underway based on technology transferred from China, but it will take time for commercialization.

Indigenous cloths are woven by traditional hand looms, and those cloths are traded at high value because of limited supply. Application of mechanized looms is underway with technical assistance from China. However, the cloths woven using traditional technology have no peculiar design and weaving patterns, thus having no merits for preservation.

(5) Promotion of export industry based on Oman's advantages for industrial location

Industrial projects which can be promoted based on Oman's advantages for industrial location would be 1) those based on advantage for transit in international or regional distribution, 2) those for exporting by using return containers at favorable ocean transportation cost, destined to Southeast Asia and East Asia to which the return containers are transmitted as mentioned earlier, and 3) those promoting to relocate some fields of production base from India by Indian investors to due to high production costs resulting from highly complicated procedures for import and export, high import duties and restriction on import of production equipment and raw materials. Among these three categories of projects, the first category of projects stands to compete with Dubai because prevailing conditions in Oman do not indicate prospects while the other two categories of projects have bright prospect for promoting in Oman. For instance, prospective projects include those 1) manufacturing high-value knitwear for exports using cotton or blended yarns imported from India and other countries, 2) producing snack foods and other processed foods for exports by using agricultural products imported in bulk from neighboring countries, and 3) undertaking the re-packing of medicines and agricultural products imported for re-export. However, the said produced products are transported to export markets far from Oman, making it important to focus on high value products. At the same time, in order to support those industries, the government should take intensive efforts to upgrade the port facilities and be able to attain a position of a hub port in ocean container transport so that the industry can benefit from favorable container freight while promoting the development of relevant

industries which can supply the export industries at economic cost with required inputs such as high quality packaging containers and printing.

(6) Project requisite for pursuing balanced industrial development

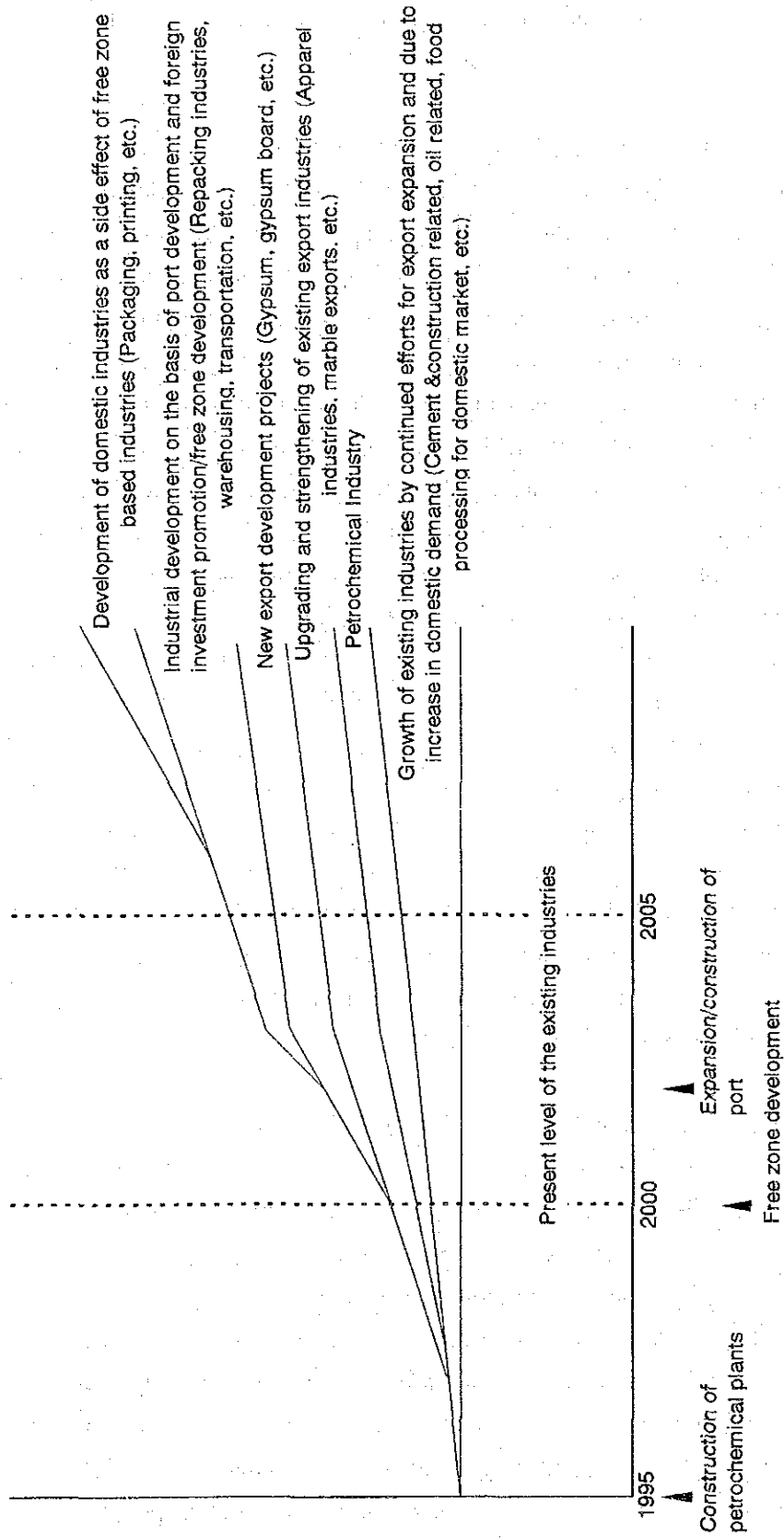
Development of supporting industries as well as industrial infrastructure including transportation, telecommunication and utility supply are essential in pursuing industrial development. In particular, the development of high-tech industries requires high level metal-working and precision machinery engineering industry and plastic processing industry. The existing metal-working industry provides supporting services to the oil development and petroleum refining industry. However, this industry is not capable to undertake ancillary parts manufacturing or provide ancillary services for electric/electronic appliances/machinery and related component manufacturing industry and automobile component manufacturing industry which may be developed in the future. The existing plastic processing industry also limits the growth of manufacturers in undertaking ancillary components of the high-tech industry.

Under this situation, it is of vital importance for the government to promote the development of these supporting industries, as well as the development of industrial infrastructure. However, as the existing demand is nearly nil, the government should have to provide large amount of subsidy in order to foster such infant industry with national interest. From the industrial strategy context of pursuing sound growth of the industry, it would be more effective for the government to take indirect measures for promotion, particularly, 1) by promoting the development of mainstream industry which creates demand for supporting industry, and also 2) by intensifying human resource development and the establishment of technological basis which serve to build up technical capabilities of the supporting industry.

(7) Macroeconomic target and component industrial projects

The industrial development scenario put emphasis on the growth of existing industries as an initial step for development in light of its possible contribution to immediate growth of the industrial sector, as well as forming the industrial base for strides. It is primarily based on (1) industrial growth spurred by public investment with its multiple effect, particularly in cement, aggregate and other construction-related industries, (2) increase in production of export products by existing industries, such as oil, cement, and foodstuff for other GCC countries, and (3) growth of the domestic market-oriented industries producing foodstuff and other consumers' goods which resulted from increases in domestic demand along with a rise in peoples' income level induced by growth of these existing industries.

Growth of Industry Sector and Its Components -Growth Strategy Concept -



Note: Not to scale. Indicative only.

At the same time the existing export industries could possibly grow within a few years if efforts are made to strengthen these industries, including diversification towards higher value-added exports in the garment industry and upgrading of marble products for export drive in the marble industry. Also, the natural gas-based chemical industries can greatly contribute to industrial growth as well as increases in exports by around 1998, if contemplated projects in these fields are launched with the implementation of plant construction by 1995.

On the other hand, projects that need to be further studied, such as the export of gypsum, and the production and export of gypsum boards, will take more time for realization so that these projects can contribute to increase in industrial output only after 2000.

Some industries can be developed with the improvement or development of relevant infrastructure such as establishment of a container port functioning as a regional hub, improvement of port facilities, and set-up of a free zone. However, since the development of these infrastructures needs further study and plan, such industries will bring their effect on industrial growth in 2005 or later.

The intensification of foreign investment promotion including the set-up of free zone will accelerate industrialization, and it will induce the development of linkage industries for sustainable growth. However, this subsequent effect will come later than the above.

4.3 Government Programs to Support Industrial Development

4.3.1 Ensuring export market

There are many opportunities to start export manufacturing, and there are some examples of success; for example export of dates as raw materials for seasoning source for special purpose, export of vegetables to Japan by air cargo, etc. However, much of the seeds of export manufacturing have been hampered by lack of knowledge about the needs of markets, difficulty of access to the export market, lack of knowledge on packaging, and/or poor performance at the initial contact with potential buyers.

Government support in marketing intelligence services, product development support, and trading company development can be helpful in this context, in identifying and entering new markets and developing specialized marketing capabilities.

Further, the Government needs to develop a strong capacity to deal with bilateral and multilateral trade negotiations so as to maintain and improve market access, as well as develop appropriate mechanisms to ensure that the available opportunities are utilized most effectively.

Program 1-1: Institutional setup for export promotion

It is proposed to establish an Export Promotion Center which carries out export promotion activities. The expected functions of this institution include undertaking of general supporting activities for local (and foreign in the future when the foreign investment is encouraged in the Sultanate) manufacturers and traders established in the Sultanate. These include:

1. Trade information: build up and facilitate local manufacturers with data on overseas buyers, overseas market research companies/organizations, and foreign trade regulations
2. Assistance for trading procedures: assist companies to electronically declare and clear their goods, obtain information on shipping schedules, trade codes, foreign exchange data, trade statistics, Port Authority's berth and ship schedule, etc. through on/off-line service
3. Product design and packaging consultancy services: organize design consultancy for the various industries by bringing in overseas experts to advise local manufacturers on new developments in design and marketing. Design seminars and workshops by leading designers will be also useful.
4. International marketing assistance: organize trade missions and participation in international trade fairs for local (and foreign in the future) companies to promote their products and services in both established and new markets.
5. A special marketing task force: form a special task force within the center to undertake market research of strategic products of the country, monitor the export trend and formulate the strategic plan for promotion actions to be undertaken either by the center or by the government-supported trading house proposed in Program 1-2 (provisionally called "National Trading House").

At the same time, the center will play a role to maintain or improve the reputation of Omani export business to be efficient and reliable in international trading by assisting small-scale Omani trading houses through extension of consultancy services in close collaboration with the National Trading House.

Program 1-2: Trading company development

Establishment of a trading house to be operated under the intensive government support. The trading house will take the lead in promoting and exporting Omani products. It provides foreign buyers with assistance in product sourcing, quality assurance, and logistical services, and offers Omani manufacturers product development, technical and marketing assistance utilizing its worldwide marketing network.

In Oman many seeds of developing small-scale export industries and potential investors in such ventures are available, but their realization fails in actuality. Hence, support seems to be effective in bringing such business opportunities into reality. While MCI has been providing support through IDU and other organizations, efforts should be made on a commercial basis. By doing so, initiatives will be taken with recognition of risks involved in new ventures, and feasible projects can be launched quickly and individually. Also, the increase in foreign investment will prompt growth of support industries by increasing demand for locally available raw materials and intermediate products.

In the process, it is of critical importance for the trading house to expand its network and enable itself to handle small-lot sales.

The trading house is to be operated as a semi-government body, but on commercial basis with some assistance from the government as part of the development efforts for SMIs.

4.3.2 Encouraging foreign investment

The proposed industrial development programs comprise a number of projects which would require promotion on the basis of joint-venture with foreign investors, and to this end, intensive promotion for foreign investment would be essential.

In encouraging foreign investment, there are two requirements which have to be instituted. These are:

- a. Preparation of investment conditions more attractive for foreign investors in terms of legislative and institutional setups and industrial/business infrastructure, and
- b. Undertaking of intensive activities for foreign investment promotion.

In general, Oman's investment conditions are favorable for foreign investment. Nevertheless, there are some areas in which improvements would be needed in order to prepare for more attractive conditions.

Furthermore, even if those conditions have been well prepared, it seems hard to spur foreign investment in Oman unless vigorous inducement is done to potential foreign investors, because majority of the world's industrial communities has little knowledge about Oman except its endowment of oil and natural gas resources. And, further, it scarcely provides any significant features for industrial investments that will attract particular attention of foreign industrial concerns due to relatively small domestic markets and limited resources available. In order for Oman to promote foreign investment, it is

crucial to undertake strategic promotion activities in a well-organized manner and to introduce Oman widely among industrial concerns abroad to induce their interest in specific industries or projects in Oman.

Program 2-1: Legislative preparation for the improvement of foreign investment conditions to make more attractive for foreign investors

(1) Legislation for foreign investment promotion

Foreign investors require a legal basis explicitly stipulating legal assurance on foreign investment and also incentives and privileges to be provided. For intensive promotion of foreign investment, it is recommended to examine the set-up of an omnibus legislation for foreign investment promotion, which includes:

- 1) Statement of the national policy and objective of pursuing foreign investment promotion;
- 2) Definition of industrial fields to be promoted and vice versa restricted for foreign investment;
- 3) Regulations on foreign investment and administrative procedures for application to be filed and license to be granted on foreign investment;
- 4) Provisions for legal status and legal assurance on ownership and property held by foreign capital, and also assurance of repatriation of invested capital and profits generated therefrom; and
- 5) Provisions for tax incentives and any other fiscal incentives privileges to foreign investment.

These provisions must be elaborated in accordance with the deliberation of the issues raised in the subsequent section. Further, if decision is made to set up a Free Zone as proposed in Program 2-3, legislation for the Free Zone including the privileges given to establishments and the requirements to be fulfilled by these establishments should be included in the omnibus legislation for foreign investment promotion.

(2) Improvement of foreign investment conditions

Comparing foreign investment conditions between Oman and UAE, there are some areas in which improvement would be necessary in order to make the environment more attractive for foreign investors. Enumerated below are focal points upon which deliberation is recommended.

1) Legal assurance on foreign ownership

Foreign investors require legal assurance on foreign ownership as well as

repatriation of invested capital and profits. To meet these requirements, it would be effective to lay down legislation to assure foreign investors with ownership in Oman, and their repatriation of invested capital and profits generated therefrom.

2) Alteration of licensing system

- a) Issuance of a single license incorporating an entity for industrial undertaking as well as set-up of industrial establishment with foreign investment
- b) Set-up of different status of license
- c) Issuance of special license for business undertaking inside the Free Zone

3) Alteration of systems for granting exemption from income tax and import duties

Foreign investors often desire to ensure the provision of incentives prior to making an investment decision, and therefore, the present system may discourage investment decision by foreign investors. It is recommended to alter the system so that the incentives may be granted to all eligible entities without individual applications. An alternative system for granting the incentives is based on the issuance of different status of license as discussed in the previous section. In this event, entities holding special license for export industry may be entitled to import duty free raw materials, and semi-processed goods used for production as well as commodities re-exported with re-packing; provided that import duties should be paid for those re-sold in the domestic markets or used in the products for domestic sales.

4) Reduction of income tax for entities employing Omani workers by categories

Program 2-2: Institutional set-up for promotion of foreign investment

The objective of this program is to set up institutional functions which undertake systematic activities for foreign investment promotion so that foreign investment can be induced for the development of industries in Oman. Foreign investment promotion activities, however, are generally time consuming and costly. For bringing about immediate cost effect, it would be efficient to undertake the initial promotion activities confined to priority industries or projects as well as target countries. The program is designed to undertake such selective promotion activities focused on the development of those industries or projects as envisioned in the industrial development plan.

In Oman, domestic capitals will have adequate capacity to finance industrial projects except for huge investment projects which require project finance from abroad, and therefore, the role of foreign investors is to provide the management of ventures as project partners, particularly technical management for operation and marketing of products for

exports as well as equity participation. Hence, the objectives of the program are primarily focused on identifying and inducing such foreign partners who are interested in industrial operation in Oman and assist in export marketing of the produced products.

The organizational structure is composed of: (1) the central units for the promotion activities, (2) promotion service units in Oman, and (3) promotion units in the target countries. The promotion service units in Oman will be engaged in the provision of various promotion services under the instructions and supervision from the central unit. Promotion units in the target countries are to undertake promotion activities in the respective country.

Program 2-3: Promoting the set-up of Free Zone

The proposed industrial development strategy calls for the promotion of manufacturing industry for exports and re-packing industry for re-export which could foster the development of packaging industry as well as packaging materials manufacturing industry in Oman.

These industries involve external trade business for the import of materials and semi-processed products for final processing, goods to be packed for re-export, and the export of the thus processed and/or packed goods, and therefore this industry would require assurance of free operation of those import/export business duty free. At the same time, many of foreign operators being interested in such operation in Oman may prefer undertaking with full ownership since those undertakings should be a part of their overseas operation.

For the promotion of foreign investment particularly for the development of export processing industry and re-packing industry for re-export in Oman, it would be effective to set up a Free Zone in Oman similar to Jebel Ali Free Zone at Dubai, UAE., which functions as a business enclave facilitating free trade and industrial operation by foreign capital.

4.3.3 Intensifying financing programs/schemes for industrial development

The industrial development program requires a large amount of investment with domestic investment by the private sector in Oman as well as foreign investment from abroad. For successful achievement of the industrial investment envisaged in the development program, it is vital that the financing sources be able to provide adequate funds to investment demands.

Further, the development of export-oriented small and medium-scale light processing industries will be intensively promoted in the development program. These industries need relatively large amounts of working funds required for the importation of raw materials or semi-processed goods as well as export credit, for which they require easy access to short-term loans available at possible low financing costs. Foreign investors will likewise have to seek such access. Thus, it is crucial to intensify short-term financing programs in encouraging those export industries.

Recommendation

(1) Intensification of financing functions to finance large industrial projects

Under the present banking system in Oman, ODB would be the main financing institution for these projects. ODB, however, has not practiced financing such large amount of loans nor has experienced in underwriting and guarantee for foreign finance, although it is authorized to undertake such activities. This occurred since such large projects have not been implemented in Oman except for only a few public sector projects such as the oil refinery and cement factory which have been developed with public finance. Further, the financing requirements anticipated for the foregoing projects far exceed the ODB's current lending capacity.

In order to promote the proposed large investment projects, it is recommended to take immediate actions in intensifying ODB's financing capacities to finance those projects.

(2) Expansion of financing functions for medium-scale projects

Besides the financing requirements for large investment projects discussed above, the financing requirements for medium-scale projects will also increase with increases in number of projects as well as a size of project costs for individual projects. The envisaged projects require average project costs in the order of RO.1.0 to 1.5 million for the each project, totaling to RO. 300 to 400 million for 250 to 300 projects to be established in the next five years. Even though some of these projects will be realized on the basis of joint-venture with foreign investors, domestic finance would be needed for them since majority of foreign partners for those medium-scale projects may be weak in financial capacity and also have limited access to foreign financing institutions.

In order to cope with investors' requirements as well as increasing investment demands, it is recommended to take immediate actions in intensifying the ODB's project finance scheme and the Government Soft Loan scheme. Main issues to be reviewed will be as follows:

1) Lending limit on projects

For medium-scale projects foreign investors are used to seek finance through loans to the extent of 65 to 70% of project costs, while financing the remaining 30 to 35% with equity capital. In order to meet these financing requirements, it is recommended to examine possibilities of expanding the maximum limit of medium and long-term loans provided for individual projects.

2) Fund raising to meet increasing financing demands

The main fund resources for finance by ODB including the Government Soft Loan are government loans in addition to its capital. Assuming RO. 40 to 50 million of loans may be required annually, the funds available for the ODB's financing seem inadequate to meet increasing financing requirements foreseen for the next five years, and therefore it is recommended to investigate possible means for raising funds to meet increasing financing demands.

3) Interest structure

The ODB's project loan is provided at the interest rate ranging 3% and 6% depending on the location of projects, with a subsidy provided by the government although the actual rate of interest is currently at 9%. For the Government Soft Loan, ODB's financing costs are fully compensated with the government subsidy to make the loan free of interest. The applicable interest structure should be reviewed with a view of maintaining possible low interest rates by taking into account possible maximum extent of government budget to be provided as interest subsidy, as well as financing costs if other sources of funds are raised, while seeking to maintain the present interest rates, since this is one of favorable factors encouraging foreign investment.

4) Organizational structure for lending the industrial project loans

For intensifying financing functions to meet increasing financing requirements, one of critical issues is to intensify the organizational structure for efficiently lending the industrial project loans, particularly in shortening the time for project appraisal and loan processing. An alternative way is to transfer the appraisal and loan sanction for the Government Soft Loan to ODB by combining its project loan scheme and Government Soft Loan scheme.

(3) Pre-shipment export finance

The ODB Export Guarantee and Finance Unit operates export guarantee finance scheme.

This scheme substantially encourages the promotion of export industries. However, the commercial banks limit the provision of pre-shipment export finance to exporters due to borrowers' limited financial capacity.

Many of manufacturers engaged in processing imported materials for exports like export garment manufacturers require relatively large amount of working capital for importing materials, requiring them to procure those materials after receiving order from buyers. It would be contributed to exporters if pre-shipment export finance is expanded by giving guarantees to them in discounting the Letter of Credit opened by importers or promissory notes issued by export agents. This way, exporters can issue the Letter of Credit for the import of required materials with minimal working funds.

4.3.4 Human resource development

Although the human resource development is the vital task, the improvement/upgrading of the existing education/training system does not seem to be an effective measure for the intended human resource development. The existing system itself is well organized under the current situation of demand for the training of engineers/technicians or managers. More practical training can be provided only through OJT, prepared by industrial undertakings to meet specific jobs, or a similar type of organized field training under practical working conditions.

The government has been taking several measures to encourage employment of indigenous workers in the private sector, in addition to the public sector. Despite this government efforts, the private sector has failed to develop human resources, such as engineers, technicians and managers, who can lead future industrial growth, whereas some results are seen in the public sector.

Major impeding problem in human resource development in the private sector is lack of adequate demand for engineers/technicians and managers in the industry; the jobs are available, but these positions are usually occupied by expatriates ready to work on that position. Local Omani skills of to-be-technicians/engineers or managers are still insufficient to take over the position. They need further on-the-job training (OJT). Management prefer to employ the readily workable technicians/engineers or managers. Omani to-be-technicians/engineers or managers, on the other hand, do not feel comfortable at their work place without their senior giving adequate instruction. Further, their work place is full of foreign workers, and they feel isolated from their society when they are in the work place.

The following two programs are proposed to help develop necessary human resource, one for engineers and technicians, and another for managers.

Program 4-1: Long-term technical skill acquisition program

At present, private companies prefer to employ expatriate engineers and technicians who can perform work without special training. In addition, companies who employ Omani workers are not ready to provide OJT for new employees since expatriate staff do not have time to give trainings. As a result, Omani workers employed without job experience are left out in line operation.

The key for the human resource development, particularly of technicians/engineers, will depend on the method of introduction by the first generation of technicians/engineers to the work place. Once the first generation can successfully be in the work place, the second generation can receive an adequate instruction from them, and they can be trained.

The proposed program will provide a long-term on-the-job training in public-implemented projects or abroad, and churn out ready-to-work technicians/engineers before they perform their jobs. The measures to achieve this are as follows:

- 1) Send trainees to public-implemented projects, or abroad for on-the-job training in the actual work place with scholarship for trainees during the training period
- 2) For public-implemented projects;
 - a) The government makes the public-implemented projects with the obligation of undertaking training of a certain number of Omani trainees for two to three years for each.
 - b) The costs for employing trainees will include additional costs for undertaking the training to be subsidized by the government
- 3) For sending trainees abroad;
 - a) Tie up with regional industrial communities/associations in industrialized countries
 - b) Request to receive trainees for long-term training (at least 2 years, but depending on the required period for mastery) in their actual work place

Program 4-2: Management skill improvement program

As mentioned earlier, most of Omani factory owners are not directly involved in management and employ expatriate managers who manage factories on behalf of those owners. While reliance with expatriate managers is inevitable at present since adequate management know-how has not been accumulated yet in the country, the country should

be prepared for development of local management capabilities in the next generation.

This program is designed to mobilize qualified young people who aspire to become business owners or managers, and to provide them with continuous training so that they can do management by themselves in the future. Candidates include young employers, sons of business owners, bank or government employees, who intend to start their own business, but not necessarily limited to particular qualification.

Major areas of training are:

- 1) Exploitation of market needs and seeds of new business opportunities: organized tour on pioneer businesses in the country as well as abroad, presentation of R&D results at domestic and overseas research institutes, etc;
- 2) Provision of the place for information exchange between different industries and fields to which participants belong;
- 3) Management training, including business planning and administration, production control, marketing, etc.

4.3.5 Establishment of technological basis

The overwhelming majority of industries existing in Oman use technologies transferred from abroad. There are few indigenous technologies or even those transferred from abroad a long time ago and inherited as traditional technology, but these technologies have not been adopted in existing up-to-date industries.

Oman has virtually no restriction or imposes any obstacle in transfer of foreign technology, since the legislation is relatively free on foreign investment, technology transfer, and imports of machinery and equipment.

Seemingly, these favorable conditions have allowed companies to successfully select, introduce, and adopt appropriate technology. In practice, however, previously transferred foreign technologies present various problems for the interest of industrialization in the country. Technologies transferred to Oman have been selected in consideration of the limitations prevalent, and the industrial development peculiar to the country, namely (1) a small domestic market, (2) the lack of support industries to necessitate imports of raw materials and parts, and (3) availability of relatively low-cost skilled labor from abroad. Thus transferred technologies are mostly conventional ones appropriate for labor-intensive production in small and medium-scale, rather than advanced technology enabling economic production in international scale. Since industrialization is still at an early stage

and domestic production is undertaken in a limited scope through import substitution, the existing industries can afford to sustain even with the adoption of such less advanced technologies.

The existing industry has suffered no particular difficulty in production based on those technologies.

The Omani industry, however, lacks the basic capabilities to assimilate transferred technologies and accumulate technologies for further advancement. Expatriate engineers and technicians employed in the Omani companies generally fulfill only assigned duties since they work under a short term contract. There are no indigenous engineers and technicians who have vast experience in application of those transferred technologies, nor those who can absorb technologies and skills held by expatriate engineers and technicians. Under this situation, Oman has so far lack the resource to lead technological advancement based on technologies transferred from abroad.

Transferred technologies have been used without any improvement or modification either at the time of adoption or during subsequent operation. Those technologies become obsolete and lose competitiveness, as these face technological innovation and advancement in industrialized countries, thus, compelling Oman to acquire new technologies.

The future vision of the industrial development strategy, as discussed earlier, indicates the importance of (1) the development of technological infrastructure, such as testing and inspection facilities, from which functions of the technical service center and regional distribution center in the Middle East shall be based. (2) the development of linkage or supporting industries such as metal-working and plastics processing, and (3) the development of human resources to undertake the foregoing services. These can be well worked out by using imported equipment and expatriate personnel. However, more importantly is the nurture of the ability to identify and commercialize seeds of technological improvement and innovation from daily operation in the industries. In view of this, the technological accumulation and build-up of capabilities and resources for technology development is essential, (1) by nurturing Omani engineers who are engaged in carrying out technological research and development, (2) while encouraging longer stay of qualified expatriate engineers with incentives (including grant of citizenship) to undertake such technological accumulation, research and development.

In particular, it is vital to:

(1) undertake continuous research and development of indigenous technologies specialized in Oman, (2) while nurturing Omani researchers and engineers to undertake these research and development work.

At the same time, another importance is to build up functions that will guide and assist the development of new industrial undertakings, including those already identified in some areas. These functions should be undertaken by Omani engineers and researchers or alternatively by utilizing qualified foreign experts who are engaged with long-term commitment in the future. However, the initial step-up can be launched by temporary employment of foreign experts.

Most of the industrial standards are adopted from the foreign or international standards directly or with some modification. This adoption procedure is one of the efficient ways to promote standard development. Nevertheless, there are some areas where the industrial standards specifically applicable to the local conditions are necessary to be developed. This will help improve the manufacturing and distribution efficiencies. In addition, and more importantly, it will help the country formulate its technological basis, in terms not only of research capability, but also of human resource development.

Program 5: Establishment of technological research and product development assistance function

The program entails the setting up of an institute which carry out (1) R&D for the development of technologies that promote the efficient utilization of locally available resources, and also for establishing product specifications to meet the local conditions, and provide (2) technical assistance and guidance to industries for product development as required by them.

The program has two principal objectives. The primary objective is to carry out R&D activities for the development of appropriate technologies related to the products specialized in Oman for which there are no foreign technologies readily available. The results of these R&D activities will be disseminated to the industries. Another objective is to develop competent R&D personnel through implementation of the foregoing R&D activities.

In Oman, as any R&D for technological development have never been conducted by public research institutes nor by private companies, no basis for technological development

at present existed. Further, it must avoid duplication of any R&D efforts in technological fields where other countries have advanced. Oman should undertake R&D applicable to the locally specialized conditions with regard to certain technologies developed in other countries, rather than carrying out basic research for the development of new technologies.

The main theme for R&D are enumerated below.

- 1) Technologies for processing some indigenous resources in which available foreign technologies are not directly applicable; due to special quality or limited reserves of materials to be processed, or due to speciality of materials which are not available in industrialized countries.

Examples:

- (1) Use of kaolin resource: – Kaolin available in Oman is high quality but has color, and research on usage of colored kaolin is essential.
- (2) Diverse use of date: – development of technologies for utilizing fruit, leaf, and tree of date. Since the dates are planted in very limited regions, it has rarely been a subject of R&D.

- 2) Development of product specifications and applicable technologies to meet special market requirements (such as small markets, special climate conditions, etc.) which are not readily satisfied by available foreign specifications and technologies.

Examples:

- (1) Development of special specifications for automotive parts to be used under desert climate: – to establish industrial standards for automotive parts that can withstand harsh environmental conditions including high temperature and inclusion of sand.
- (2) Development of regional standards for construction materials related to energy saving.

4.3.6 Further grading up of Infrastructure

For the industrial development, the port is the most crucial infrastructure which requires upgrading. To attain the target of the Future Vision, which emphasizes making the most of the Oman's locational advantage, the port will play an important role.

Electricity and water supply will also be very important for supporting industrial development. Both electricity and water are projected to be short in supply in some years to come as existing supply sources because limited, but the projects to increase those supply are already under study.

There is almost no problem for the communication system at present, as observed by industries.

The industrial sites, in general, are sufficient for industrial development in the

foreseeable future. However, in view of inducing various business activities from abroad, further development of the industrial sites will be necessary, especially the extension of preferential treatment to export industries, and the existence of industrial estates catering to certain industries.

The following discusses the requirements of further grading-up of port facilities and industrial estates for supporting industrial development.

Recommendation for expansion/construction of port

- Upgrading of port facilities not only to cope with the increase in cargo handling volume expected in the future, but also to make the most of the locational advantage of Oman:
 - a) Upgrading of port to be able to receive major international container lines
 - b) Promotion of major container lines to make a stop over to the port

The following considerations should be taken for port expansion and new port construction projects

- 1) Implementation program for the port expansion and new port construction project must be drawn to meet the growth of throughput cargo volume. Nevertheless, in order to attract international container lines, consideration should be made to satisfy *minimum requirement as enumerated below*.
 - a) To have container handling capacity more than nearby ports, including Jebel Ali, Sharjah, Fujayrah, and Khawr Fakkan; and
 - b) To secure sufficient space for future expansion, with a view to exceeding the size of Jebel Ali Port in the future.
- 2) A candidate site may be located within an area extending from Sur to Sohar via Muscat or an area in or around Salalah. Container lines may prefer a location near an arterial line, which makes Salalah the most suitable. Considering the distance of subsequent inland transportation, however, a site should be selected near Muscat on the northern coast generating the largest container demand.
- 3) Natural-gas based chemical industries (such as urea fertilizer, chemical methanol, and petrochemical) are likely to be located near Sur in consideration to accessibility to LNG pipelines. On the other hand, these products are generally shipped by bulk carriers or chemical tankers, and they can be handled at a port different from the container port. A final decision should be made by taking into account overall economic factors including possible economic benefit by using a single port. The same concept should apply to the gypsum project.

Recommendation for development of industrial estates

In view of inducing various business activities from abroad, further development of the industrial sites will be necessary, especially the preferential treatment for export industries, and industrial estates specialized for specific industries.

The former is discussed as "Establishment of Free Zone" in Program 2-3.

The latter type of industrial estates designed for specific industries will contribute to the modernization and higher productivity of the industry. It includes industrial estates specialized in apparel industry with common facilities for upgrading the operation, as discussed as "Industrial Project for Upgrading an Existing Apparel Industries", and that of metalworking industries, which will particularly be required as supporting industrial basis sometime in the future with accumulation of industry. Food industries often enjoy the provision of facilities specifically prepared for the industry, such as water supply facilities, packaging assistance center, raw material storing facilities, etc.. The provision of such facilities might attract foreign investments in this field, though a marketing research is required in advance to confirm the demand.

The industrial estates designed for specific industries may be a part of the zones within the existing/planning industrial estates, depending on the demand size.

5 Recommendation on Implementation of Government Support Programs for Industrial Development

5.1 Phased Implementation

Since the government support programs recommended in the foregoing cover various areas of activities, they are necessary to be implemented one by one according to the extent of importance. In addition, there are some programs which will not be effective unless the prerequisite conditions are fulfilled in advance, and therefore, phased implementation is more adequate in this sense.

Figure on the last page indicates the timing of government support programs for their effective implementation, assuming the promising industrial projects stated in 6.4.3 will materialize at an earliest possible time.

The immediate task for industrial development in this country is to increase its industrial accumulation making most of the resources and markets available, though they are limited. Thus, the priority of industrial development is to be placed on improvement and strengthening of existing industry, and promotion of investment, particularly of private sector, for increasing production for both domestic and export markets. The aggressive promotion of foreign investment with anticipation to the capability for marketing and technology will be the core of investment promotion. Therefore, promotion of investment by foreign capital and promotion of export, among others, are the necessary actions to be taken immediately.

The development of industrial infrastructure, which is indispensable for supporting future development of industry, is also necessary to be taken action at the earliest, taking into account the time required for the development.

The program for developing technological basis, particularly its initial steps, should be started as soon as possible, in that it is indispensable for the future development of industry, and it takes time, although the need for it by existing industries is not significant apparently. However, the program should not be implemented without considering the extent of increase in industrial accumulation in this country, so as to avoid the over building up of the basis disproportionate to the stage of industrial development.

The program of human resource development could result in adverse effect without adequate demand for the resources, and therefore, should be implemented also in response to the increase in industrial accumulation.

5.2 Organizational Setup for Program Implementation

The enforcement of various support by organizations centering the Government, is essential in one hand, but due attention is necessary on the other hand to avoid over investment in implementing the programs which is often caused by small size of the market. The organizational setup is necessary to be integrated among the programs with similar activities and functions, and to prevent develop independent organizations for each required functions regardless of its size. The organizations should be either expanded or established as a separate organization, when the necessity arises, in accordance with increase in their activities.

The following indicate the possibility of setting up organization integrating it among the different programs:

- 1) The organizations for setting up institutions for promotion of foreign investment (Program 2-2), and promotion of export (Program 1-1), may be integrated into one. However, the trading house for promotion of small/medium export (Program 1-2) should be a separate organization to ensure their specific function.
- 2) The consideration is necessary for the program of development of technological basis (Program 5), to avoid duplication of investment with the existing Directorate General of Specifications. Further, the existing testing and inspection facilities of the Directorate General should be utilized as much as possible. Nevertheless, research and development Omani by themselves should be ensured as intended in this program.

Indicative Phased Implementation Plan

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Presumed implementation plan of promising industrial projects/ infrastructure development											
	Upgrading and strengthening of existing export industries (apparel industries, etc.)			New export development projects (Gypsum, Gypsum board, etc.)		Free Zone development		Expansion/construction of port		Ind. development as a side effect of free zone-based industries	
			Petrochemical Projects	Industrial development on the basis of port development and foreign investment promotion/free zone development (Repacking industries, warehousing, transportation, etc.)							
Government support programs											
Ensuring Export Market											
1. 1 Institutional setup for export promotion											
Study/plan for decision	—————										
Preparation	—————										
Commencement of operation			▲								
1. 2 Trading Company Development											
Study/plan for decision		—————									
Preparation		—————									
Commencement of operation			▲								
Encouraging Foreign Investment											
2. 1 Legislative preparation for the improvement of foreign investment conditions to make more attractive for foreign investors											
Study/plan for decision	—————										
Preparation	—————										
Commencement of operation			▲								
2. 2 Institutional setup for promotion of foreign investment											
Study/plan for decision	—————										
Preparation	—————										
Commencement of operation			▲								
2. 3 Promoting the setup of Free Zone											
Study/plan for decision		—————									
Preparation/construction		—————									
Commencement of operation								▲			
Intensifying financing programs/schemes for industrial development											
Study/plan for decision	—————										
Preparation	—————										
Commencement of operation			▲								
Human resource development											
4. 1 Long-term technical skill acquisition program											
Study/plan for decision	- - - - -										
Preparation	—————										
Commencement of operation								▲			
4. 2 Management skill improvement program											
Study/plan for decision		—————									
Preparation		—————									
Commencement of operation			▲								
Establishment of technological basis											
5. Establishment of technological research and product development assistance function											
Study/plan for decision	—————										
Preparation	—————										
Commencement of operation			▲								
Further grading up of infrastructure											
Study/plan for decision	—————										
Preparation/construction	—————										
Commencement of operation											▲

Note: ▲ Commencement of operation

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