

DIRECTORATE GENERAL OF INDUSTRY,
DIRECTORATE GENERAL OF SME DEVELOPMENT,
MINISTRY OF COMMERCE AND INDUSTRY, THE SULTANATE OF OMAN

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

MAIN REPORT

FEBRUARY 2010

JAPAN INTERNATIONAL COOPERATION AGENCY

UNICO INTERNATIONAL CORPORATION

| |
|-----|
| IDD |
|-----|

| |
|----|
| JR |
|----|

| |
|--------|
| 10-018 |
|--------|

Preface

In response to a request from the Government of the Sultanate of Oman, the Government of Japan decided to conduct a study on “Master Plan for Industrial Development” and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA selected and dispatched a study team headed by Mr. Testuo Inooka of UNICO International Corporation between July, 2009 and March, 2010.

The team conducted a field survey and held discussions with the officials concerned of the Government of the Sultanate of Oman for formulating an advice on the promotion for the prospective industry in the Sultanate of Oman. Upon returning to Japan, the team conducted further studies and prepared this final report.

I hope that this report will contribute to the promotion of Industrial Development of the Sultanate of Oman and to the enhancement of friendly relationship between two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of the Sultanate of Oman for their close cooperation extended to the study.

February, 2010

Atsuo Kuroda

Vice-President

Japan International Cooperation Agency

February 2010

Mr. Atsuo Kuroda, Vice-President
Japan International Cooperation Agency
Tokyo, Japan

Dear Mr. Kuroda,

Letter of Transmittal

We are pleased to submit the Final Report on the Study on Master Plan for Industrial Development in the Sultanate of Oman.

Substantial efforts for industrialization have been made for many years in the Sultanate, to reduce dependency on oil and diversify industrial activity, with establishment of a sustainable economic development system in the non-oil sector being the basic philosophy underlying industrial development.

Particularly in the recent years, the industries which are not based on oil and gas, or are low energy-consuming industries, have increasingly drawn the attention of concerned people as the target for development, together with ICT related industries and tourism development.

At the same time, the important roles which the small and medium-sized enterprise (SME) sector plays in economic diversification and job creation have become recognized in the Sultanate, and the Directorate General of SME Development was created in the Ministry of Commerce and Industry (MOCI) in 2007 to assume relevant responsibilities.

The present study was conducted to recommend the optimum direction of industrial development in the Sultanate, where industrial development is at a turning point, with recommendations on the policy measures for the government to utilize, while making recommendations concerning the challenges faced in working for SME development.

The Government of the Sultanate had implemented various policies and measures for industrial development, and thus, the recommendations prepared in the present report may not be necessarily new for them. Nevertheless, we are sure that the recommendations will be useful for the Sultanate for systematic review of their current policies and measures, and can strengthen their momentum in promoting implementation, considering the fact that some of their policies and measures still remain at the stage of proposals and not the stage of implementation.

Finally, we would like to take this opportunity to express our sincere gratitude to your Agency, the Ministry of Foreign Affairs, and the Ministry of Economy, and Trade and Industry, for valuable advice and support provided in the course of the present study. We are also deeply thankful to the Sultanate Government, including the MOCI and other agencies and organizations concerned, for the close cooperation and support rendered to the Study Team during the performance of this Study.

Respectfully submitted,
UNICO International Corporation

Tetsuo Inooka
Leader, Study Team
on Master Plan for Industrial Development
in the Sultanate of Oman



Map No. 3730 Rev. 4 UNITED NATIONS
January 2004

Department of Peacekeeping Operations
Cartographic Section

Abbreviations

| | |
|----------|--|
| CDM | Clean Development Mechanism |
| COMTRADE | UN COMTRADE |
| CSP | Concentration Solar Power Plant |
| CSR | Corporate Social Responsibility |
| EB | Ethyl-benzene |
| EEG | Erneuerbare Energie Gesetz, Germany |
| EG | Ethylene Glycol |
| EIA | Energy Information Administration |
| EOR | Enhanced Oil Recovery |
| EPC | Engineering, Procurement and Construction |
| EPS | Expanded Polystyrene |
| EU | European Union |
| FTZ | Free-trade Zone |
| FZ | Free Zone |
| GCC | Gulf Cooperation Council |
| GDP | Gross Domestic Product |
| GNI | Gross National Income |
| GRE | Glass-fiber Reinforced Epoxy |
| GRP | Glass-fiber Reinforced Plastic |
| HACCAP | Hazard Analysis and Critical Control Point |
| HDPE | High-density Polyethylene |
| ICT | Information and Communication Technology |
| IE | Industrial Estates |
| ITA | Information Technology Alliance |
| IWPP | Independent Water and Power Producer |
| JCF | Japan Carbon Finance, Ltd. |
| JET A-1 | Jet A1 Aviation Fuel |
| KOM | Knowledge Oasis Muscat |
| LLDPE | Linear Low-density Polyethylene |
| LNG | Liquid Natural Gas |
| LPG | Liquid Petroleum Gas |
| MEOR | Microbial Enhanced Oil Recovery |
| MFR | Mina Al-Fahal Refinery |
| MIS | Main Interconnected System |

| | |
|--------|---|
| MNE | Ministry of National Economy |
| MOA | Ministry of Agriculture |
| MOCI | Ministry of Commerce and Industry |
| MOG | Ministry of Oil and Gas |
| MOGAS | Motor Gasoline Fuels |
| MOTC | Ministry of Transport and Communication |
| MTPA | Metric Tons Per Annual |
| MW | Mega Watt |
| NEDO | New Energy and Industrial Technology Development Organization, Japan |
| OCC | Oman Cement Company |
| OCCI | Oman Chamber of Commerce and Industry |
| OCIPED | Oman Center for Investment Promotion and Export Development |
| OCTAL | Octal Petrochemicals |
| ODB | Oman Development Bank |
| OEM | Original Equipment Manufacturing |
| OFCC | Oman Formaldehyde Chemical Company LLC |
| OGC | Oman Gas Company |
| OLNGC | Oman Liquefied Natural Gas Company |
| OMC | Oman Methanol Company LLC |
| OMIFCO | Oman India Fertilizer Company SAOC |
| OPA | Polyamide |
| OPIC | Oman Petrochemical Industries Company |
| OPP | Oman Polypropylene LLC |
| OPWP | Oman Power and Water Procurement Company |
| ORPC | Oman Refineries and Petrochemicals Company |
| OSS | Oman Solar System |
| OTI | Oman Trading International |
| Oxy | Occidental Petroleum Corporation, Oman |
| PAEW | Public Authority for Electricity and Water |
| PDO | Petroleum Development Oman |
| PE | Polyethylene |
| PEIE | Public Establishment for Industrial Estate |
| PET | Polyethylene Terephthalate |
| PP | Polypropylene |
| PPR | Polypropylene Random Copolymer |

| | |
|--------|--|
| PS | Polystyrene |
| PTA | Purified Terephthalic Acid |
| PV | Solar Photovoltaic |
| PVC | Polyvinyl Chloride |
| PX | Paraxylene |
| QLNG | Qalhat LNG |
| RAECO | Rural Areas Electricity Company |
| RFCC | Residue Fluid Catalytic Cracking |
| RO | Omani Rial |
| SIE | Sohar Industrial Estate |
| SITC | Standard International Trade Classification |
| SIUCI | Sohar International Urea and Chemical Industries |
| SMC | Sohar Methanol Company or Salalah Methanol Company |
| SME | Small and Medium-sized Enterprises |
| SPC | Sohar Power Company |
| SQU | Sultan Qaboos University |
| SRC | Sohar Refinery Company |
| SWOT | Strength, Weakness, Opportunity and Threat |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |

Table of Contents

| | | |
|-------|---|------|
| 1 | Background and Framework of the Study | 1-1 |
| 1.1 | Background of the Study | 1-1 |
| 1.2 | Framework of the Study..... | 1-4 |
| 2 | Economic Conditions and National Economic Development Plans..... | 2-1 |
| 2.1 | Current State of Economy and Economic Development | 2-1 |
| 2.1.1 | Key Social and Economic Indicators..... | 2-1 |
| 2.1.2 | Economic Structure and Growth Trend..... | 2-2 |
| 2.1.3 | Domestic Saving and Capital Formation..... | 2-5 |
| 2.1.4 | External Trade and Current Account Trends..... | 2-7 |
| 2.1.5 | Employment..... | 2-12 |
| 2.1.6 | Government Finance..... | 2-13 |
| 2.2 | Industrial Development Plan and Industrial Strategy | 2-25 |
| 2.2.1 | Basic targets for the long-term economic development | 2-25 |
| 2.2.2 | The Seventh Five Year Plan | 2-29 |
| 2.2.3 | Follow-up System for Five Year Plan | 2-34 |
| 2.2.4 | Development target for industrial development in the Seventh Five Year Plan, and its achievements up to present..... | 2-37 |
| 2.2.5 | Future Strategy for Industrial Development..... | 2-41 |
| 3 | Present State and Future Outlook of Supply and Demand of Oil, Gas and the Alternative Energies | 3-1 |
| 3.1 | Supply and Demand of Oil | 3-1 |
| 3.1.1 | Overview | 3-1 |
| 3.1.2 | Production of Crude and Condensate | 3-4 |
| 3.1.3 | Supply and Demand of Petroleum Products..... | 3-5 |
| 3.1.4 | Present State and Future Plan of Petrochemical Industries in the Downstream of Refineries..... | 3-11 |
| 3.2 | Natural Gas | 3-13 |
| 3.2.1 | Overview | 3-13 |
| 3.2.2 | Production and Supply of Natural Gas | 3-16 |
| 3.2.3 | Consumption of Natural Gas | 3-17 |

| | | |
|-------|---|------|
| 3.3 | Alternative Energy | 3-21 |
| 3.3.1 | Overview | 3-21 |
| 3.3.2 | Solar Power Generation..... | 3-22 |
| 3.3.3 | Wind Power Generation | 3-24 |
| 3.3.4 | Need for Acceleration of related Research through Technical Cooperation with Countries with Advanced Technology..... | 3-25 |
| 4 | Industry Sector | 4-1 |
| 4.1 | Overview of the Industrial Sector in Oman | 4-1 |
| 4.1.1 | Domestic Markets for Industrial Products, and Import and Export of Industrial Products..... | 4-1 |
| 4.1.2 | Distribution of Enterprises by Subsector | 4-17 |
| 4.2 | Manufacturing Industry by Sector | 4-18 |
| 4.2.1 | Food and Beverage Sector | 4-18 |
| 4.2.2 | Textile and Apparel Sector | 4-25 |
| 4.2.3 | Wood Processing Sector | 4-28 |
| 4.2.4 | Paper Products and Printing..... | 4-31 |
| 4.2.5 | Refined Petroleum Products, Chemicals and Chemical Products Sector | 4-35 |
| 4.2.6 | Plastics and Plastic Products..... | 4-46 |
| 4.2.7 | Non-metal Mineral Products Sector | 4-56 |
| 4.2.8 | Basic Metals and Metal Products Sector | 4-64 |
| 4.2.9 | Machinery Sector..... | 4-69 |
| 5 | Investment/Business Environment for Industrial Development..... | 5-1 |
| 5.1 | Industrialization in the GCC Countries and Investment/Business Environment in Oman..... | 5-1 |
| 5.1.1 | Industrialization in the GCC Countries | 5-1 |
| 5.1.2 | Business Environment in the GCC Countries | 5-10 |
| 5.2 | Industrial Infrastructure | 5-19 |
| 5.2.1 | Overview | 5-19 |
| 5.2.2 | Utilities | 5-20 |
| 5.2.3 | Physical Distribution Facilities..... | 5-21 |

| | | |
|-----------|--|------|
| 6 | Review and Recommendation on Industrial Development Plan and Strategies..... | 6-1 |
| 6.1 | Prospective Areas for Industrial Development, and Implication for Development Strategy..... | 6-1 |
| 6.1.1 | General..... | 6-1 |
| 6.1.2 | Industrial Areas to Meet the Increasing Demand in the Domestic Markets and GCC's Markets..... | 6-5 |
| 6.1.3 | Industrial Development Leveraging Promising Resources and Existing Industrial Basis..... | 6-9 |
| 6.1.4 | New Industrial Areas of Strategic Focus..... | 6-17 |
| 6.1.5 | Priority Areas in View of Stable and Sustainable Development of Industries..... | 6-24 |
| 6.1.6 | Prospective Areas of Industrial Development in Oman, and Its Strategy for Development (Conclusion)..... | 6-29 |
| 6-1-Annex | Biotechnology Industry..... | 6-32 |
| 6.2 | Recommendations on the Industrial Development Plan and the Strategy..... | 6-37 |
| 6.2.1 | Recommendation on the Plan-Strategy system, and its Implementation..... | 6-37 |
| 6.2.2 | Recommendation on the Primary Challenges..... | 6-39 |
| 6.2.3 | Individual Policies..... | 6-40 |
| 6.2.4 | Recommendation on Capacity Enhancement of the Implementation Body of the Strategy..... | 6-47 |
| 6.3 | Recommended Policy Measures and Programs Based on the Strategies for Industrial Development..... | 6-48 |
| 6.3.1 | Industry-friendly Business Environment..... | 6-50 |
| 6.3.2 | Shift to Knowledge-Based Industry..... | 6-51 |
| 6.3.3 | Promotion of Investment and Business Startups in Strategic Areas..... | 6-53 |
| 6.3.4 | Challenge for Sustainable Development..... | 6-56 |
| 6.3.5 | Sector Specific Recommendations for the Priority Areas of Industry..... | 6-57 |
| 6.4 | Recommendation on Regional Industrial Development Plans in Selected Areas..... | 6-60 |
| 6.4.1 | Overview..... | 6-60 |
| 6.4.2 | Recommendation on Regional Industrial Development Plan for Sur..... | 6-62 |
| 6.4.3 | Recommendation on Regional Industrial Development Plan for Nizwa..... | 6-74 |
| 6.4.4 | Recommendation on Regional Industrial Development Plan for Al Buraymi..... | 6-83 |

| | | |
|-------|---|------|
| 7 | Review and Recommendation on Direction, Policy and Measures of SME Promotion | 7-1 |
| 7.1 | Current Situation of SMEs in Oman | 7-1 |
| 7.1.1 | SMEs in Oman..... | 7-1 |
| 7.1.2 | Number of SMEs in the Manufacturing Sector, and Their Distribution among the Subsectors..... | 7-4 |
| 7.1.3 | Government Agencies and Organizations Engaged in SME Promotion | 7-7 |
| 7.2 | Direction of SME Promotion in Oman | 7-13 |
| 7.2.1 | Role in Industrial and Economic Development of SME | 7-13 |
| 7.2.2 | Direction of SME Promotion in Oman..... | 7-14 |
| 7.3 | Proposals and Recommendations on SME Promotion Policies, Programs and Systems | 7-18 |
| 7.3.1 | Policies, Programs and Systems for Promotion of Small and Medium-sized Enterprises..... | 7-18 |
| 7.3.2 | Recommendations on Promotion Policies, Measures and Systems for Small and Microenterprises, and Business Startups | 7-23 |
| 7.3.3 | Intensification of Financing Program for SME | 7-27 |
| 7.3.4 | Other Recommendations Related to Development of Small Enterprises | 7-30 |

List of Tables

| | | | |
|------------|---|---|--------|
| Chapter 2 | Economic Conditions and National Economic Development Plans | | (page) |
| Table | 2.1-1 | Major Social and Economic Indices in Oman | 2-1 |
| | 2.1-2 | Gross Domestic Production (GDP) (in factor prices) | 2-2 |
| | 2.1-3 | GDP by Sector (at current price) | 2-3 |
| | 2.1-4 | Annual Growth Rate by Sector | 2-4 |
| | 2.1-5 | Domestic Savings and Capital Formation (1998-2007) | 2-6 |
| | 2.1-6 | Capital Formation by Industrial Sector in Percent of GDP (at purchasers' value) | 2-7 |
| | 2.1-7 | Foreign Trade Performance | 2-9 |
| | 2.1-8 | Production and Export of Crude Oil | 2-9 |
| | 2.1-9 | Export Structure of Non-oil Sector (in percent of total value of non-oil sector exports) | 2-10 |
| | 2.1-10 | Import Structure (in percent of total value of imports) | 2-11 |
| | 2.1-11 | Balance of International Payments (2003-2007) | 2-12 |
| | 2.1-12 | Labor Force in Manufacturing Sector by Omani and Expatriate Labor | 2-13 |
| | 2.1-13 | Government Revenue and Expenditure | 2-14 |
| Attachment | 2.1-1 | Gross Domestic Product by Kind of Economic Activity - Current Prices (1998-2007) | 2-15 |
| | 2.1-2 | Gross Domestic Product by Economic Activity - 2000 Constant Prices (1998-2007) | 2-16 |
| | 2.1-3 | Expenditure on Gross Domestic Product at Purchasers' Value - Current Prices (1998-2007) | 2-17 |
| | 2.1-4 | Domestic and National Savings (1998-2007) | 2-18 |
| | 2.1-5 | External Trade (1990-2007) | 2-19 |
| | 2.1-6 | Value of Domestic Non-Oil Exports (by H.S. classification) (Excluding Re-exports) | 2-20 |
| | 2.1-7 (1) | Value of Recorded Imports (by H.S. classification) | 2-21 |
| | 2.1-7 (2) | Recorded Imports by Main Category | 2-22 |
| | 2.1-8 | Government Revenue & Expenditure Classified by Major Items | 2-23 |
| | 2.1-9 | Balance of the External Current Account Projected for 2006 - 2010 (Seventh Five - Year Plan) | 2-24 |
| Table | 2.2-1 | Oman 2020: Quantitative Target Indicators at the Macro Economic Level | 2-27 |
| | 2.2-2 | Assumed Contribution to GDP by Subsector (%) | 2-28 |
| | 2.2-3 | Target Growth Rates and Contribution to GDP by Sector (The Seventh 5 Year Development Plan (2006-2010), at current prices) | 2-37 |
| | 2.2-4 | Foreign Trade (1990-2007) | 2-40 |

| | | | |
|------------------|---|--|--------|
| Chapter 3 | Present State and Future Outlook of Supply and Demand of Oil, Gas and the Alternative Energies | | |
| Table | 3.1-1 | LPG and Middle Distillate Production by ORPC | 3-6 |
| | 3.1-2 | Production Capacities of Middle Distillates by ORPC | 3-6 |
| | 3.1-3 | Oman's Trend of Sales of Middle Distillates of Petroleum Products | 3-7 |
| | 3.1-4 | Trade of Middle Distillates between Oman and GCC Countries | 3-7 |
| | 3.1-5 | Sales & Production of Heavy Oil (Long Residue) by MFR | 3-8 |
| | 3.2-1 | Gas Consumption in Oman at the Year of 2008 | 3-13 |
| | 3.2-2 | Offtaking Contract of Omani LNG (Volumes Corresponding to the LNG Rated Capacities) | 3-17 |
| | 3.2-3 | Power Plants and Rated Generation MWs Thereof in Oman | 3-18 |
| | 3.2-4 | Projected Fuel Requirement for Electricity Generation | 3-20 |
| | 3.3-1 | World Trend of Solar Power Generation (2000-2008) | 3-22 |
| | 3.3-2 | World Capacity of Wind Power Generation | 3-24 |
| | | | |
| Chapter 4 | Industry Sector | | |
| Table | 4.1-1 | Gross Value Added in Manufacturing Sector by Subsector | 4-2 |
| | 4.1-2 | Gross Value Added in Manufacturing Sector by Subsector (in % of Total) | 4-3 |
| | 4.1-3 | Import, Export and Production by Subsector, Manufacturing Industry (Excluding Oil Sector) | 4-5 |
| | 4.1-4 | Indices of Domestic Production Ratio, Import Ratio and Export Ratio | 4-6 |
| | 4.1-5 | Finished Goods Manufactured | 4-8 |
| | 4.1-6 | Yearly Shipment by Manufacturing Sector by Commodity (All Subsectors) | 4-9~11 |
| | 4.1-7 | Change in Export of Industrial Products by Subsector | 4-13 |
| | 4.1-8 | Import by Objective of Use | 4-16 |
| | 4.1-9 | Number of Enterprises by Subsector and by Number of Employees | 4-17 |
| | 4.2-1 | Yearly Shipment by Manufacturing Sector by Commodity (Food and Beverage Subsector) | 4-18 |
| | 4.2-2 | Import, Export, Domestic Production and Estimated Domestic Consumption of Processed Food and Beverage | 4-19 |
| | 4.2-3 | Fish Catch and Exports | 4-22 |
| | 4.2-4 | Commercial Fish Catch by Fish Species | 4-22 |
| | 4.2-5 | Production, Export, Import and Estimated Domestic Consumption of Textile and Apparel in Oman | 4-25 |
| | 4.2-6 | Distribution of Enterprises by Product Group in Textile and Apparel Industry | 4-26 |
| | 4.2-7 | Yearly Shipment by Manufacturing Sector by Commodity (Wooden Products Subsector) | 4-28 |
| | 4.2-8 | Yearly Shipment by Manufacturing Sector by Commodity (Paper Products and Printing Subsector) | 4-31 |

| | | | |
|-------|--------|--|------|
| Table | 4.2-9 | Yearly Shipment by Manufacturing Sector by Commodity (Petro-products, Chemicals and Chemical Products Subsector) | 4-35 |
| | 4.2-10 | Number of Enterprises by Size of Employee in Chemicals and Chemical- Products Sectors | 4-36 |
| | 4.2-11 | Number of Enterprises by Industry in Chemicals and Chemical- Products Sectors | 4-36 |
| | 4.2-12 | Import, Export, Domestic Production and Consumption of Chemicals and Chemical Products | 4-38 |
| | 4.2-13 | Domestic Production Rates and Exporting Rates by Industry | 4-37 |
| | 4.2-14 | Cost Structure of Refined Petroleum Products Subsectors | 4-39 |
| | 4.2-15 | Cost Structure of Chemicals and Chemical Products Subsectors (Except for Refined Petroleum Products) | 4-40 |
| | 4.2-16 | Shipments and Domestic Consumption as Raw Material of Petroleum Products | 4-42 |
| | 4.2-17 | Yearly Shipment by Manufacturing Sector by Commodity (Plastics Subsector) | 4-47 |
| | 4.2-18 | Number of Enterprises by Size of Employee in Plastics and Plastic Products Sectors | 4-47 |
| | 4.2-19 | Number of Enterprises by Industry in Plastics and Plastic Products Sectors | 4-48 |
| | 4.2-20 | Importing, Exporting, Domestic Production and Consumption of Plastics and Plastic Products | 4-49 |
| | 4.2-21 | Cost Structure of Plastics and Plastic Products Subsectors | 4-51 |
| | 4.2-22 | Yearly Shipment by Manufacturing Sector by Commodity (Non-metallic Mineral Products Subsector) | 4-57 |
| | 4.2-23 | Number of Enterprises by Number of Employees | 4-57 |
| | 4.2-24 | Production, Export and Import of Non-metal Mineral Products | 4-58 |
| | 4.2-25 | Major Export Products of Non-metal Minerals | 4-59 |
| | 4.2-26 | Yearly Shipment by Manufacturing Sector by Commodity (Basic Metal & Metal Products Subsector) | 4-64 |
| | 4.2-27 | Number of Enterprises by Employment Size in Basic Metal Subsector | 4-65 |
| | 4.2-28 | Number of Enterprises by Product Group in Basic Metal Subsector | 4-65 |
| | 4.2-29 | Yearly Shipment by Manufacturing Sector by Commodity (Machineries Subsector) | 4-69 |
| | 4.2-30 | Import, Export, Production and Estimated Domestic Consumption Machinery Industry Sector (1991, 2006, 2007) | 4-70 |
| | 4.2-31 | Export of Major Products of Machinery Sector | 4-71 |
| | 4.2-32 | Number of Enterprises by Employment Size in Machinery Subsector | 4-72 |
| | 4.2-33 | Manufacturing Costs Structure of Enterprises in the Machinery Subsector by Size of Employees | 4-73 |
| | 4.2-34 | Distribution of Enterprises by Product Group | 4-74 |
| | 4.2-35 | Number of Enterprises by Employment Size in Electrical Machinery and Equipment Subsector | 4-75 |
| | 4.2-36 | Manufacturing Costs Structure of Enterprises in the Electrical Machinery and Apparatus Subsector by Size of Employees | 4-75 |

Chapter 5 Investment/Business Environment for Industrial Development

| | | | |
|-------|-------|--|------|
| Table | 5.1-1 | Economic & Trade Indicators of GCC Countries (2007) | 5-1 |
| | 5.1-2 | No. of Operational Industrial Firms in GCC Countries by Industrial Activity (2007) | 5-2 |
| | 5.1-3 | Overview of External Trade in GCC Countries | 5-3 |
| | 5.1-4 | Comparison of Business Environment among GCC Countries | 5-10 |
| | 5.1-5 | Population and Labor Forces in GCC Countries | 5-13 |
| | 5.1-6 | Minimum Omanization Requirement | 5-14 |
| | 5.1-7 | FDI Flows in GCC Countries, 2003-2008 | 5-16 |
| | 5.1-8 | Total Investment in Industrial Firms by Activity - 2008 | 5-17 |
| | 5.2-1 | Supply and Demand of Water in Muscat and Sohar Zones | 5-20 |
| | 5.2-2 | Loading and Export Shipping of Cargo at Sultan Qaboos Port and Salalah Port | 5-21 |
| | 5.2-3 | Berth at Sultan Qaboos Port | 5-22 |
| | 5.2-4 | Berth at Salalah Port | 5-22 |
| | 5.2-5 | Berth at Sohar Port | 5-23 |
| | 5.2-6 | Required Time for Import and Export Procedures | 5-23 |

Chapter 6 Review and Recommendation on Industrial Development Plan and Strategies

| | | | |
|-------|---------|--|------|
| Table | 6.1-1 | Plant Construction Projects in Oman | 6-27 |
| | 6.2-1 | Examples of Applications for Open Research Grant, by Field | 6-45 |
| | 6.3-1 | General Framework of Industrial Development Policies and Programs by Target Industry Type | 6-49 |
| | 6.4.1-1 | Target Industries to be Promoted in IE | 6-61 |
| | 6.4.2-1 | Population and Land Area of the Sharqiyah Region | 6-62 |
| | 6.4.2-2 | Number of Enterprises in Manufacturing Sector in Sharqiyah Region | 6-64 |
| | 6.4.2-3 | Industrial Shipments in Sharqiyah Region | 6-65 |
| | 6.4.2-4 | Breakdown of External Trade Handled at Sur Port | 6-66 |
| | 6.4.2-5 | Infrastructure Facilities Available at Sur Industrial Estate | 6-67 |
| | 6.4.2-6 | Installed Power Supply Capacity in Sharqiyah Region | 6-68 |
| | 6.4.2-7 | Water Demand and Desalination Capacity in Sharqiyah Region | 6-69 |
| | 6.4.2-8 | Tenant Composition at Sur Industrial Estate | 6-70 |
| | 6.4.2-9 | Advantages / Constraints of Sur for Development of the Prospective Industrial Areas | 6-71 |
| | 6.4.3-1 | Population and Land Area of Ad Dakhliyah | 6-74 |
| | 6.4.3-2 | Number of Enterprises in Manufacturing Sector in Adh Dakhliyah Region | 6-75 |
| | 6.4.3-3 | Industrial Shipments in Adh Dakhliyah Region | 6-76 |
| | 6.4.3-4 | Infrastructure Facilities Available at Nizwa IE | 6-77 |
| | 6.4.3-5 | Power Generation Capacity in Adh Dakhliyah Region | 6-77 |
| | 6.4.3-6 | Power Demand in Ad Dakhliyah Region | 6-78 |

| | | | |
|-------|---------|--|------|
| Table | 6.4.3-7 | Number of Enterprises by Subsector in and outside of Nizwa IE | 6-79 |
| | 6.4.3-8 | Advantages / Constraints of Nizwa for Development of the Prospective Industrial Areas | 6-80 |
| | 6.4.4-1 | Population and Land Area of Adh Dhahirah/Al Buraymi | 6-83 |
| | 6.4.4-2 | Number of Enterprises in the Manufacturing Sector in Adh Dhahirah / Al Buraymi | 6-84 |
| | 6.4.4-3 | Infrastructure Facilities Available at Buraymi Industrial Estate | 6-85 |
| | 6.4.4-4 | Comparison of Energy Prices | 6-86 |
| | 6.4.4-5 | Advantages / Constraints of Al Buraymi for Development of the Prospective Industrial Areas | 6-87 |

Chapter 7 Review and Recommendation on Direction, Policy and Measures of SME Promotion

| | | | |
|-------|-------|---|------|
| Table | 7.1-1 | Source of Paid-up Capital in Manufacturing Sector | 7-2 |
| | 7.1-2 | Number of SME by Economic Activity | 7-5 |
| | 7.1-3 | Number of Enterprises in Manufacturing Sector by Subsector and by Number of Employees | 7-6 |
| | 7.1-4 | Recent ODB Loan Trend | 7-9 |
| | 7.1-5 | Composition of ODB Loans in 2008, by Sector | 7-9 |
| | 7.1-6 | List of the OCCI Members up to 30-9-2008 | 7-10 |
| | 7.3-1 | International Comparison of Guarantee System by Country | 7-29 |
| | 7.3-2 | Prospective Industrial Areas to Promote Small Enterprises | 7-31 |

List of Figures

| | | |
|--------|---|---------------|
| | Chapter 3 Present State and Future Outlook of Supply and Demand of Oil, Gas and the Alternative Energies | (page) |
| Figure | 3.1-1 Oil Supply and Demand Flow | 3-2 |
| | 3.1-1B Oil Supply and Demand Flow (Future) | 3-3 |
| | 3.1-2 Production, Exports and Domestic Use of Crude Oil & Condensate in Oman | 3-5 |
| | 3.1-3 Growth trend of Oman's GDP at the PPP base from 2000 to 2009 (data in 2009 is projection) | 3-9 |
| | 3.1-4 Projection of Demand for Gasoline and Diesel Oil | 3-9 |
| | 3.2-1 Gas Supply and Demand Flow | 3-14 |
| | 3.2-1B Gas Supply and Demand Flow (Future) | 3-15 |
| | 3.2-2 Trends and Forecasting of Omani Gas Production | 3-16 |
| | 3.2-3 Forecast of Electricity and Energy Demand (MW) in MIS in Oman | 3-18 |
| | 3.2-4 Forecast of Desalination Demand in MIS in Oman (MMm ³ /Year) | 3-19 |
| | | |
| | Chapter 4 Industry Sector | |
| Figure | 4.1-1 Export of Industrial Products and its Average Annual Growth Rates (2003-07) by Industrial Subsector | 4-13 |
| | | |
| | Chapter 6 Review and Recommendation on Industrial Development Plan and Strategies | |
| Figure | 6.1-1 (1) Refinery-originated Chemical Flow | 6-11 |
| | 6.1-1 (2) Gas-originated Chemical Flow | 6-12 |
| | 6.1-1 (3) Alkali Chemical Flow | 6-13 |
| | 6.1-1 (4) Air-originated Chemical Flow | 6-14 |
| | 6.1-1 (5) Ethylene-originated Chemical Flow | 6-15 |

1 Background and Framework of the Study

1 Background and Framework of the Study

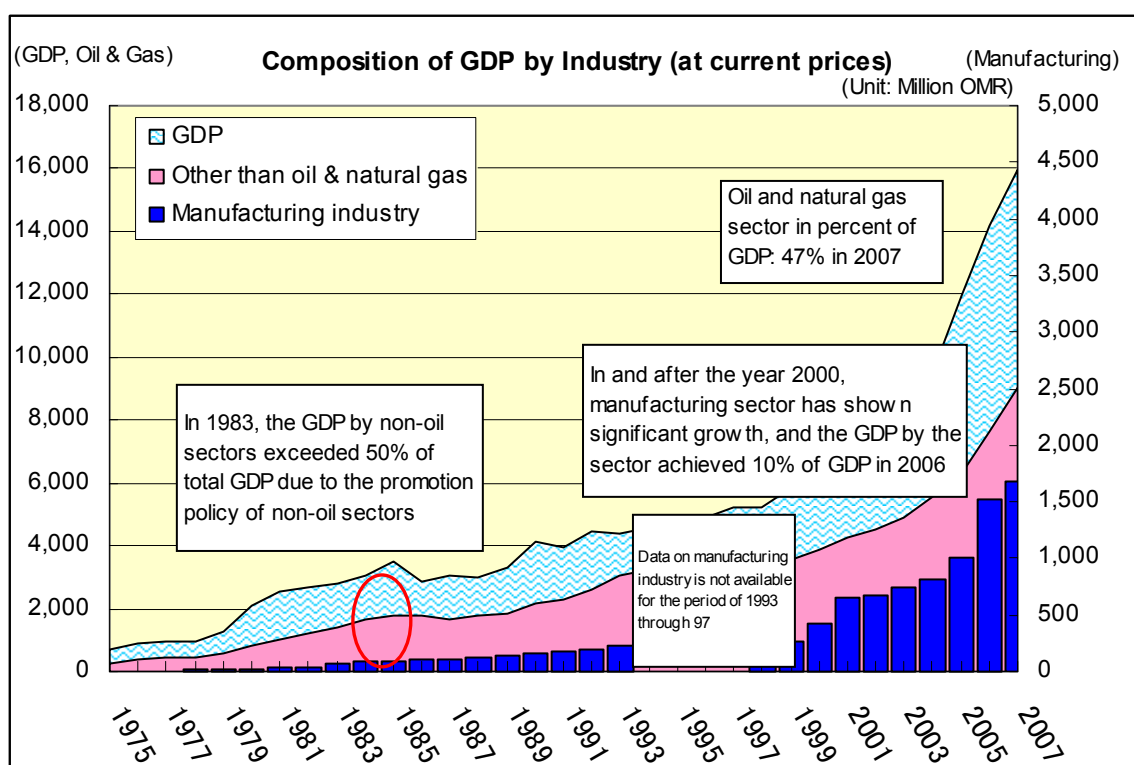
1.1 Background of the Study

Oman is one of major oil exporting countries. Its oil resources, however, are limited, and the establishment of the sustainable system for economic development in the non-oil sector is one of the major issues faced by the Oman Government. Substantial efforts for industrialization have been made for many years, to reduce dependency on oil and diversify the economic activity.

Major Social and Economic Indices in GCC Countries

| | Oman | UAE | Saudi Arabia | Other GCC | Total GCC | Singapore (as a reference) |
|-----------------------------|--------|--------|--------------|-----------|-----------|-------------------------------|
| Population (Million) | 2.6 | 5.2 | 24.3 | 6.0 | 40.3 | 4.6 |
| GDP (US\$ billion) | 37.1 | 198.7 | 356.6 | 277.9 | 11,032.0 | 152.0 |
| Per capita GDP (US\$) | 13,561 | 37,687 | 15,061 | n.a. | 22,083 | 35,163 |
| Investment (US\$ million) | 2,947 | 19,878 | 37,457 | 24,152 | 84,434 | 21,875 |
| FDI received (US\$ million) | 570 | 6,625 | 13,139 | 8,335 | 28,669 | 12,300 |

It was in 1979, with the Royal Decree No.1/ 79 (Industry Promotion/ Regularization Law), when the Government started promotion of industrialization encouraging involvement of private sector in the industries. In the First Five Year Development Plan period in 1976 through 1980, the Government had established a flour mill, a dates processing factory, and a fish processing factory, etc. under its leadership, while started construction of a cement factory, a copper refinery and an oil refinery. After that, the share of industrial sector in GDP, which was only less than 0.3% in 1975, started to increase steadily from 1980, achieving 2.3% in 1985, 3.7% in 1990 and 4.3% in 1992. After 2000, the increase has been accelerated further and reached 10% in 2006.



Nevertheless, the recent development of industrial sector has been mainly due to the significant development of sub-sectors of oil and natural gas derived products. Other industrial sub-sectors of significant development are also those assuming the oil and natural gas as the energy for refining and processing, such as of aluminum and iron and steel.

**Shares in GDP and Annual Growth Rates by Industry in Oman
(at current prices)**

(Unit: %)

| | Shares in GDP | | | Annual Growth Rates | | |
|-------------------------|---------------|------|------|---------------------|------|-------|
| | 1999 | 2006 | 2007 | 1999 | 2006 | 2007 |
| Oil | 40.4 | 47.6 | 45.2 | 40.7 | 14.7 | 7.3 |
| Crude oil | 39.3 | 43.5 | 40.7 | 42.0 | 13.3 | 5.9 |
| Natural gas | 1.1 | 4.1 | 4.4 | 5.2 | 31.7 | 21.7 |
| Non oil | 59.9 | 54.1 | 56.4 | -2.0 | 22.0 | 17.9 |
| Of which, Manufacturing | 4.4 | 10.8 | 10.5 | 4.2 | 51.6 | 10.0 |
| Petroleum products | 0.6 | 0.4 | 0.8 | -9.0 | 8.0 | 143.2 |
| Chemicals & products | 0.3 | 7.3 | 6.4 | 2.4 | 79.4 | -0.9 |
| Others | 3.5 | 3.2 | 3.4 | 7.3 | 15.9 | 20.0 |

Source: MOCI

Thus, reduction of dependence on oil and diversification of the economy still remains one of the important challenges in the current Seventh Five Year Development Plan, with emphasis on natural-gas based industries and tourism industry. The major targets of the Plan are as follows:

- Growth in the non-oil sector: 7.5% per annum on the average
- Development of natural-gas based industries: Average annual growth rate of 14.5% with investment of R.O. 2.8 billion on the projects in Sohar industrial area. The major projects under plan include Sohar Aluminum Refinery Project, Polyethylene Project, and Oman Aromatics Project.
- Tourism development: Average annual growth rate of 7% with investment of R.O. 960 million for tourism sector.
- Expansion of export of non-oil Oman products: Average annual growth rate of 11.6%.

Most of the above-mentioned mega projects, which are based on the natural gas, have been realized. However, many other industrial investment projects have been suspended due to difficulty in further supply of natural gas.

Thus, the focus of industrialization has transferred in the recent years to the areas of non-heavy industries, such as IT related industries, tourism industries, bio-technology related industries, low-energy-consumption industries, and industries of assembling and re-exports in free zones, etc.

JICA had conducted a master plan study on industrial development at the request of the Oman Government in 1994. Since then, for more than 15 years, the Oman Government has made many efforts to develop a system to support industrial promotion on the basis of the recommendations made by the Study.

Nevertheless, reduction of dependence on oil still remains one of the important challenges in the current Seventh Five Year Development Plan, having been the primary challenge since the first stage of industrialization, and still so, despite the significant achievement of industrialization in non-oil sector.

In the meantime, with advancement of information technology and development of transportation, relevant industries such as IT and tourism are now getting greater attention. Considering this the industrial promotion policy of the Government now requires updating.

In keeping with the above situation, the Oman Government requested the Japanese Government to conduct a study with objective of establishing an updated direction of industrial development policy, taking into account the socio-economic changes as stated above. This document reports the results of that study.

1.2 Framework of the Study

The Study was conducted with the following study framework.

(1) Objective of the Study

The objective of the study is, on the basis of review of performance of the Omani industry, business environment in Oman, and SWOT of industry in Oman as compared to other GCC countries,

- 1) To develop recommendations for the industrial sub-sectors, as a whole, and, translate them into:
 - a) Recommendations for realization of the Future Industrial Strategy
 - b) Recommendations for realization of the current Five Year Plan
 - c) Recommendations on prospective industries for development
 - d) Recommendations on Regional Development Plans in the selected regions in view of policy for promotion of manufacturing sector
- 2) Recommendation on the direction of SME policy, with
 - Recommendations on SME support policies and measures in the field of manpower development and finance

The objective of the study is to develop recommendations on the industrial sub-sectors.

The recommendations thus prepared is expected to be reflected in the Eighth Five Year Development Plan.

(2) Scope of Work

The scope of work, which was agreed upon by JICA and MOCI on April 3, 2009, is as follows:

- <Phase 1 Review and Analysis of the Present Situation >
1. Situation analysis
 - (1) Manufacturing sector
 - a Government administrative structure
 - b Macroeconomics status of the manufacturing sector
 - c Products in the manufacturing sector of Oman
 - d Main industry associations and their activities
 - e Main business development service provider and their activities
 - (2) The current Seventh Five Year Plan from 2006 to 2010
 - a Administrative structure for the implementation
 - b Development projects and programs based on the plan and the others

- c Situation of budget allocation
- d Situation of the achievement and evaluation for the current Five Year Plan
- (3) “Future Industrial Strategy” made by Omani government in 2007
 - a Proposed implementation plan by the institutions including budget allocation
 - b Confirmation on the specific project/program
 - c Specific review on the mentioned sectors in relation with manufacturing sector
- (4) Future energy situation
 - a Analysis on the future consumption of the energy
 - b Analysis of the supply-side and demand
 - c Substitute energy resources

<Phase 2 Comparative Analysis and Formulation of the Recommendation>

1. Comparative analysis of Omani manufacturing sector among Gulf countries
 - (1) Government policies of the GCC countries relevant to manufacturing sector
 - (2) Achievement of the development of manufacturing sector of the GCC countries with special attention on the cluster formation
 - (3) Comparative analysis on Omani manufacturing sector to the GCC countries (SWOT analysis)
 - (4) Relevant clusters to Oman relative to the GCC countries
2. Recommendation for the development of manufacturing sector in Oman based on analysis
 - (1) For the manufacturing sector in Oman
 - (2) For the “Future Industrial Strategy”
 - (3) For the selected individual Industrial Development Plan of Al Buraymi, Ad Duqm and Sur
 - (4) Identification of the most promising strategic industrial sector in the future
3. Seminar for the dissemination of the analysis and recommendation

<Phase 3 Current Analysis and Formulation of recommendation for SME policy in Oman>

1. Analysis of selected SME sectors in Oman
 - (1) Identification of SME sectors in Oman
 - (2) Problems in Financing
 - (3) Problems in Marketing
 - (4) Problems in Technology
 - (5) Business Development Service Provider and government support for SME
 - (6) SWOT analysis of SME
2. Any recommendation or the promotion of SME in Oman
 - (1) Comparative advantage sector of SME in Oman
 - (2) Identification of the thrust areas and key sectors
 - (3) Models of financing for SME development
 - (4) Human resource development for SME
3. Seminar for introducing the SME policy and the existing situation surrounding SME in Japan

(3) Target Area of the Study

The Study covers the whole area of the Sultanate, but for the study on the selected regional Industrial Development Plans, it was limited to the following:

- Al Buraymi
- Nizwa
- Sur

2 Economic Conditions and National Economic Development Plans

2 Economic Conditions and National Economic Development Plans

2.1 Current State of Economy and Economic Development

2.1.1 Key Social and Economic Indicators

Oman's population totaled 2.74 million in 2007, which increased by 6.4% over the previous year. After occasional declines, it has been growing steadily since 2004 when the high growth period started.

The country's GDP can be roughly divided into the petroleum and non-petroleum sectors, which contribution amounts to 50.1% and 51.3%, respectively, in 2000. The former declined to 45.2%, while the latter rose to 56.4% in 2007, reflecting the government's economic diversification policy.

Per capita GNI also grows firmly from R.O. 2,379 in 2000 to R.O. 5,702 in 2007, up nearly 150%.

The consumer price index remained low until 2006 and rose sharply in 2007 (108.7 points versus 100 in 2000) as a result of high oil prices.

Table 2.1-1 Major Social and Economic Indices in Oman

| | 2000 | 2003 | 2004 | 2005 | 2006 | 2007 |
|-----------------------------------|-------|-------|-------|--------|--------|----------|
| 1 Population ('000) | 2,402 | 2,341 | 2,416 | 2,509 | 2,577 | 2,743 |
| 2 Population growth rate (%) | 3.3 | -7.8 | 3.2 | 3.8 | 2.7 | 6.4 |
| 3 GDP (R.O. million) | 7,479 | 8,283 | 9,487 | 11,883 | 14,151 | 16,010 * |
| 4 -GDP Oil (%) | 50.1 | 42.0 | 43.0 | 49.4 | 47.6 | 45.2 * |
| 5 -GDP Non-oil (%) | 51.3 | 59.4 | 58.3 | 52.8 | 54.1 | 56.4 * |
| 6 GDP growth rate (%) | 25.2 | 7.5 | 14.5 | 25.3 | 19.1 | 13.1 * |
| 7 GNI per capita (R.O.) | 2,979 | 3,449 | 3,865 | 4,587 | 5,355 | 5,702 * |
| 8 Consumer Price Index (2000=100) | 100.0 | 98.7 | 99.1 | 100.2 | 103.5 | 108.7 |
| 9 Trade Balance (R.O.) | 2,379 | 1,872 | 1,763 | 3,738 | 4,055 | 3,332 |
| 10 Life expectancy at birth | 73.4 | 74.2 | 74.3 | 74.3 | 74.3 | 72.0 |
| 11 Infant mortality (%) | 16.7 | 10.3 | 10.3 | 10.3 | 10.3 | 10.1 |

Note: * Provisional

Source: 1-7, 10-11 Ministry of National Economy (MONE) (2008), "Statistical Year Book 2008"

8 Ministry of National Economy (MONE) (2008), "Main indicators"

<http://www.moneoman.gov.om/index.asp>

9 Economist Intelligence Unit (2009) "Country Report Oman"

2.1.2 Economic Structure and Growth Trend

The Oman economy has steadily growth for over the past three decades since 1975, when the first Five Year Development Plan started. Over the Sixth Five Year Plan periods (1975 – 2005), per capita nominal GDP increased sixfold from \$2,258 to \$12,302. During the same period, nominal GDP grew by 16 times, from R.O. 722 million to R.O. 11,883 million. In particular, the rise in crude oil price since 2004 has helped push nominal GDP upward by more 10 percentage points each year. Together with strong growth of the non-petroleum sector, GDP (current price based) in 2008 recorded an impressive 44.0% increase. The recent GDP growth is largely driven by a steep climb of international crude oil prices, which jumped from \$65.2 (per barrel average) in 2007 to \$101 in 2008, accompanied by the increase in oil production.

Table 2.1-2 Gross Domestic Production (GDP) (in factor prices)

| | 1975 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007* |
|------------------------------|------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| [Current Price] | | | | | | | | | | | |
| GDP (R.O. million) | 722 | 5,336 | 5,972 | 7,479 | 7,459 | 7,708 | 8,283 | 9,487 | 11,883 | 14,151 | 16,010 |
| GDP per capita (R.O.) | 780 | 2,333 | 2,569 | 3,113 | 3,010 | 3,037 | 3,538 | 3,927 | 4,736 | 5,491 | 5,837 |
| (US\$) | | 6,060 | 6,672 | 8,087 | 7,818 | 7,889 | 9,190 | 10,199 | 12,302 | 14,263 | 15,160 |
| [2000 Constant Price] | | | | | | | | | | | |
| GDP (R.O. million) | | 7,191 | 7,147 | 7,479 | 7,895 | 8,058 | 8,087 | 8,363 | 8,772 | 9,298 | 10,017 |
| [Average Annual Growth Rate] | | | | | | | | | | | |
| GDP at Current Price | | | 11.5 | 25.2 | -0.3 | 3.3 | 7.5 | 14.5 | 25.3 | 19.1 | 13.1 |
| GDP at Constant Price | | | -0.6 | 4.6 | 5.6 | 2.1 | 0.4 | 3.4 | 4.9 | 6.0 | 7.7 |

*Provisional
Source: MNE

For the Oman economy, growth with less dependence on the oil sector is its most important, long-term challenge.

The oil sector's GDP share stood at more than 60% up until the early 1980s. Then, it declined gradually to 32% in 1998. It rose again after 2000 and has remained at around 45%. In 2008, the share rose to 51.3% as crude oil production expanded by 6.8% (277 million barrels) in response to the sharp rise of crude oil prices.

Table 2.1-3 GDP by Sector (at current price)

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007* |
|---|------|------|------|------|------|------|------|-------|-------|-------|
| 1 Total Petroleum Activities | 32.0 | 40.4 | 50.0 | 44.0 | 42.8 | 42.0 | 43.0 | 49.4 | 47.6 | 45.1 |
| 1.1 Crude Petroleum | 30.8 | 39.3 | 48.7 | 41.9 | 40.7 | 39.5 | 40.4 | 45.7 | 43.5 | 40.7 |
| 1.2 Natural Gas | 1.2 | 1.1 | 1.3 | 2.1 | 2.1 | 2.5 | 2.6 | 3.7 | 4.1 | 4.4 |
| 2 Total Non Petroleum Activities | 68.1 | 59.9 | 51.2 | 57.2 | 58.6 | 59.2 | 58.2 | 52.7 | 54.1 | 56.7 |
| 2.1 Agriculture & Fishing | 3.0 | 2.8 | 2.1 | 2.2 | 2.1 | 2.1 | 1.8 | 1.5 | 1.3 | 1.3 |
| - Agriculture | 2.0 | 1.9 | 1.4 | 1.5 | 1.4 | 1.4 | 1.1 | 0.9 | 0.8 | 0.8 |
| - Fishing | 1.0 | 0.9 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.6 | 0.5 | 0.5 |
| 2.2 Industry Activities | 12.6 | 10.0 | 9.2 | 12.6 | 13.0 | 13.7 | 13.6 | 14.2 | 16.3 | 16.8 |
| - Mining and Quarrying | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 |
| - Manufacturing | 4.7 | 4.4 | 5.8 | 8.8 | 8.7 | 8.9 | 8.7 | 8.5 | 10.9 | 10.6 |
| Manufacturing of Refined Petroleum Products | 0.8 | 0.6 | 0.6 | 0.7 | 0.8 | 0.5 | 0.3 | 0.4 | 0.4 | 0.8 |
| Manufacturing of Chemical & Chemical Products | 0.3 | 0.3 | 2.0 | 4.7 | 4.0 | 4.7 | 4.8 | 4.8 | 7.3 | 6.4 |
| Other Manufacturing | 3.6 | 3.5 | 3.2 | 3.4 | 3.9 | 3.7 | 3.6 | 3.3 | 3.2 | 3.4 |
| - Electricity & Water Supply | 1.3 | 1.2 | 1.0 | 1.1 | 1.0 | 1.3 | 1.3 | 1.7 | 1.2 | 1.2 |
| - Building & Construction | 6.2 | 4.0 | 2.1 | 2.4 | 3.0 | 3.3 | 3.3 | 3.8 | 4.0 | 4.8 |
| 2.3 Service Activities | 52.5 | 47.1 | 39.9 | 42.4 | 43.5 | 43.4 | 42.8 | 37.0 | 36.5 | 38.6 |
| - Wholesale and Retail Trade | 10.3 | 8.5 | 7.5 | 8.0 | 7.8 | 8.1 | 8.6 | 7.2 | 7.7 | 9.0 |
| - Hotels and Restaurants | 1.0 | 0.9 | 0.7 | 0.8 | 0.8 | 0.8 | 0.7 | 0.7 | 0.8 | 0.8 |
| - Transport, Storage and Communication | 6.2 | 5.4 | 4.8 | 5.3 | 6.0 | 6.3 | 6.5 | 5.3 | 5.7 | 6.2 |
| - Financial Intermediation | 5.6 | 5.1 | 3.9 | 4.3 | 4.5 | 4.5 | 4.5 | 3.9 | 3.9 | 3.7 |
| - Real Estate & Business Activities | 7.7 | 6.9 | 5.5 | 5.9 | 5.9 | 6.0 | 5.4 | 4.6 | 4.2 | 4.2 |
| - Public Administration & Defense | 12.1 | 11.1 | 9.4 | 9.7 | 9.8 | 9.1 | 8.9 | 7.7 | 7.5 | 7.7 |
| - Education | 5.1 | 4.9 | 4.4 | 4.6 | 4.8 | 4.9 | 4.7 | 4.4 | 4.0 | 4.1 |
| - Health | 2.1 | 2.0 | 1.7 | 1.8 | 1.9 | 1.8 | 1.7 | 1.6 | 1.4 | 1.5 |
| - Other Community, Social and Personal Services | 1.9 | 1.8 | 1.5 | 1.5 | 1.5 | 1.4 | 1.3 | 1.2 | 1.0 | 1.1 |
| - Private Household with Employed Persons | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.4 | 0.3 | 0.3 |
| 3 Financial Intermediation Services Indirectly Measured | -2.5 | -2.6 | -2.0 | -2.2 | -2.4 | -2.3 | -2.0 | -1.8 | -1.7 | -1.8 |
| 4 GDP at Basic Price | 97.6 | 97.7 | 99.2 | 99.0 | 99.0 | 98.9 | 99.2 | 100.3 | 100.0 | 100.0 |
| 5 Plus Taxes less Subsidies on Products | 2.4 | 2.3 | 0.8 | 1.0 | 1.0 | 1.1 | 0.8 | -0.3 | 0.0 | 0.0 |
| GDP at Producers' Value | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

*Provisional

Source: Attachment 2.1

Table 2.1-4 Annual Growth Rate by Sector

| | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007* | |
|---|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|------|--------|--------|-------|--------|----------|-------|
| | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) |
| 1 Total Petroleum Activities | 40.7 | 1.3 | 55.3 | 6.4 | -12.4 | 0.8 | 0.6 | -5.6 | 5.5 | -8.1 | 17.1 | -3.5 | 44.1 | 0.9 | 14.7 | -3.1 | 7.3 | -1.7 |
| 1.1 Crude Petroleum | 42.0 | 1.2 | 55.4 | 5.5 | -14.3 | -1.1 | 0.4 | -5.9 | 4.3 | -9.4 | 17.1 | -4.7 | 41.8 | -1.2 | 13.3 | -6.3 | 5.9 | -3.5 |
| 1.2 Natural Gas | 5.2 | 8.2 | 50.2 | 50.4 | 56.6 | 70.6 | 5.9 | 2.5 | 27.0 | 17.4 | 17.3 | 15.0 | 79.3 | 27.0 | 31.7 | 27.7 | 21.7 | 10.9 |
| 2 Total Non Petroleum Activities | -2.0 | -2.3 | 7.3 | 5.3 | 11.2 | 9.5 | 5.8 | 8.9 | 9.0 | 7.2 | 12.3 | 7.9 | 13.6 | 10.3 | 22.0 | 9.4 | 17.9 | 12.6 |
| 2.1 Agriculture & Fishing | 4.1 | 8.3 | -5.9 | -0.1 | 5.2 | 5.8 | 0.7 | 0.4 | 4.2 | -2.4 | 1.7 | 3.7 | 5.0 | -2.9 | 4.5 | -4.6 | 5.3 | 3.7 |
| - Agriculture | 4.8 | 10.8 | -5.4 | -4.3 | 5.4 | 4.8 | -0.8 | -4.0 | 3.1 | -2.2 | -6.0 | -4.6 | -0.2 | -1.8 | 9.0 | -3.6 | 5.6 | 3.5 |
| - Fishing | 2.7 | 2.5 | -7.0 | 10.6 | 4.8 | 7.9 | 4.1 | 9.8 | 6.6 | -3.0 | 17.4 | 19.1 | 13.4 | -4.7 | -1.8 | -6.1 | 4.7 | 4.0 |
| 2.2 Industry Activities | -11.3 | -8.8 | 15.8 | 17.1 | 35.7 | 29.8 | 6.1 | 21.3 | 14.5 | 12.3 | 12.2 | 7.0 | 32.4 | 16.7 | 35.1 | 3.7 | 16.4 | 13.3 |
| - Mining and Quarrying | 7.9 | 11.9 | 15.1 | 17.0 | -22.8 | -18.6 | 0.5 | 0.1 | -4.8 | -7.5 | 30.2 | 12.5 | 12.0 | 5.4 | -4.0 | -8.7 | 41.7 | 14.3 |
| - Manufacturing | 4.2 | 8.4 | 63.6 | 65.7 | 52.9 | 41.0 | 1.8 | 14.2 | 10.4 | 3.4 | 11.2 | 1.8 | 22.7 | 8.1 | 51.6 | 10.2 | 10.0 | 6.5 |
| Manufacturing of Refined Petroleum Products | -9.0 | 9.5 | 10.2 | 8.8 | 23.4 | -7.2 | 18.3 | 9.4 | -28.5 | -9.7 | -45.1 | -3.7 | 91.0 | 12.1 | 8.0 | -14.6 | 143.2 | -19.3 |
| Manufacturing of Chemical & Chemical Products | 2.4 | 1.7 | 773.1 | 777.3 | 134.0 | 102.9 | -12.4 | 12.7 | 27.5 | 8.1 | 17.8 | 0.9 | 24.6 | 4.1 | 79.4 | 13.8 | -0.9 | 1.9 |
| Other Manufacturing | 7.3 | 8.8 | 15.0 | 17.1 | 7.4 | 10.8 | 17.8 | 16.7 | 1.0 | 0.1 | 11.0 | 3.7 | 15.1 | 12.4 | 15.9 | 9.2 | 20.0 | 14.1 |
| - Electricity & Water Supply | 5.2 | 4.2 | 9.0 | 10.2 | 2.4 | 12.3 | 0.0 | 23.5 | 36.3 | 96.2 | 14.2 | 21.6 | 65.1 | 8.3 | -16.5 | -37.5 | 9.5 | 1.9 |
| - Building & Construction | -27.7 | -25.6 | -34.1 | -33.6 | 14.8 | 16.1 | 25.2 | 46.0 | 20.6 | 3.1 | 13.0 | 9.0 | 46.7 | 45.4 | 24.0 | 18.8 | 34.7 | 28.2 |
| 2.3 Service Activities | -0.1 | -1.4 | 6.2 | 3.2 | 5.8 | 5.0 | 6.0 | 5.8 | 7.6 | 6.0 | 12.8 | 8.4 | 8.0 | 8.7 | 17.6 | 12.0 | 19.0 | 12.7 |
| - Wholesale and Retail Trade | -7.3 | -8.7 | 9.4 | 2.8 | 7.1 | 9.3 | 0.6 | 4.5 | 12.2 | 11.7 | 21.2 | 10.2 | 5.0 | -1.1 | 26.7 | 18.6 | 31.8 | 23.9 |
| - Hotels and Restaurants | -1.6 | 7.5 | 3.0 | 4.3 | 4.5 | 2.0 | 3.8 | -3.0 | 3.4 | 9.2 | 13.3 | 11.7 | 25.1 | 17.4 | 29.7 | 9.3 | 10.6 | 3.1 |
| - Transport, Storage and Communication | -2.8 | 0.6 | 11.1 | 12.2 | 8.4 | 7.9 | 18.5 | 16.1 | 13.3 | 10.4 | 17.9 | 10.5 | 2.5 | 14.3 | 26.3 | 20.8 | 23.6 | 27.5 |
| - Financial Intermediation | 0.7 | -0.2 | -3.4 | 3.8 | 9.7 | 2.2 | 8.6 | 7.0 | 7.3 | 4.4 | 13.7 | 6.5 | 8.8 | 25.5 | 18.2 | 11.1 | 8.0 | 18.8 |
| - Real Estate & Business Activities | -0.4 | -0.3 | 1.3 | 0.9 | 6.4 | 6.1 | 2.1 | 3.2 | 10.5 | 10.4 | 2.5 | 2.7 | 7.3 | 6.8 | 8.5 | 5.9 | 11.9 | 5.9 |
| - Public Administration & Defense | 2.8 | -0.6 | 6.3 | -0.1 | 2.9 | 2.0 | 4.4 | 3.4 | -0.6 | -2.6 | 12.1 | 10.5 | 7.7 | 4.8 | 16.8 | 13.7 | 15.8 | 1.0 |
| - Education | 7.4 | 2.7 | 12.4 | 6.1 | 5.4 | 4.7 | 7.5 | 6.5 | 9.3 | 6.2 | 10.5 | 9.0 | 16.5 | 13.6 | 9.2 | 1.9 | 15.8 | 1.1 |
| - Health | 4.0 | 1.0 | 7.6 | 1.2 | 3.4 | 2.5 | 8.3 | 6.8 | 6.8 | 4.2 | 7.4 | 5.8 | 14.7 | 10.3 | 7.5 | 4.3 | 18.7 | 3.9 |
| - Other Community, Social and Personal Services | 2.2 | -1.1 | 5.4 | -0.3 | 1.6 | 0.7 | 2.6 | 1.2 | 2.4 | 1.0 | 4.8 | 3.5 | 10.6 | 7.7 | 3.5 | 1.0 | 18.2 | 3.4 |
| - Private Household with Employed Persons | 9.3 | 9.3 | 5.3 | 5.3 | 6.9 | 6.8 | 6.8 | 5.3 | 6.9 | 7.4 | 7.8 | 7.7 | 4.7 | 4.7 | 4.2 | 4.2 | 4.2 | 4.2 |
| 3 GDP at Basic Price | 11.6 | -0.8 | 27.3 | 6.0 | -0.6 | 5.2 | 3.3 | 2.0 | 7.7 | 0.5 | 14.6 | 3.4 | 26.8 | 6.7 | 18.6 | 5.0 | 12.8 | 7.7 |
| 4 Plus Taxes less Subsidies on Products | 6.0 | 7.5 | -65.1 | -65.1 | 59.9 | 59.4 | 6.0 | 7.3 | -15.8 | -15.9 | 4.0 | -1.3 | -179.4 | -213.4 | -92.1 | -113.6 | -1,174.7 | 1.8 |
| GDP at Producers' Value | 11.5 | -0.6 | 25.2 | 4.6 | -0.3 | 5.6 | 3.3 | 2.1 | 7.5 | 0.4 | 14.5 | 3.4 | 25.3 | 4.9 | 19.1 | 6.0 | 13.1 | 7.7 |

Notes: *Provisional

(1) Current Price, (2) Constant Price

Source: Attachment 2.1 & 2.2

The non-oil sector is composed of agriculture and fishery, industry, and service. Industrial activities consist of mining and quarry, manufacturing (petrochemical, chemical, etc.), utilities, and construction. The service sector includes wholesaling and retailing, restaurants and hotels, warehousing and distribution, finance and insurance, real estate, public service and military, and education.

The percentage contribution of industrial activities to GDP grew firmly from 12.6% in 1998 to 16.8% in 2007. Within that category, the manufacturing sector (including petrochemical and chemical) showed substantial growth of over 10% (real basis) annually since 2000, and its GDP contribution rose from 4.8% in 1998 to 10.6% in 2007.

On the other hand, the service sector's GDP contribution declined from 52.5% to 38.6% during the same period, down 14 percentage points. In absolute terms, however, the sector continues to record more than 5% growth since 2001, largely due to the transportation and warehousing sector (over 10% growth annually).

Finally, the agriculture and fishery sector's GDP contribution shrank from 3% to 1% between 1998 and 2007. On an absolute value basis, it showed negative growth. In Oman, strong growth cannot be expected due to limited land and water resources. Nevertheless, "securing stable food supply" is surfacing as a national issue because of a recent concern about availability of agricultural and fishery products caused by the skyrocketing international market prices. The government, in its "Oman Vision 2020," plans to raise the agricultural sector's GDP contribution to 3.1% by 2020 (annual average growth rate of 4.5%), together with a 2% target for the fishery sector.

2.1.3 Domestic Saving and Capital Formation

GDP share of domestic saving rose steadily from 26% in 1998 to 50% in 2006. It declined slightly to 47% in 2007. The high levels of domestic saving are primarily attributable to a substantial improvement of the international balance of payments due to the sharp rise in crude oil prices.

On the other hand, personal saving's GDP contribution remained at 35% in 2007. The 11% difference in comparison to domestic saving represents the outflow of funds in terms of remittance by foreign workers, transfer of profits and dividends, and investment outside Oman.

Table 2.1-5 Domestic Savings and Capital Formation (1998-2007)

| Items | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007* |
|---|-------|--------|--------|-------|-------|-------|-------|--------|--------|--------|
| 1 GDP at Purchasers' Prices | 5,336 | 5,972 | 7,479 | 7,459 | 7,708 | 8,283 | 9,487 | 11,883 | 14,151 | 16,010 |
| 2 Domestic Savings (R.O.million) | 1,406 | 1,934 | 3,235 | 2,959 | 3,099 | 3,326 | 3,843 | 5,768 | 7,135 | 7,466 |
| 3 Gross Capital Formation (R.O.million) | 1,670 | 1,328 | 1,163 | 1,298 | 1,450 | 1,850 | 2,426 | 2,751 | 3,427 | 4,885 |
| - Oil Activities | 531 | 396 | 374 | 405 | 442 | 595 | 770 | 776 | 1,017 | 1,473 |
| - Non Oil Activities | 1,139 | 932 | 788 | 892 | 1,007 | 1,255 | 1,657 | 1,975 | 2,410 | 3,412 |
| 4 Annual Changes (%) | | | | | | | | | | |
| - Domestic Savings | - | 37.5% | 67.3% | -8.5% | 4.7% | 7.3% | 15.5% | 50.1% | 23.7% | 4.6% |
| - Gross Capital Formation | - | -20.5% | -12.4% | 11.6% | 11.7% | 27.6% | 31.1% | 13.4% | 24.6% | 42.5% |
| - Oil Activities | - | -25.4% | -5.4% | 8.2% | 9.2% | 34.5% | 29.3% | 0.8% | 31.1% | 44.9% |
| - Non Oil Activities | - | -18.2% | -15.4% | 13.2% | 12.9% | 24.6% | 32.0% | 19.2% | 22.0% | 41.6% |
| - GDP (Current Price) | - | 11.9% | 25.2% | -0.3% | 3.3% | 7.5% | 14.5% | 25.3% | 19.1% | 13.1% |
| 5 % to GDP | | | | | | | | | | |
| - Domestic Savings | 26.4% | 32.4% | 43.3% | 39.7% | 40.2% | 40.2% | 40.5% | 48.5% | 50.4% | 46.6% |
| - Gross Capital Formation | 31.3% | 22.2% | 15.5% | 17.4% | 18.8% | 22.3% | 25.6% | 23.1% | 24.2% | 30.5% |

*Provisional

Gross capital formation, as percentage share of GDP, gradually declined from 31% in 1998 to 17% in 2001. Then, it turned upward with the economic recovery and returned to 30% in 2007, mainly due to reinvigoration of capital formation in terms of construction and machinery. Other drivers are construction of infrastructure by means of public works and a general construction boom.

**Table 2.1-6 Capital Formation by Industrial Sector in Percent of GDP
(at purchasers' value)**

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007* |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 1 Total Petroleum Activities | 32.1% | 40.4% | 50.1% | 44.0% | 42.8% | 42.0% | 43.0% | 49.4% | 47.6% | 45.2% |
| 1.1 Crude Petroleum | 30.9% | 39.3% | 48.7% | 41.9% | 40.7% | 39.5% | 40.4% | 45.7% | 43.5% | 40.7% |
| 1.2 Natural Gas | 1.2% | 1.1% | 1.3% | 2.1% | 2.1% | 2.5% | 2.6% | 3.7% | 4.1% | 4.4% |
| | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 2 Total Non Petroleum Activities | 68.4% | 59.9% | 51.3% | 57.2% | 58.6% | 59.4% | 58.3% | 52.8% | 54.1% | 56.4% |
| 2.1 Agriculture & Fishing | 3.0% | 2.8% | 2.1% | 2.2% | 2.1% | 2.1% | 1.8% | 1.5% | 1.4% | 1.3% |
| A - Agriculture | 2.0% | 1.9% | 1.4% | 1.5% | 1.4% | 1.4% | 1.1% | 0.9% | 0.8% | 0.8% |
| B - Fishing | 1.0% | 0.9% | 0.7% | 0.7% | 0.7% | 0.7% | 0.7% | 0.6% | 0.5% | 0.5% |
| 2.2 Industry Activities | 12.6% | 10.0% | 9.3% | 12.6% | 12.9% | 13.8% | 13.5% | 14.3% | 16.2% | 16.6% |
| C - Mining and Quarrying | 0.4% | 0.4% | 0.3% | 0.3% | 0.3% | 0.2% | 0.3% | 0.2% | 0.2% | 0.2% |
| D - Manufacturing | 4.7% | 4.4% | 5.7% | 8.8% | 8.7% | 8.9% | 8.7% | 8.5% | 10.8% | 10.5% |
| - Manufacturing of Refined Petroleum Products | 0.8% | 0.6% | 0.6% | 0.7% | 0.8% | 0.5% | 0.3% | 0.4% | 0.4% | 0.8% |
| - Manufacturing of Chemical & Chemical Products | 0.3% | 0.3% | 2.0% | 4.7% | 4.0% | 4.7% | 4.8% | 4.8% | 0.7% | 6.4% |
| - Other Manufacturing | 3.6% | 3.5% | 3.2% | 3.4% | 3.9% | 3.7% | 3.6% | 3.3% | 3.2% | 3.4% |
| E - Electricity & Water Supply | 1.3% | 1.2% | 1.0% | 1.1% | 1.0% | 1.3% | 1.3% | 1.7% | 1.2% | 1.2% |
| F - Building & Construction | 6.2% | 4.0% | 2.1% | 2.4% | 3.0% | 3.3% | 3.3% | 3.8% | 4.0% | 4.8% |
| 2.3 Service Activities | 52.8% | 47.1% | 40.0% | 42.4% | 43.5% | 43.6% | 42.9% | 37.0% | 36.6% | 38.5% |
| G - Wholesale and Retail Trade | 10.3% | 8.5% | 7.5% | 8.0% | 7.8% | 8.1% | 8.6% | 7.2% | 7.7% | 9.0% |
| H - Hotels and Restaurants | 1.0% | 0.9% | 0.7% | 0.8% | 0.8% | 0.8% | 0.7% | 0.7% | 0.8% | 0.8% |
| I - Transport, Storage and Communication | 6.3% | 5.4% | 4.8% | 5.3% | 6.0% | 6.3% | 6.5% | 5.3% | 5.7% | 6.2% |
| J - Financial Intermediation | 5.6% | 5.1% | 3.9% | 4.3% | 4.5% | 4.5% | 4.5% | 3.9% | 3.9% | 3.7% |
| K - Real Estate & Business Activities | 7.7% | 6.9% | 5.6% | 5.9% | 5.9% | 6.0% | 5.4% | 4.6% | 4.2% | 4.2% |
| L - Public Administration & Defence | 12.1% | 11.1% | 9.4% | 9.7% | 9.8% | 9.1% | 8.9% | 7.7% | 7.5% | 7.7% |
| M - Education | 5.1% | 4.9% | 4.4% | 4.6% | 4.8% | 4.9% | 4.7% | 4.4% | 4.0% | 4.1% |
| N - Health | 2.1% | 2.0% | 1.7% | 1.8% | 1.9% | 1.8% | 1.7% | 1.6% | 1.4% | 1.5% |
| O - Other Community, Social and Personal Services | 1.9% | 1.8% | 1.5% | 1.5% | 1.5% | 1.4% | 1.3% | 1.2% | 1.0% | 1.1% |
| P - Private Household with Employed Persons | 0.5% | 0.5% | 0.5% | 0.5% | 0.5% | 0.5% | 0.5% | 0.4% | 0.3% | 0.3% |
| Financial Intermediation Services Indirectly Measured | -2.6% | -2.6% | -2.0% | -2.2% | -2.4% | -2.3% | -2.0% | -1.8% | -1.7% | -1.8% |
| GDP at Basic Price | 98.0% | 97.7% | 99.4% | 99.0% | 98.9% | 99.2% | 99.3% | 100.5% | 100.0% | 99.5% |
| Plus Taxes less Subsidies on Products | 2.4% | 2.3% | 0.6% | 1.0% | 1.1% | 0.8% | 0.7% | -0.5% | 0.0% | 0.3% |
| GDP at Purchasers' Value | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

*Provisional

2.1.4 External Trade and Current Account Trends

The country's crude oil exports, as a percentage share of the total, still maintain a high level, although it declined to 75.8% in 2007 (down 16% in comparison to 1998). Meanwhile, oil prices rose steadily after 2002 and tripled in 2007. As a result, the value of the oil exports doubled during the period, making a sharp contrast to a 30% decrease on a volume basis.

The total value of exports (FOB basis) reached R.O. 9.5 billion in 2007, around twice that in 2000. Notably, the composition of exports composition has significantly changed. In 1992, major export items (including re-exports) were livestock, food, textile and base metal. Recently, industrial products such as petrochemical products and machinery account for major portions,

whereas livestock, food, and textile lost share after 2005, and now are at less than 10% each.

The total value of imports has increased rapidly since 2000. It reached R.O. 6.2 billion (estimate, CIF basis) in 2007, three times the 2000 level. Sector-wise, machinery and transportation equipment accounted for nearly 50% of the total. As machinery represents a relatively high share of 14% in export, some portions of machinery imports seem to be reexported.

The country's trade balance maintains surplus since 2003, although it fell sharply by 11.3% to R.O. 4 billion in 2007 (estimate). The sharp decline in trade surplus reflects a surge in the total import value (up 45.2% to R.O. 6.2 billion), which outpaced 14.4% growth of the total exports (R.O. 9.5 billion), including R.O. 7.2 billion worth of crude oil exports, which increased by 7.1% and reached an all-time high.

According to the Central Bank of Oman's overview and analysis of external trade in 2008 (by segment, including crude oil, refined petroleum products, and LNG), export composition is dominated by crude oil and natural gas exports, which accounted for 76% of the total (oil exports represented 65%), way over non-petroleum exports (including reexport) of 8.5%. Note that the total value of exports grew substantially by 52.8%, thanks to a rapid rise in international oil prices and strong growth of non-petroleum exports (including reexport) between the end of 2007 and the third quarter of 2008 (up 52.1% and 51.1% over a year earlier, respectively).

On the other hand, the total value of imports in 2008 grew by 44.4% due to expansion of machinery and equipment demand for ongoing projects and the rise in import prices of raw materials and agricultural/fishery products triggered by the skyrocketing oil prices. All in all, the trade surplus soared by 68.2% in comparison to the previous year, totaling R.O. 5.6 billion.

As a result, the current account recorded a large surplus equivalent to 9.1% of nominal GDP. As the surplus more than compensated for the outgoings including foreign remittance, dividend payment, and other net capita transfers, the total balance of payments achieved a surplus. Note that the private net capital transfer item, such as service and income, represented a large amount of outflow; capital transfer to foreign countries in 2007 nearly doubled that in 2003.

On the other hand, the capital account, including investment, recorded net inflow of R.O. 1.4 billion in 2007, followed by net outflow of R.O. 1.1 billion in 2008. This reflects the global financial crisis that broke out in mid-2008, which created negative impacts on investors' sentiment and encouraged non residents to avoid risks.

As a result, the international balance of payments in 2008 resulted in a surplus of R.O. 700 million, much smaller than R.O. 2.4 billion in the previous year. As of the end of 2008, the Central Bank of Oman holds official external reserves of R.O. 4.2 billion (net after valuation and

adjustment).

Backed up by the favorable economic conditions, the government steps up the repayment of long-term debts and government bonds to improve government finance. As a result, government debts as percentage of GDP decreased from 6.3% in 2007 to 4.2% in 2008.

Table 2.1-7 Foreign Trade Performance

| | 1990 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007* |
|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Total Exports (fob) | 2,116 | 2,346 | 2,835 | 2,944 | 2,122 | 2,783 | 4,352 | 4,258 | 4,296 | 4,487 | 5,145 | 7,187 | 8,300 | 9,494 |
| - Oil | 1,940 | 1,842 | 2,275 | 2,234 | 1,430 | 2,127 | 3,605 | 3,415 | 3,307 | 3,582 | 4,186 | 6,048 | 6,720 | 7,200 |
| - Non Oil | 69 | 182 | 173 | 203 | 199 | 201 | 248 | 266 | 262 | 304 | 420 | 555 | 813 | 1,291 |
| - Re-Export | 107 | 322 | 387 | 507 | 493 | 455 | 499 | 578 | 727 | 601 | 538 | 584 | 767 | 1,003 |
| Imports (cif) | 1,076 | 1,684 | 1,818 | 1,996 | 2,240 | 1,846 | 1,973 | 2,281 | 2,421 | 2,615 | 3,382 | 3,449 | 4,244 | 6,162 |
| Balance | 1,041 | 662 | 1,017 | 948 | -118 | 937 | 2,379 | 1,977 | 1,875 | 1,872 | 1,763 | 3,738 | 4,055 | 3,332 |
| % to Total Exports | | | | | | | | | | | | | | |
| - Oil | 91.7% | 78.5% | 80.2% | 75.9% | 67.4% | 76.4% | 82.8% | 80.2% | 77.0% | 79.8% | 81.4% | 84.2% | 81.0% | 75.8% |
| - Non Oil | 3.3% | 7.8% | 6.1% | 6.9% | 9.4% | 7.2% | 5.7% | 6.2% | 6.1% | 6.8% | 8.2% | 7.7% | 9.8% | 13.6% |
| - Re-Exports | 5.1% | 13.7% | 13.7% | 17.2% | 23.2% | 16.4% | 11.5% | 13.6% | 16.9% | 13.4% | 10.5% | 8.1% | 9.2% | 10.6% |

*Provisional

Table 2.1-8 Production and Export of Crude Oil

| | Production of Oil (Mn. BBL) | Exports of Oil | | Average Export Value per Barrel | |
|------|-----------------------------|-----------------|-----------------|---------------------------------|-------------------------|
| | | Volume (Mn.BBL) | Value (R.O.Mn.) | R.O./BBL ^{*1)} | US\$/BBL ^{*2)} |
| 2002 | 328 | 305 | 2,858 | 9.4 | 24.3 |
| 2003 | 299 | 279 | 2,985 | 10.7 | 27.8 |
| 2004 | 285 | 264 | 3,491 | 13.2 | 34.4 |
| 2005 | 283 | 262 | 5,071 | 19.3 | 50.3 |
| 2006 | 269 | 233 | 5,528 | 23.7 | 61.6 |
| 2007 | 259 | 222 | 5,554 | 25.0 | 65.0 |
| 2008 | 277 | 217 | N.A. | N.A. | 101.1 |

Notes: *1) Estimated on the basis of export volume and value

*2) Calculated from the estimated export value per barrel in R.O. price by applying exchange rate of US\$1: R.O. 0.385

Source: Central Bank of Oman Annual Report 2007 & Statistical Year Book 2008

**Table 2.1-9 Export Structure of Non-oil Sector
(in percent of total value of non-oil sector exports)**

| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007* |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| 1 Live Animals & Products Thereof | 10 | 8 | 7 | 16 | 9 | 7 |
| 2 Vegetable Products | 7 | 2 | 1 | 3 | 2 | 1 |
| 3 Animal or Vegetable Fats & Oil | 3 | 2 | 1 | 5 | 4 | 3 |
| 4 Foodstuff, Beverages, Tobacco & Products Thereof | 6 | 3 | 2 | 6 | 4 | 3 |
| 5 Mineral Products | 11 | 4 | 3 | 9 | 27 | 35 |
| 6 Products of Chemical or Allied Industries | 8 | 3 | 2 | 16 | 17 | 14 |
| 7 Plastics, Rubber & Articles Thereof | 5 | 2 | 2 | 6 | 4 | 9 |
| 8 Hides, Skins, Leather, Saddlery, Harness, Travel Goods & Handbags Thereof | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 Wood & Cork Articles Thereof | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 Pulp & Paper Articles Thereof | 1 | 0 | 0 | 1 | 1 | 1 |
| 11 Textiles & Textile Articles | 10 | 3 | 2 | 3 | 1 | 1 |
| 12 Footwear, Headgear & Umbrellas Thereof | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 Articles of Stone, Plaster, Cement or Similar Materials | 4 | 2 | 2 | 6 | 4 | 3 |
| 14 Precious Stones & Metals | 0 | 0 | 0 | 1 | 0 | 0 |
| 15 Base Metals & Articles of Base Metals | 12 | 5 | 6 | 17 | 15 | 9 |
| 16 Machinery & Mechanical Appliances, Electrical Equipment Thereof | 7 | 3 | 2 | 8 | 11 | 14 |
| 17 Vehicles, Aircrafts, Vessels & Associated Transport Equipment | 0 | 0 | 0 | 0 | 0 | 0 |
| 18 Medical, Photographic, Cinemagraphic Instruments Thereof | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 Miscellaneous & Manufactured Articles | 3 | 2 | 1 | 2 | 1 | 1 |
| 20 Works of Art, Collectors Pieces & Antiques | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 88 | 37 | 33 | 100 | 100 | 100 |
| Index of export value (2000=1) | 0.60 | 0.70 | 0.97 | 1.65 | 1.91 | 2.18 |

*Provisional

Table 2.1-10 Import Structure (in percent of total value of imports)

| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007* |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| 1 Live Animals & Products Thereof | 3.3 | 2.9 | 2.5 | 4.3 | 3.7 | 3.3 |
| 2 Vegetable Products | 2.8 | 2.4 | 2.0 | 3.3 | 2.8 | 2.8 |
| 3 Animal or Vegetable Fats & Oil | 0.4 | 0.5 | 0.4 | 0.7 | 0.7 | 0.8 |
| 4 Foodstuff, Beverages, Tobacco & Products Thereof | 7.3 | 4.6 | 2.3 | 3.6 | 3.5 | 3.0 |
| 5 Mineral Products | 3.0 | 4.4 | 2.8 | 6.4 | 5.7 | 5.0 |
| 6 Products of Chemical or Allied Industries | 4.2 | 3.6 | 3 | 6.4 | 4.9 | 4.6 |
| 7 Plastics, Rubber & Articles Thereof | 2.1 | 2.1 | 1.9 | 3.9 | 3.6 | 3.5 |
| 8 Hides, Skins, Leather, Saddlery, Harness, Travel Goods & Handbags Thereof | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 |
| 9 Wood & Cork Articles Thereof | 0.7 | 0.6 | 0.4 | 0.9 | 1.0 | 0.9 |
| 10 Pulp & Paper Articles Thereof | 1.1 | 0.9 | 0.9 | 1.6 | 1.3 | 1.1 |
| 11 Textiles & Textile Articles | 2.6 | 1.9 | 1.2 | 1.8 | 1.5 | 1.5 |
| 12 Footwear, Headgear & Umbrellas Thereof | 0.3 | 0.3 | 0.2 | 0.4 | 0.4 | 0.4 |
| 13 Articles of Stone, Plaster, Cement or Similar Materials | 1.1 | 1.1 | 0.8 | 1.4 | 1.4 | 1.5 |
| 14 Precious Stones & Metals | 0.7 | 0.5 | 0.4 | 1.1 | 1.1 | 1.1 |
| 15 Base Metals & Articles of Base Metals | 5.1 | 5.1 | 6.6 | 11.3 | 14.1 | 16.1 |
| 16 Machinery & Mechanical Appliances, Electrical Equipment Thereof | 15.8 | 12.9 | 13.9 | 21.6 | 23.5 | 25.9 |
| 17 Vehicles, Aircrafts, Vessels & Associated Transport Equipment | 12.6 | 13 | 11.5 | 26.6 | 26.2 | 25.7 |
| 18 Medical, Photographic, Cinemagraphic Instruments Thereof | 1.0 | 0.9 | 0.7 | 1.5 | 1.3 | 1.2 |
| 19 Miscellaneous & Manufactured Articles | 1.0 | 1.0 | 0.7 | 1.4 | 1.4 | 1.4 |
| 20 Works of Art, Collectors Pieces & Antiques | 2.8 | 1.6 | 1.5 | 1.9 | 1.6 | 0.1 |
| Total | 68 | 60 | 54 | 100 | 100 | 100 |
| Index of import value (2000=1) | 1.17 | 1.28 | 1.68 | 1.75 | 2.15 | 3.12 |

*Provisional

Table 2.1-11 Balance of International Payments (2003-2007)

(Unit: R.O.million)

| | 2003 | 2004 | 2005 | 2006 | 2007* |
|--|--------|--------|--------|--------|--------|
| 1 Trade Balance | 2,147 | 2,118 | 4,100 | 4,501 | 3,991 |
| 1.1 Merchandise Export (fob) | 4,487 | 5,145 | 7,187 | 8,300 | 9,506 |
| - Oil Exports | 3,046 | 3,553 | 5,160 | 5,576 | 6,020 |
| - Others | 1,441 | 1,592 | 2,027 | 2,724 | 3,486 |
| 1.2 Merchandise Imports (fob) | -2,340 | -3,027 | -3,087 | -3,799 | -5,515 |
| 2 Services, Income & Private Transfers (net) | -1,588 | -1,770 | -2,202 | -2,546 | -3,254 |
| 3 Balance on Current Account (1+2) | 559 | 348 | 1,898 | 1,955 | 737 |
| 4 Balance on Capital and Financial Account | -96 | 146 | -560 | -1,122 | 1,234 |
| 4.1 Direct Investment | -24 | 27 | 559 | 498 | 695 |
| 4.2 Other Capital | -72 | 119 | -1,119 | -1,620 | 539 |
| 5 Errors & Omissions | -206 | -161 | -261 | 16 | 447 |
| 6 Overall Balance (3+4+5) | 257 | 333 | 1,077 | 849 | 2,418 |

*Provisional

Source: Statistical Year Book 2008

2.1.5 Employment

The country's labor market has been growing steadily fueled by the high economic growth since 2004. Recently, the local workforce is clearly on the increase but growth is concentrated in the public sector, which employs 85% of the total in 2007. On the other hand, the foreign workforce in the public sector decreased by 1.1% in comparison to 2006. In contrast, foreign workers represent sizable portions in the private sector. Sectors with a high percentage of foreign workers include construction (38% of the total), wholesaling, retailing and automotive repair (15%), service (12%), and manufacturing (11%).

Employment in the manufacturing sector has increased by around 40% during the past seven years. However, foreign workers account for major portions of the increase. In 2007, they represented 65% of newly employed workers in the manufacturing sector; the number of foreign workers grew by 30% over 2006, totaling around 30,000, whereas the number of Oman workers increased by 11%, totaling around 16,000 (35% of the total).

**Table 2.1-12 Labor Force in Manufacturing Sector by Omani
and Expatriate Labor**

| | Total Labor Force | | Omani Labor | | Expatriate Labor | | Percentage of Omani Labor to Total (%) |
|------|-------------------|------------------------|-------------|------------------------|------------------|------------------------|--|
| | Number | Av. Ann. Growth (%) | Number | Av. Ann. Growth (%) | Number | Av. Ann. Growth (%) | |
| 2001 | 32,345 | N.A. | 11,253 | N.A. | 21,092 | N.A. | 34.8 |
| 2002 | 32,101 | -0.8 | 11,937 | 6.1 | 20,164 | -4.4 | 37.2 |
| 2003 | 33,070 | 3.0 | 12,198 | 2.2 | 20,872 | 3.5 | 36.9 |
| 2004 | 34,891 | 5.5 | 13,224 | 8.4 | 21,667 | 3.8 | 37.9 |
| 2005 | 36,743 | 11.1 | 14,307 | 17.3 | 22,436 | 7.5 | 38.9 |
| 2006 | 38,664 | 10.8 | 14,761 | 11.6 | 23,903 | 10.3 | 38.2 |
| 2007 | 45,154 | 22.9 | 15,915 | 11.2 | 29,239 | 30.3 | 35.2 |

* Survey covers only establishments with ten employees and above

Source: Annual Industrial Report 2007, Yearly Industrial Statistical Book 2008 (Data: 2007)

2.1.6 Government Finance

The Oman government's principal revenue source is the oil and gas sector, accounting for more than 75% of the total in 2007. Tax revenue remains low at around 7%.

In 2008, however, non oil revenues (taxes and others) grew by 14.2%. Taxes and other public charges expanded by 31.1% to R.O. 696 million, and customs duties soared by 42% to R.O. 226 million, reflecting significant import growth in that year. Note that the largest non-tax revenue source is income from government investment, which surged by 52.6% to R.O. 600 million and compared favorably to the public charges revenue.

Government expenditure has been growing firmly for the three consecutive years, as bolstered by ample revenues. In 2008, while ordinary expenditure grew by 14.5%, investment expenditure's growth rate more than doubled (34.4%) to reflect the government policy emphasizing long-term investment in infrastructure development.

Table 2.1-13 Government Revenue and Expenditure

(Unit: R.O.million)

| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|--|-------|-------|-------|-------|-------|-------|
| 1 Total Revenue | 3,010 | 3,305 | 4,040 | 4,511 | 4,980 | 5,921 |
| % of Main Sources: | | | | | | |
| - Oil & Gas | 75.7 | 72.7 | 78.1 | 78.8 | 77.1 | 75.8 |
| - Duties & Taxes | 8.8 | 8.4 | 10.8 | 5.9 | 5.6 | 7.4 |
| - Others | 15.5 | 18.8 | 11.1 | 15.3 | 17.3 | 16.8 |
| 2 Expenditure | 2,940 | 3,189 | 3,810 | 4,208 | 4,936 | 5,881 |
| 3 Surplus (+) or Deficit (-) | 70 | 116 | 230 | 303 | 44 | 40 |
| 4 Means of Finance | | | | | | |
| - Grants (net) | 2 | 4 | 8 | -6 | -37 | 5 |
| - Net Borrowing: | -229 | -159 | -85 | -151 | 196 | 3 |
| - Long & Medium Term Disbursed | 65 | 88 | 227 | 186 | 215 | 198 |
| - Long Term Repaid | -295 | -247 | -312 | -337 | -20 | -195 |
| - Issuance of Govt. Bonds (net)* | 33 | 174 | 89 | -8 | -8 | -130 |
| - Surplus Balance transferred from year 2006 | | | | | | 100 |
| - Total Means of Finance | -194 | 19 | 12 | -165 | 151 | -22 |
| - Net Change in Govt. A/C | -124 | 135 | 242 | 138 | 194 | 18 |

Notes: Net revenues after the transfer to reserve funds

*: Including coverage of deficits prior years

Source: Statistical Year Book 2008

Attachment Tables
(Macro-economic Data)

**Attachment 2.1-1 Gross Domestic Product by Kind of Economic Activity - Current Prices
(1998 - 2007)**

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007* |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|
| (Unit: R.O. million) | | | | | | | | | | |
| 1 Total Petroleum Activities | 1,714 | 2,412 | 3,745 | 3,280 | 3,300 | 3,481 | 4,078 | 5,876 | 6,740 | 7,229 |
| 1.1 Crude Petroleum | 1,651 | 2,346 | 3,645 | 3,123 | 3,135 | 3,271 | 3,831 | 5,434 | 6,158 | 6,520 |
| 1.2 Natural Gas | 63 | 66 | 100 | 156 | 165 | 210 | 247 | 442 | 582 | 709 |
| 2 Total Non Petroleum Activities | 3,649 | 3,577 | 3,837 | 4,266 | 4,515 | 4,921 | 5,527 | 6,277 | 7,656 | 9,027 |
| 2.1 Agriculture & Fishing | 158 | 165 | 155 | 163 | 165 | 171 | 175 | 183 | 191 | 201 |
| - Agriculture | 107 | 113 | 107 | 112 | 111 | 115 | 108 | 108 | 117 | 124 |
| - Fishing | 51 | 52 | 49 | 51 | 53 | 57 | 67 | 75 | 74 | 78 |
| 2.2 Industry Activities | 674 | 597 | 692 | 939 | 996 | 1,140 | 1,280 | 1,694 | 2,289 | 2,665 |
| - Mining and Quarrying | 21 | 23 | 26 | 20 | 20 | 19 | 25 | 28 | 27 | 38 |
| - Manufacturing | 252 | 263 | 430 | 657 | 669 | 738 | 821 | 1,007 | 1,527 | 1,679 |
| Manufacturing of Refined Petroleum Products | 43 | 39 | 43 | 53 | 62 | 45 | 25 | 47 | 51 | 123 |
| Manufacturing of Chemical & Chemical Products | 17 | 17 | 149 | 349 | 306 | 390 | 459 | 572 | 102 | 1,017 |
| Other Manufacturing | 193 | 207 | 238 | 255 | 301 | 304 | 337 | 388 | 450 | 540 |
| - Electricity & Water Supply | 68 | 71 | 78 | 80 | 79 | 108 | 123 | 203 | 169 | 185 |
| - Building & Construction | 333 | 241 | 159 | 183 | 229 | 276 | 311 | 457 | 566 | 763 |
| 2.3 Service Activities | 2,817 | 2,814 | 2,990 | 3,164 | 3,354 | 3,609 | 4,073 | 4,400 | 5,176 | 6,160 |
| - Wholesale and Retail Trade | 550 | 510 | 558 | 598 | 601 | 675 | 818 | 859 | 1,089 | 1,434 |
| - Hotels and Restaurants | 55 | 54 | 56 | 58 | 61 | 63 | 71 | 89 | 115 | 127 |
| - Transport, Storage and Communication | 335 | 325 | 361 | 392 | 464 | 526 | 620 | 636 | 803 | 992 |
| - Financial Intermediation | 301 | 303 | 293 | 321 | 349 | 374 | 425 | 462 | 547 | 590 |
| - Real Estate & Business Activities | 411 | 410 | 415 | 442 | 451 | 498 | 511 | 548 | 595 | 665 |
| - Public Administration & Defense | 646 | 664 | 706 | 727 | 759 | 754 | 845 | 910 | 1,063 | 1,230 |
| - Education | 272 | 292 | 328 | 346 | 372 | 407 | 449 | 523 | 572 | 662 |
| - Health | 114 | 119 | 128 | 132 | 143 | 153 | 164 | 188 | 202 | 240 |
| - Other Community, Social and Personal Services | 104 | 106 | 112 | 113 | 116 | 119 | 125 | 138 | 143 | 169 |
| - Private Household with Employed Persons | 29 | 32 | 34 | 36 | 39 | 41 | 44 | 46 | 48 | 51 |
| 3 Financial Intermediation Services Indirectly Measured | -136 | -153 | -152 | -163 | -188 | -187 | -188 | -214 | -240 | -294 |
| 4 GDP at Basic Price | 5,227 | 5,835 | 7,431 | 7,383 | 7,627 | 8,215 | 9,416 | 11,939 | 14,156 | 15,926 |
| 5 Plus Taxes less Subsidies on Products | 129 | 137 | 48 | 76 | 81 | 68 | 71 | -56 | -5 | 48 |
| GDP at Purchasers' Value | 5,336 | 5,972 | 7,479 | 7,459 | 7,708 | 8,283 | 9,487 | 11,883 | 14,151 | 16,010 |

*Provisional

Source: Statistical Year Book 2008

**Attachment 2.1-2 Gross Domestic Product by Economic Activity - 2000 Constant Prices
(1998 - 2007)**

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007* |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|
| (Unit: R.O. million) | | | | | | | | | | |
| 1 Total Petroleum Activities | 3,475 | 3,520 | 3,745 | 3,776 | 3,566 | 3,279 | 3,165 | 3,195 | 3,096 | 3,044 |
| 1.1 Crude Petroleum | 3,413 | 3,454 | 3,645 | 3,606 | 3,392 | 3,074 | 2,929 | 2,895 | 2,714 | 2,620 |
| 1.2 Natural Gas | 61 | 66 | 100 | 170 | 175 | 205 | 236 | 299 | 382 | 424 |
| 2 Total Non Petroleum Activities | 3,731 | 3,644 | 3,837 | 4,201 | 4,576 | 4,907 | 5,294 | 5,839 | 6,388 | 7,191 |
| 2.1 Agriculture & Fishing | 143 | 155 | 155 | 164 | 165 | 161 | 167 | 162 | 154 | 160 |
| - Agriculture | 101 | 111 | 107 | 112 | 107 | 105 | 100 | 98 | 95 | 98 |
| - Fishing | 43 | 44 | 49 | 53 | 58 | 56 | 67 | 64 | 60 | 62 |
| 2.2 Industry Activities | 648 | 591 | 692 | 898 | 1,090 | 1,224 | 1,310 | 1,529 | 1,586 | 1,796 |
| - Mining and Quarrying | 20 | 22 | 26 | 21 | 21 | 20 | 22 | 23 | 21 | 24 |
| - Manufacturing | 239 | 259 | 430 | 606 | 692 | 716 | 729 | 788 | 868 | 925 |
| Manufacturing of Refined Petroleum Products | 36 | 39 | 43 | 40 | 43 | 39 | 38 | 42 | 36 | 29 |
| Manufacturing of Chemical & Chemical Products | 17 | 17 | 149 | 303 | 341 | 369 | 372 | 387 | 441 | 449 |
| Other Manufacturing | 187 | 203 | 238 | 263 | 307 | 307 | 319 | 358 | 391 | 446 |
| - Electricity & Water Supply | 68 | 71 | 78 | 87 | 108 | 211 | 257 | 278 | 174 | 177 |
| - Building & Construction | 322 | 239 | 159 | 185 | 270 | 278 | 303 | 440 | 523 | 671 |
| 2.3 Service Activities | 2,939 | 2,898 | 2,990 | 3,139 | 3,321 | 3,522 | 3,817 | 4,148 | 4,647 | 5,235 |
| - Wholesale and Retail Trade | 594 | 542 | 558 | 610 | 637 | 712 | 785 | 776 | 920 | 1,140 |
| - Hotels and Restaurants | 50 | 54 | 56 | 57 | 55 | 60 | 67 | 79 | 86 | 89 |
| - Transport, Storage and Communication | 320 | 322 | 361 | 390 | 452 | 500 | 552 | 631 | 762 | 972 |
| - Financial Intermediation | 283 | 282 | 293 | 299 | 320 | 334 | 356 | 447 | 496 | 589 |
| - Real Estate & Business Activities | 413 | 412 | 415 | 441 | 455 | 502 | 516 | 551 | 583 | 618 |
| - Public Administration & Defense | 712 | 707 | 706 | 720 | 745 | 725 | 801 | 840 | 955 | 964 |
| - Education | 301 | 310 | 328 | 344 | 366 | 389 | 424 | 481 | 491 | 496 |
| - Health | 125 | 126 | 128 | 131 | 140 | 145 | 154 | 170 | 177 | 184 |
| - Other Community, Social and Personal Services | 113 | 112 | 112 | 112 | 114 | 115 | 119 | 128 | 129 | 134 |
| - Private Household with Employed Persons | 29 | 32 | 34 | 36 | 38 | 41 | 44 | 46 | 48 | 50 |
| 3 Financial Intermediation Services Indirectly Measured | -142 | -155 | -152 | -159 | -166 | -168 | -164 | -185 | -196 | -229 |
| 4 GDP at Basic Price | 7,064 | 7,010 | 7,431 | 7,819 | 7,977 | 8,018 | 8,295 | 8,849 | 9,287 | 10,007 |
| 5 Plus Taxes less Subsidies on Products | 128 | 137 | 48 | 76 | 82 | 69 | 68 | -77 | 11 | 11 |
| GDP at Producers' Value | 7,191 | 7,147 | 7,479 | 7,895 | 8,058 | 8,087 | 8,363 | 8,772 | 9,298 | 10,017 |

*Provisional

Source: Statistical Year Book 2008

**Attachment 2.1-3 Expenditure on Gross Domestic Product at Purchasers' Value - Current Prices
(1998 - 2007)**

(Unit: R.O. million)

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007* |
|---|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| 1 Final Consumption | 3,950 | 4,038 | 4,244 | 4,500 | 4,610 | 4,957 | 5,644 | 6,115 | 4,616 | 8,545 |
| - Private (#) | 2,515 | 2,586 | 2,624 | 2,758 | 2,769 | 3,096 | 3,498 | 3,735 | 4,383 | 5,620 |
| - Public | 1,426 | 1,444 | 1,611 | 1,732 | 1,832 | 1,851 | 2,135 | 2,368 | 221 | 2,913 |
| - Non Profit Institutions | 9 | 8 | 9 | 9 | 9 | 11 | 11 | 12 | 12 | 12 |
| 2 Gross Fixed Capital Formation | 1,670 | 1,328 | 1,163 | 1,298 | 1,450 | 1,850 | 2,426 | 2,751 | 3,427 | 4,885 |
| - Oil Activities | 531 | 396 | 374 | 405 | 442 | 595 | 770 | 776 | 1,017 | 1,473 |
| - Non Oil Activities | 1,139 | 932 | 788 | 892 | 1,007 | 1,255 | 1,657 | 1,975 | 2,410 | 3,412 |
| Net Export / Import Balance of Goods & Services | -421 | 629 | 2,084 | 1,673 | 1,641 | 1,411 | 1,201 | 3,140 | 3,382 | 2,517 |
| GDP at Purchasers' Value | 5,336 | 5,972 | 7,479 | 7,459 | 7,708 | 8,283 | 9,487 | 11,883 | 14,151 | 16,010 |

Note: * Provisional

(#) Private final consumption including change in stocks.

Source: Statistical Year Book 2008

**Attachment 2.1-4 Domestic and National Savings
(1998 - 2007)**

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007* |
|--|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| 1 GDP at Purchasers' Prices | 5,336 | 5,972 | 7,479 | 7,459 | 7,708 | 8,283 | 9,487 | 11,883 | 14,151 | 16,010 |
| 2 Total Final Consumption Expenditure | 3,950 | 4,038 | 4,244 | 4,500 | 4,610 | 4,957 | 5,644 | 6,115 | 7,016 | 8,545 |
| 3 Domestic Savings (1-2) | 1,406 | 1,934 | 3,235 | 2,959 | 3,099 | 3,326 | 3,843 | 5,768 | 7,135 | 7,466 |
| 4 Primary Income from Abroad (net) | -193 | -253 | -322 | -360 | -371 | -208 | -150 | -373 | -352 | -369 |
| 5 Current Transfers from Abroad (net) | -568 | -588 | -586 | -618 | -646 | -675 | -740 | -908 | -1,119 | -1,441 |
| 6 Gross National Saving (3+4+5) | 646 | 1,093 | 2,327 | 1,981 | 2,081 | 2,443 | 2,953 | 4,487 | 5,664 | 5,656 |
| 7 % of Domestic Saving to GDP (3/1) | 26.4 | 32.4 | 43.3 | 39.7 | 40.2 | 40.2 | 40.5 | 48.5 | 50.4 | 46.6 |
| 8 % of National Saving to GDP (6/1) | 12.1 | 18.3 | 31.1 | 26.6 | 27.0 | 29.5 | 31.1 | 37.8 | 40.0 | 35.3 |
| 9 Gross National Income (GNI) (1+4) | 5,163 | 5,719 | 7,157 | 7,099 | 7,337 | 8,075 | 9,337 | 11,510 | 13,799 | 15,641 |
| 10 Gross National Disposable Income (GNDI) (1+4+5) | 4,595 | 5,131 | 6,571 | 6,481 | 6,691 | 7,400 | 8,597 | 10,602 | 12,680 | 14,200 |

* Provisional

Source: Statistical Year Book 2008

Attachment 2.1-5 External Trade (1990 - 2007)

(Unit: R.O. million)

| | Exports | | | | | | | | | | Imports | Trade Balance |
|-------|-----------|-------------|-------|---------|------------|---------------|--|--|--|--|---------|---------------|
| | Oil | | LNG | Non-Oil | Re-Exports | Total Exports | | | | | | |
| | Crude Oil | Refined Oil | | | | | | | | | | |
| 1990 | 1,886 | 54 | | 69 | 107 | 2,116 | | | | | 1,076 | 1,041 |
| 1995 | 1,801 | 41 | | 182 | 322 | 2,346 | | | | | 1,684 | 662 |
| 1996 | 2,228 | 47 | | 173 | 387 | 2,835 | | | | | 1,818 | 1,017 |
| 1997 | 2,181 | 53 | | 203 | 507 | 2,944 | | | | | 1,996 | 948 |
| 1998 | 1,379 | 51 | | 199 | 493 | 2,122 | | | | | 2,240 | -118 |
| 1999 | 2,070 | 56 | | 201 | 455 | 2,783 | | | | | 1,846 | 937 |
| 2000 | 3,356 | 71 | 179 | 248 | 499 | 4,352 | | | | | 1,973 | 2,379 |
| 2001 | 2,935 | 29 | 451 | 266 | 578 | 4,258 | | | | | 2,281 | 1,977 |
| 2002 | 2,858 | 38 | 411 | 262 | 727 | 4,296 | | | | | 2,421 | 1,875 |
| 2003 | 2,985 | 61 | 536 | 304 | 601 | 4,487 | | | | | 2,615 | 1,872 |
| 2004 | 3,491 | 62 | 634 | 420 | 538 | 5,145 | | | | | 3,382 | 1,763 |
| 2005 | 5,071 | 88 | 888 | 555 | 584 | 7,187 | | | | | 3,449 | 3,738 |
| 2006 | 5,528 | 47 | 1,145 | 813 | 767 | 8,300 | | | | | 4,244 | 4,055 |
| 2007* | 5,554 | 466 | 1,180 | 1,291 | 1,003 | 9,494 | | | | | 6,162 | 3,332 |

* Provisional

Source: Statistical Year Book 2008

**Attachment 2.1-6 Value of Domestic Non-Oil Exports (by H.S. classification)
(Excluding Re-exports)**

(Unit: R.O. '000)

| | 2005 | 2006 | 2007 |
|--|----------------|----------------|------------------|
| 1 Live Animals & Products Thereof | 90,618 | 74,477 | 86,929 |
| 2 Vegetable Products | 16,064 | 12,933 | 15,370 |
| 3 Animal or Vegetable Fats & Oil | 28,548 | 28,756 | 36,169 |
| 4 Foodstuff, Beverages, Tobacco & Products Thereof | 35,491 | 32,115 | 38,116 |
| 5 Mineral Products | 50,478 | 216,071 | 450,068 |
| 6 Products of Chemical or Allied Industries | 89,198 | 138,698 | 176,690 |
| 7 Plastics, Rubber & Articles Thereof | 33,050 | 31,935 | 112,932 |
| 8 Hides, Skins, Leather, Saddlery, Harness, Travel Goods & Handbags Thereof | 123 | 148 | 208 |
| 9 Wood & Cork Articles Thereof | 338 | 152 | 179 |
| 10 Pulp & Paper Articles Thereof | 5,812 | 4,647 | 6,953 |
| 11 Textiles & Textile Articles | 14,181 | 10,881 | 7,201 |
| 12 Footwear, Headgear & Umbrellas Thereof | 297 | 394 | 617 |
| 13 Articles of Stone, Plaster, Cement or Similar Materials | 33,513 | 35,166 | 41,809 |
| 14 Precious Stones & Metals | 3,868 | 542 | 1,603 |
| 15 Base Metals & Articles of Base Metals | 95,818 | 123,696 | 120,742 |
| 16 Machinery & Mechanical Appliances, Electrical Equipment Thereof | 44,942 | 89,511 | 179,603 |
| 17 Vehicles, Aircrafts, Vessels & Associated Transport Equipment | 77 | 433 | 114 |
| 18 Medical, Photographic, Cinemagraphic Instruments Thereof | 5 | 0 | 0 |
| 19 Miscellaneous & Manufactured Articles | 12,728 | 11,814 | 11,733 |
| 20 Works of Art, Collectors Pieces & Antiques | 182 | 100 | 3,697 |
| Total | 555,331 | 812,469 | 1,290,733 |

Source: Statistical Year Book 2008

Attachment 2.1-7 (1) Value of Recorded Imports (by H.S. classification)

(Unit: R.O. '000)

| | 2005 | 2006 | 2007 |
|--|-------|-------|-------|
| 1 Live Animals & Products Thereof | 145 | 154 | 202 |
| 2 Vegetable Products | 110 | 118 | 173 |
| 3 Animal or Vegetable Fats & Oil | 25 | 29 | 46 |
| 4 Foodstuff, Beverages, Tobacco & Products Thereof | 123 | 148 | 183 |
| 5 Mineral Products | 216 | 239 | 310 |
| 6 Products of Chemical or Allied Industries | 217 | 205 | 282 |
| 7 Plastics, Rubber & Articles Thereof | 131 | 150 | 212 |
| 8 Hides, Skins, Leather, Saddlery, Harness, Travel Goods & Handbags Thereof | 6 | 6 | 7 |
| 9 Wood & Cork Articles Thereof | 30 | 43 | 57 |
| 10 Pulp & Paper Articles Thereof | 53 | 56 | 69 |
| 11 Textiles & Textile Articles | 61 | 64 | 91 |
| 12 Footwear, Headgear & Umbrellas Thereof | 13 | 18 | 24 |
| 13 Articles of Stone, Plaster, Cement or Similar Materials | 48 | 60 | 94 |
| 14 Precious Stones & Metals | 37 | 46 | 71 |
| 15 Base Metals & Articles of Base Metals | 382 | 591 | 988 |
| 16 Machinery & Mechanical Appliances, Electrical Equipment Thereof | 734 | 986 | 1,592 |
| 17 Vehicles, Aircrafts, Vessels & Associated Transport Equipment | 903 | 1,097 | 1,580 |
| 18 Medical, Photographic, Cinemagraphic Instruments Thereof | 50 | 53 | 74 |
| 19 Miscellaneous & Manufactured Articles | 46 | 59 | 84 |
| 20 Works of Art, Collectors Pieces & Antiques | 64 | 69 | 5 |
| Total | 3,393 | 4,189 | 6,143 |

Source: Statistical Year Book 2008

Attachment 2.1-7 (2) Recorded Imports by Main Category

(Unit: R.O. '000)

| | | Primary & Processed Food & Beverages | Primary & Processed Industrial Supplies | Fuels & Lubricants | Machinery & Other Capital Equipment, Parts & Accessories | Transport Equipment, Parts & Accessories | Consumer Goods | Total |
|---|------|--------------------------------------|---|--------------------|--|--|----------------|-----------|
| Agriculture, Hunting & Forestry | 2005 | 64,203 | 16,070 | 425 | 10 | 0 | 1,455 | 82,163 |
| | 2006 | 72,671 | 15,820 | 411 | 1 | 0 | 727 | 89,630 |
| | 2007 | 93,675 | 19,614 | 392 | 1 | 0 | 950 | 114,632 |
| Fishing | 2005 | 18 | 0 | 0 | 0 | 0 | 0 | 18 |
| | 2006 | 17 | 2 | 0 | 0 | 0 | 0 | 19 |
| | 2007 | 32 | 0 | 0 | 0 | 0 | 0 | 32 |
| Mining & Quarrying | 2005 | 0 | 60,969 | 719 | 0 | 0 | 0 | 61,688 |
| | 2006 | 0 | 87,722 | 1,129 | 0 | 0 | 0 | 88,851 |
| | 2007 | 0 | 69,025 | 1,744 | 0 | 0 | 0 | 70,769 |
| Manufacturing | 2005 | 297,896 | 785,011 | 139,517 | 670,999 | 998,513 | 292,952 | 3,184,888 |
| | 2006 | 341,332 | 1,018,443 | 127,420 | 897,964 | 1,213,471 | 341,969 | 3,940,599 |
| | 2007 | 464,289 | 1,650,819 | 187,668 | 1,456,508 | 1,727,435 | 465,694 | 5,952,413 |
| Electricity, Gas & Water Supply | 2005 | 0 | 0 | 10 | 0 | 0 | 0 | 10 |
| | 2006 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| | 2007 | 0 | 0 | 13 | 0 | 0 | 0 | 13 |
| Other Community, Social & Personal Service Activities | 2005 | 0 | 57 | 0 | 0 | 0 | 2,132 | 2,189 |
| | 2006 | 0 | 60 | 0 | 0 | 0 | 2,157 | 2,217 |
| | 2007 | 0 | 200 | 0 | 0 | 0 | 750 | 950 |
| Total Imports | 2005 | 362,117 | 862,107 | 140,671 | 671,009 | 998,513 | 296,539 | 3,330,956 |
| | 2006 | 414,020 | 1,122,097 | 128,961 | 897,965 | 1,213,471 | 344,853 | 4,121,367 |
| | 2007 | 557,996 | 1,739,658 | 189,817 | 1,456,509 | 1,727,435 | 467,394 | 6,138,809 |

Source: Statistical Year Book 2008

**Attachment 2.1-8 Government Revenue & Expenditure Classified
by Major Items**

(Unit: R.O. million)

| | 2005 | 2006 | 2007 |
|---|--------------|--------------|--------------|
| A Revenues | | | |
| Oil Revenue | 3,556 | 3,839 | 4,489 |
| - Oil (net)* | 3,162 | 3,226 | 3,678 |
| - Natural Gas | 394 | 614 | 811 |
| Non-oil Revenues | 955 | 1,141 | 1,432 |
| - Capital | 35 | 49 | 66 |
| - Capital Repayment | 32 | 18 | 20 |
| - Other | 888 | 1,073 | 1,345 |
| 1 Total Revenue | 4,511 | 4,980 | 5,921 |
| B Expenditure | | | |
| Defense & National Security | | | |
| - Current Expenditure | 1,375 | 1,516 | 1,646 |
| - Capital Expenditure on Construction Projects of Civilian Nature | 29 | 34 | 18 |
| 2 Total Defense & National Security Expenditure | 1,404 | 1,550 | 1,664 |
| Civilian Current Expenditure | | | |
| - Civil Ministries | 1,532 | 1,735 | 1,899 |
| - Interest Loans | 67 | 56 | 78 |
| - Oil Production | 130 | 140 | 163 |
| - Gas Production | 46 | 51 | 55 |
| 3 Total Civilian Current Expenditure | 1,775 | 1,981 | 2,194 |
| Investment Expenditure | | | |
| - Civil Ministries | 501 | 605 | 839 |
| - Oil Production | 250 | 323 | 477 |
| - Gas Production | 171 | 272 | 382 |
| - Human Resources Development Program | 45 | | |
| 4 Total Investment Expenditure | 967 | 1,200 | 1,697 |
| Participation & Support to the Private Sector | | | |
| - Subsidies to Development and Housing Loans Interests | 15 | 15 | 14 |
| - International, Regional & Local Organization | 47 | 63 | 188 |
| - Electricity Sector | | 128 | 124 |
| 5 Total Support | 62 | 206 | 326 |
| 6 Total Expenditure (2+3+4+5) | 4,208 | 4,936 | 5,881 |
| 7 Surplus (+) or Deficit (-) (1-6) | 303 | 44 | 40 |
| C Means of Finance | | | |
| 8 Grants (net) | -6 | -37 | 5 |
| 9 Net Borrowing | -151 | 196 | 3 |
| - Long & Medium Term Disbursed | 186 | 215 | 198 |
| - Long Term Repaid | -337 | -20 | -195 |
| 10 Issuance of Govt. Bonds (net)** | -8 | -8 | -130 |
| 11 Surplus Balance Transferred from Year 2006 | | | 100 |
| 12 Total Means of Finance (8 to 11) | -165 | 151 | -22 |
| 13 Net Change in Govt. A/C (7+12) | 138 | 194 | 18 |

Notes: * Net revenues after the transfer to reserve funds

** Including coverage of deficits prior years

Source: Statistical Year Book 2008

**Attachment 2.1-9 Balance of the External Current Account Projected for 2006 - 2010
(Seventh Five - Year Plan)**

(Unit:R.O.million)

| | 2006 | 2007 | 2008 | 2009 | 2010 | Total |
|--|--------------|--------------|--------------|--------------|--------------|---------------|
| Revenue | | | | | | |
| - Gross Oil Revenue | 2,586 | 2,332 | 2,517 | 2,751 | 3,017 | 13,203 |
| - Minus | | | | | | |
| Transfer to the SGRF | 0 | 0 | 0 | 0 | 0 | 0 |
| Transfer to the Oil Reserve Fund | 67 | 63 | 63 | 63 | 63 | 319 |
| 1 Net Oil Revenue | 2,519 | 2,269 | 2,454 | 2,688 | 2,954 | 12,884 |
| 2 Natural Gas Revenue | 394 | 364 | 442 | 483 | 520 | 2,203 |
| 3 Other Current Revenue | 643 | 660 | 658 | 703 | 740 | 3,404 |
| 4 Capital Revenue | 18 | 19 | 16 | 16 | 16 | 85 |
| 5 Capital Recoveries | 13 | 14 | 11 | 11 | 11 | 60 |
| 6 Total Revenue (1 to 5) | 3,587 | 3,326 | 3,581 | 3,901 | 4,241 | 18,636 |
| Public Expenditure | | | | | | |
| Current Expenditure | | | | | | |
| 7 Defense & National Security | 1,245 | 895 | 910 | 862 | 878 | 4,790 |
| 8 Civil Ministries | 1,400 | 1,505 | 1,600 | 1,715 | 1,813 | 8,033 |
| 9 Interest on Loans | 75 | 75 | 75 | 75 | 75 | 375 |
| 10 Oil Production Expenditure | 149 | 151 | 153 | 173 | 179 | 805 |
| 11 Gas Production Expenditure | 47 | 60 | 67 | 72 | 73 | 319 |
| 12 Total Current Expenditure (7 to 11) | 2,916 | 2,686 | 2,805 | 2,897 | 3,018 | 14,322 |
| Investment Expenditure | | | | | | |
| 13 Development Expenditure for Civil Ministries | 375 | 375 | 375 | 375 | 375 | 1,875 |
| 14 Oil Production Expenditure | 314 | 420 | 475 | 382 | 286 | 1,877 |
| 15 Gas Production Expenditure | 404 | 371 | 367 | 297 | 270 | 1,709 |
| 16 Total Investment Expenditure (13 to 15) | 1,093 | 1,166 | 1,217 | 1,054 | 931 | 5,461 |
| Participation & Support to Private Sector | | | | | | |
| 17 Subsidy for Confessional Loans to Private Sector | 12 | 12 | 12 | 12 | 12 | 60 |
| 18 Subsidy for Housing Loans Interest | 6 | 6 | 6 | 6 | 6 | 30 |
| 19 Contributions to local, Regional and International Organization | 84 | 58 | 44 | 45 | 41 | 272 |
| 20 Government Subsidy for Electricity Sector | 126 | 135 | 147 | 163 | 180 | 751 |
| 21 Total Participation & Support to Private Sector (17 to 21) | 228 | 211 | 209 | 226 | 239 | 1,113 |
| 22 Total Public Expenditure (12+16+21) | 4,237 | 4,063 | 4,231 | 4,177 | 4,188 | 20,896 |
| Surplus (+) or Deficit (-) (6-22) | -650 | -737 | -650 | -276 | 53 | -2,260 |

Source: The Seventh Five-Year Development Plan

2.2 Industrial Development Plan and Industrial Strategy

A National Development Plan has been prepared every five years in Oman to indicate the basic direction and targets of development of the country. The industrial development plan is a constituent part of this Development Plan. At present, it is the period of the Seventh Five Year Plan for 2006 through 2010.

2.2.1 Basic targets for the long-term economic development

In 1975, Oman established Development Council, which is chaired by the His Majesty, and enacted the Economic Development Law; thus embarked on the National Economic Development Plans.

At the same time, in the same year, the Development Council formed a comprehensive Long Term Development Strategy as the basis of the Five Year Plan and as the framework of other national development plans, sectoral development plans and regional development plans. The basic development targets set in the first Long Term Development Strategy (1976-1995) were as follows:

- 1) Develop new sources of national income apart from the oil revenues, with a view of replacing the latter in the future
- 2) Enhance the proportion of investments in productive sectors, especially in the areas of industry, mining, agriculture and fisheries
- 3) Promote regional dispersal of investments in order to benefit all the regions of the country and its people, and to eliminate the disparity in the standard of living between various regions, giving special priority to less developed regions
- 4) Support and develop present population centers and protect them from the risk of mass migration to densely populated areas, and conserve the environment
- 5) Pay attention to water resources which are a vital element necessary for the continuation and development of economic activities
- 6) Pay due attention to the development of national human resources in order that they may play an integral part in the Omani economy
- 7) Set up the nation's infrastructure to support the economic activity and human life of the people
- 8) Promote local commercial activity and remove constraints in transport and storage, and deficiencies which impede the consolidation of free market operations and fair competition
- 9) Establish the components of a free market economy based on the activities of the private

sector, and on fair competition; and provide loans for vital projects commensurate with the resources available to the State

- 10) Enhance the efficiency of the civil service

In June 1995, the Cabinet approved the second Long Term Development Strategy (1996-2020), or “Oman Vision 2020”. The Development Strategy placed its main objective in doubling the per capita national income, compared to that at the time of establishment of the Strategy, and balancing the national revenue and the national expenditure by the end of the Fifth Five Year Plan. It sets out the policies and mechanisms to ensure the macro economic balance and sustainable growth, in the following 7 dimensions:

- 1) Provision of a stable macroeconomic framework
- 2) Furtherance of the Government role in the basic services
- 3) Human resource development and upgrading of skills of Omanis to cope with technological advance with high efficiency
- 4) Promoting economic diversification
- 5) Development of private sector
- 6) Promoting equitable income distribution
- 7) Integration into global economy

The Long Term Strategy forms the basis for Five Year Plan in the designated period. Its strategic focus is as follows:

- 1) Adoption of high value added strategy
- 2) To pursue export-oriented manufacturing strategy
- 3) Development of industries that depend on local resources, giving priority to industries that depend on gas as a primary input
- 4) Manufacturing should be dominated by medium and small scale establishments
- 5) Furthering the manufacturing operation through collaboration with the foreign capital, and status creation for the Omani industry in the international markets
- 6) Adopting the strategy of the transfer of technology
- 7) State commitment to encourage the manufacturing development
- 8) Acceleration of administrative procedure on regulation related to the unified GCC industrial law
- 9) Streamlining of investment procedure, and unification of local and foreign investment laws and corporate law
- 10) Cooperation among the relevant government agencies and institutions to introduce the subject of industry as one of the basic subjects to all the levels of education

Following is the qualitative target set towards the year 2020:

Table 2.2-1 Oman 2020: Quantitative Target Indicators at the Macro Economic Level

Unit: % of GDP (1988=100)

| S. No. | Item | 1995 | 2000 | 2020 |
|---------------------------------------|------------------------------------|---------|---------|------|
| 1 | Total Revenue | 38.8 | 34.6 | 16 |
| 2 | Total Expenditure | 48.8 | 34.6 | 14 |
| 3 | Deficit/ Surplus | 10.0 | 0.0 | 2 |
| 4 | Total Final Consumption | 78.8 | 72.4 | 68 |
| 5 | Domestic Saving | 21.2 | 27.6 | 32 |
| 6 | Total Investment | 14.5 | 16.9 | 34 |
| 7 | Public Investment | 10.1 | 8.3 | 3 |
| 8 | Private Investment | 4.4 | 8.6 | 31 |
| 9 | Total Imports | 31.5 | 29.9 | 20 |
| 10 | Total Exports | 41.1 | 40.5 | 23 |
| 11 | Non Oil Exports | 9.4 | 14.4 | 13 |
| 12 | Oil Exports | 31.7 | 26.1 | 10 |
| 13 | Current Account (Deficit/ Surplus) | -7.2 | -8.0 | 4 |
| 14 | Public External Debt | 20.9 | 16.3 | 9 |
| 15 | SGRF Balance | 17.4 | 2.9 | 24 |
| Annual Average Growth Rate (%) | | | | |
| S. No. | Item | 91-1995 | 96-2000 | 2020 |
| 16 | Gross Domestic Product | 5.8 | 5.1 | 7.4 |
| 17 | Non Oil GDP | 6.8 | 5.7 | 8.8 |
| 18 | GDP Per Capita | 0.02 | 1.0 | 3.8 |

Source: Oman Economic Vision 2020

Under this target, the contribution to GDP by subsector is assumed as follows:

Table 2.2-2 Assumed Contribution to GDP by Subsector (%)

(1993=100)

| Activity | 1995 | 2000 | 2020 |
|---------------------------------------|--------------|--------------|--------------|
| Oil | 33.5 | 25.9 | 9.0 |
| Gas | 1.5 | 5.0 | 10.0 |
| Agriculture | 3.0 | 3.5 | 3.1 |
| Fishing | 1.1 | 1.0 | 2.0 |
| Mining & Quarrying | 0.6 | 0.6 | 2.0 |
| Manufacturing | 5.4 | 6.8 | 15.0 |
| Electricity & Water | 1.7 | 4.3 | 2.0 |
| Building, Construction & Real Estate | 3.2 | 6.9 | 10.0 |
| Trade & Tourism | 14.1 | 17.8 | 18.0 |
| Transportation & Communication | 7.0 | 8.6 | 8.0 |
| Banks, Insurance & Financial Services | 7.9 | 4.3 | 8.0 |
| Other Private Services* | 8.3 | 3.2 | 5.0 |
| Public Services | 13.9 | 12.6 | 10.0 |
| Other Services** | -1.2 | -5.0 | -2.1 |
| Gross Domestic Product | 100.0 | 100.0 | 100.0 |

* Educational Services, Medical, Distribution and presentation of items, repair of vehicles, washing and cleaning services, hairdressing and beautification

** Custom duties and imputed business services

Source: Oman Economic Vision 2020

To achieve the above targets, the manufacturing sector is assumed to accomplish the following:

- 1) A large expansion in the petrochemical industry, based on gas as a feedstock
- 2) Expansion of oil based industry, and in particular, oil refining
- 3) Expansion of raw materials production, especially materials derived from agricultural, fishing and mining sectors
- 4) Creation of assembly-line industries, including hardware, IT and telecommunication
- 5) Application of a high value added strategy
- 6) Adopting an export-directed strategy for converting the industry
- 7) Increase the foreign investment contribution in the sector as a result of policies to encourage foreign investment
- 8) Creation an investment friendly environment through direct policy aimed at adjusting the real exchange rate of the Oman Rial

The Long-Term Development Strategy regards the tourism sector and the ICT sector as the priority sector to be developed during the period up to 2020, and stresses needs for clear strategies for development.

2.2.2 The Seventh Five Year Plan

(1) Issues identified through the performance of the Sixth Five Year Plan

The current Seventh Five Year Plan is the plan for the period from 2006 to 2010. This Five Year Plan was formulated upon the basis of the above Long-Term Development Strategy.

In particular, it reflects the issues identified through the results of the Sixth Five Year Plan, as follows:

- 1) Continuance to depend on a single source subject to depletion (oil)
- 2) Raising the oil production rate to its previous levels
- 3) The possibility that oil prices decline at the medium term and therefore expected decrease in oil revenues
- 4) Increase in oil production cost and hence increase government spending
- 5) Increase in number of unemployed citizens
- 6) The slow rates of the economic diversification processes
- 7) Limited higher education opportunities for the increasing general education outputs, and the low compatibility of higher education outputs with labour market needs
- 8) Raising national saving rates
- 9) Enhancing the private sector efficiency, raising its investment rates and contribution to increase the national economy growth rates
- 10) The scarcity of water resources and lack of safe water supplies in some regions
- 11) Strengthening national capabilities in areas of research and development (R&D) and information technology (IT)
- 12) Inflated State's administrative apparatus and the weakness of its efficiency
- 13) Supporting the regional and rural development to create a development balance between regions and limit the internal migration

(2) Focal points of industrial development during the Seventh Five Year Plan Period, and the framework of the development plan

The Undersecretary of Ministry of National Economy for Development Affairs states that this (Seventh) Five Year Plan is “the most ambitious” Five Year Development Plan, ever implemented in the Sultanate, in the preface of the official document of the Seventh Five Year Plan. It also emphasizes that implementation of the following projects, which are designed for promotion of economic diversification, will be the most important part of the Plan, in terms of industrial development:

- Gas-based mega industrial projects
- Petrochemical industrial projects
- Tourism related projects

It also emphasizes the importance of development of R&D activities for construction of an Oman Digital Society, and promotion of local and foreign investment to increase the level of investment to the level never accomplished before.

The following table summarizes the development targets in view of the Plan, and their assumed implementation mechanisms. It is confirmed that the industrial diversification and reduction of dependence on oil are the priority direction, and development of support system for it, and improvement of business environment to achieve it are the focal points in the Plan. Human resource development in the area of industry, and promotion of involvement of Omani people in industry fields are continued to be one of the important development targets.

| | | | |
|--|---|---|---|
| Improvement of business/investment environment | <ol style="list-style-type: none"> 1) Modernization of the infrastructure related to export operations 2) Promotion of harmonization with various international economic blocks | To meet the demand for infrastructure services | <ol style="list-style-type: none"> 1) Provision of the institutional, legislative and infrastructure environment 2) Simplification of investment procedures and unification of the local and foreign investment law and the companies law 3) To speed up the executive aspects of the GCC unified industrial regulation law 4) Speeding up the formation of executive laws and regulations to protect the Omani industry against harmful practices in world trade |
| Human resource development in the field of industry, and increased participation of Omani people in industry | <ol style="list-style-type: none"> 1) Expansion of the opportunities of higher education, and upgrading its outputs 2) Formulation of a programme with highest priority to employment of the citizens | Upgrading of the academic curriculum to introduce the manufacturing subject, as a basic subject | <ol style="list-style-type: none"> 1) Coordination with concerned authorities to introduce the manufacturing subject as a basic subject in academic curricula in all education stages 2) Provision of work opportunities for national labour force |
| Harmonization of economic development and environmental regulations | - Incorporating environmental criteria in the development policies, programmes and projects in the Plan | | (No related items confirmed) |

Note: (*) The first statement of the “Policy & Realization Mechanism” of the Development Plan is to realize the “Future Strategy towards Industrial Development,” which includes comprehensive strategies to be described later in 2.2 of this Report.

The above development targets, and policy and implementation mechanism, were set on the basis of the understanding of the following issues, which have been confronted by the Omani manufacturing sector:

- 1) The high production costs of manufacturing in the Sultanate compared with GCC States. This is due to the high costs of infrastructure such as prices of gas, electricity, water and industrial lands, in addition to the high costs of freight and port services. The production cost in Oman is estimated higher by 7-10% compared to that of GCC's in general.
- 2) Absence of a legislative and institutional framework to protect the national economy against harmful practices in world trade. Although the GCC's unified law was formulated, the regulations and organizations to put it in force are yet developed. As a result, some cases have been reported that Omani firms were treated unfavorably in this context.
- 3) Delay in implementation of a number of projects, due to lack of management experience of investors, inappropriate or insufficient pre-investment studies, weak financial ability of some investors, and absence of a clear marketing policy by entrepreneurs.
- 4) Lack of organizations or institutions to provide appropriate consultancy services to managements, and provide services to conduct feasibility studies at reasonable prices. Also important is the organization to provide guidance to existing projects, on improvement of production efficiency, etc.
- 5) Absence of a government body to serve to the medium and small scale industries.
- 6) Lack of human resources having skills in the key industrial fields
- 7) The lengthy government procedures and centralized government services such as customs exemptions that have not yet been subject to simplification or improvement
- 8) Limited industrial funding due to reluctance of commercial banks regarding loans and investments in industrial fields

2.2.3 Follow-up System for Five Year Plan

The implementation of the Five Year Plan is under the responsibility of respective concerned ministries and agencies. Committees are organized among the relevant ministries and government agencies for collaboration for implementation, if necessary.

The Directorate General of Industry, MOCI is responsible for the plan implementation if it is the matter on the industrial development. There are 5 departments in the Directorate General of the Industry, as shown in the table below with the responsibility of respective Directorates.

| Department | Section | Major Responsibility |
|--|------------------------|--|
| Industrial Planning & Industrial Studies | Industrial Planning | <ul style="list-style-type: none"> - Five Year Development Plan - Annual plan of DG Industry - Follow-up of “Future Strategy” - Collaboration and coordination with foreign countries - Evaluation of impact of newly introduced roles |
| | Analysis & Evaluation | Analysis and evaluation of industrial performance |
| | Industrial Study | <ul style="list-style-type: none"> - TOR preparation, funding and contract of industrial study - Industrial Day |
| Industrial Registration | | <ul style="list-style-type: none"> - Exemption of custom duty for imported industrial raw materials - Inspection of enterprises - Enterprise registration |
| Industrial Information | | Industrial statistics |
| Industrial Development | Promotional Support | <ul style="list-style-type: none"> - Promotion of potential investment opportunities to the private sector - Industrial promotion activities - Subcontracting program (Database) - Consultancy service on industrial development affairs - Project to introduce strategic partners for rehabilitation |
| | Rehabilitation Support | <ul style="list-style-type: none"> - Rehabilitation support for sick enterprises - Productivity program |
| Quarrying Permission | | Quarrying permission |

Besides the above 5 departments, there is a Department of Coordination and Follow-up.

The Department of Industrial Planning and Industrial Studies is in charge of implementation administration, follow-up, and study for implementation of the Five Year Plan, whereas the Department of Industrial Development is responsible for promotion and consulting services for industrial development.

In the area of industrial development, the following agencies are responsible besides the MOCI in implementing the Five Year Plan in their respective assigned areas:

(1) Public Establishment for Industrial Estate (PEIE)

PEIE is an independent public entity established by the Royal Decree. It is managed by the Board of Directors, which is chaired by the Minister of Commerce and Industry. Their function includes planning and implementation of industrial estates, and promotion of investments with

providing attractive business environment and infrastructure. Currently, PEIE operates all the eight industrial estates in the country including Mazyuna FTZ and KOM, playing significant role in promotion of industrial development.

(2) Oman Center for Investment Promotion and Export Development (OCIPED)

The OCIPED is established to promote non-oil Omani products to the other GCC countries (for detail of their activities, see 7.1.3).

(3) Oman Development Bank (ODB)

ODB is a public joint stock company, being established with merging Development Bank of Oman and Oman Agriculture and Fisheries Bank. The ODB is in charge of industrial financing, particularly for SMEs. It is the sole finance institute, which handles the loans with preferential interest rates provided by the Government.

In addition to the above Government agencies, several committees are organized in collaboration with other relevant government agencies to detail, implement and follow up the Plan in the field of ICT promotion, tourism promotion, manpower development, and environmental protection, etc. (for further detail, see 2.2.5).

2.2.4 Development target for industrial development in the Seventh Five Year Plan, and its achievements up to present

(1) Sector-wise growth and contribution to GDP

1) Development Target

At the macro-economic level, target of the Seventh Five Year Plan is set to achieve average annual growth rates of not be less than 3%, at constant prices throughout the plan period. Sector-wise growth rates and contribution rates to GDP are set as shown in the table below.

**Table 2.2-3 Target Growth Rates and Contribution to GDP by Sector
(The Seventh 5 Year Development Plan (2006-2010), at current prices)**

| | Growth rate (%/year) | Contribution rate (%) | | | | |
|----------------------------|-------------------------|-----------------------|------|------|------|------|
| | | 2006 | 2007 | 2008 | 2009 | 2010 |
| 1 Oil sector | -4.8 | 36.5 | 33.3 | 34.7 | 33.7 | 34.0 |
| 2 Non-Oil sector | 7.8 | 65.4 | 68.7 | 67.7 | 68.3 | 68.0 |
| 1) Industrial sector | 11.0 | 15.3 | 16.9 | 16.0 | 17.7 | 18.2 |
| Manufacturing sector | 14.3 | 8.3 | 9.8 | 10.6 | 13.4 | 14.4 |
| Other manufacturing sector | 15.2 | 4.4 | 5.0 | 5.2 | 5.6 | 6.1 |
| 2) Servicing sector | 6.9 | 48.4 | 50.1 | 50.1 | 49.1 | 48.3 |
| 3 GDP at marketing price | 2.4 | | | | | |

Reduction of dependence of economy on oil is clearly stressed on this table.

The planned production volumes and estimated prices of oil assumed as the basis of setting growth targets of the oil sector, are as follows:

| | <u>Planned production</u> | |
|------|---|--|
| | <u>Volume of Crude Oil</u> (1,000 barrels per day) | <u>Avg. Price of Crude Oil</u> (USD per barrel) |
| 2006 | 745.7 | 32 |
| 2007 | 743.5 | 30 |
| 2008 | 803.3 | 30 |
| 2009 | 875.9 | 30 |
| 2010 | 964.5 | 30 |
| Avg. | (826.6) | (30) |

Oil revenue in the government revenue in 2010 is expected to show a slight decline to R.O. 2,954 million from R.O. 3,161.9 million in 2005. In the case of natural gas, the revenue from the natural gas is estimated to grow by 32.1% to R.O. 520 million in 2010, from R.O. 393.6 million in 2005.

In regard to the manufacturing sector, the growth is expected to reach at an annual 14.3% on the average and its contribution rate to the GDP is also projected to increase from 8.3% in 2006 to 14.4% in 2010. However, as for the manufacturing sector other than oil and gas related subsectors, their contribution rate to the GDP is estimated to remain at a level of 6.1% even in 2010, though the average annual growth rate is projected to reach at a high 15.2%.

2) Actual performance in FY 2006-07

According to the Statistical Year Book 2008 published by the Ministry of National Economy (including estimate in 2007), GDP grew by 18.6% in 2006 compared to the previous year and also showed considerable growth of 12.5% in 2007, reaching up to an estimated R.O. 159,260 million in amount. On the other hand, in terms of the sector-wise contribution rate to GDP, the oil sector declined in 2007 from 47.6% (in 2006) to 45.4%, while that of the non-oil sector increased from 54.1% to 56.7% accordingly. Although evidence showed direction of less reliance on oil, however, the initial quantitative targets are not satisfactorily met yet.

In regard to the “other manufacturing sector, excluding those related to oil and gas,” the contribution rate to GDP showed slight growth from 3.2% in 2006 to 3.4% in 2007 (or R.O. 5,400 million in 2007, estimated at constant price). However, the initial quantitative target is not met yet.

As for the oil production and oil prices, which were projected as the basis of the growth target of the oil sector, the actual price level in 2006 through 2008 has exceeded the projected level conspicuously, with more than US\$100/bbl in 2008 compared to the projected US\$32/bbl, resulted in significant improvement in debt-GDP ratio to 5%. Thus, the Government has decided to make the additional investments on many projects; namely, construction of 2 airports, 9 ports including ports specialized for oil and gas in Sohar, facilities for high-speed ferry, road networks, and mega projects using oil and gas. These projects have mostly been implemented.

| | <u>Actual production</u> | |
|------|----------------------------|---------------------------------------|
| | <u>Volume of Crude Oil</u> | <u>Actual Avg. Price of Crude Oil</u> |
| | (1,000 barrels per day) | (USD per barrel) |
| 2006 | 738 | 62 |
| 2007 | 710 | 65 |
| 2008 | 757 | 101 |

(2) Export

1) Development Target

The targets of export for the Seventh Five Year Plan are set as follows:

| | Avg. Annual Growth (%) | Export in 2010 (R.O. million) |
|----------------------------|------------------------|-------------------------------|
| Export of Crude Oil | -8.1 | 3,320.3 |
| Export of Natural Gas | -2.7 | 773.8 |
| Export of Non-oil Products | 33.5 | 2,726.9 |
| Re-export | 3.2 | 683.6 |
| Export Total | 0.9 | 7,546.0 |
| Import Total | 2.4 | 3,470.7 |

The considerable decline of export of crude oil is projected, while that of non-oil products is anticipated to increase significantly. (Note: natural gas based products are included in the non-oil products).

2) Actual performance in 2006-07

Table 2.2-4 shows the actual performance of import and export of non-oil products in 2006 and 2007, with the target figures of the Seventh Five Year Plan in the separate table. The actual amount of export in 2007 was more or less the same level as that of the initial plan. On the other hand, export of crude oil in 2006 and 2007 (estimated) were R.O. 6.72 billion and R.O. 7.2 billion respectively, which were considerably higher than that of the initial plan. Trade surplus grew at a large amount due to this reason.

Table 2.2-4 Foreign Trade (1990-2007)

(Unit: R.O. million)

| | 1990 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007* |
|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Total Exports (fob) | 2,116 | 2,346 | 2,835 | 2,944 | 2,122 | 2,783 | 4,352 | 4,258 | 4,296 | 4,487 | 5,145 | 7,187 | 8,300 | 9,494 |
| - Oil | 1,940 | 1,842 | 2,275 | 2,234 | 1,430 | 2,127 | 3,605 | 3,415 | 3,307 | 3,582 | 4,186 | 6,048 | 6,720 | 7,200 |
| - Non Oil | 69 | 182 | 173 | 203 | 199 | 201 | 248 | 266 | 262 | 304 | 420 | 555 | 813 | 1,291 |
| - Re-Export | 107 | 322 | 387 | 507 | 493 | 455 | 499 | 578 | 727 | 601 | 538 | 584 | 767 | 1,003 |
| Imports (cif) | 1,076 | 1,684 | 1,818 | 1,996 | 2,240 | 1,846 | 1,973 | 2,281 | 2,421 | 2,615 | 3,382 | 3,449 | 4,244 | 6,162 |
| Balance | 1,041 | 662 | 1,017 | 948 | -118 | 937 | 2,379 | 1,977 | 1,875 | 1,872 | 1,763 | 3,738 | 4,055 | 3,332 |
| % to Total Exports | | | | | | | | | | | | | | |
| - Oil exports | 91.7% | 78.5% | 80.2% | 75.9% | 67.4% | 76.4% | 82.8% | 80.2% | 77.0% | 79.8% | 81.4% | 84.2% | 81.0% | 75.8% |
| - Non Oil exports | 3.3% | 7.8% | 6.1% | 6.9% | 9.4% | 7.2% | 5.7% | 6.2% | 6.1% | 6.8% | 8.2% | 7.7% | 9.8% | 13.6% |
| - Re-Exports | 5.1% | 13.7% | 13.7% | 17.2% | 23.2% | 16.4% | 11.5% | 13.6% | 16.9% | 13.4% | 10.5% | 8.1% | 9.2% | 10.6% |

*Provisional

Projected Foreign Trade for the Seventh 5year Plan Period (2006-2010)

| | 2006 | 2007 | 2008 | 2009 | 2010 |
|---------------------|-------|-------|-------|-------|-------|
| Total Exports (fob) | 5,205 | 5,203 | 5,724 | 6,762 | 7,505 |
| - Oil | 3,031 | 2,390 | 2,652 | 3,117 | 3,320 |
| - Non Oil | 829 | 1,280 | 1,719 | 2,249 | 2,727 |
| - Re-Export | 603 | 622 | 642 | 662 | 684 |
| Imports(cif) | 4,381 | 4,332 | 3,729 | 3,602 | 3,471 |
| Balance | 825 | 871 | 1,995 | 3,160 | 4,034 |
| % to Total Exports | | | | | |
| - Oil exports | 58.2% | 45.9% | 46.3% | 46.1% | 44.2% |
| - Non Oil exports | 15.9% | 24.6% | 30.0% | 33.3% | 36.3% |
| - Re-Exports | 11.6% | 12.0% | 11.2% | 9.8% | 9.1% |

(3) Investment

In the Seventh Five Year Plan, the investment target was set at R.O. 14,564 million in line with the basic policy of the Long Term Development Strategy (1996-2020) to “enhance the investment to maintain sustainable development.” This means a 90.9% increase compared to that of the actual investment in the Sixth Five Year Plan period (R.O. 7.4 billion). For its realization, investment from private sectors of local and foreign are anticipated, with an estimate investment ratio between public and private sectors at 57.6% and 42.4%, respectively, compared with that of 71.4% and 28.6% for the Sixth Five Year Plan.

2.2.5 Future Strategy for Industrial Development

2.2.5.1 Position of the strategy in the industrial development plan/ policy, and the assumed realization mechanisms

Implementation of the Future Industrial Strategy is placed as the top agenda item of 14 policy mechanisms to achieve the plan of the Seventh Five Year Plan for the manufacturing sector.

The Strategy was originally developed by the members of project steering committee for Program for Industrial Competitiveness Enhancement (PRICE) Project, which was conducted in 1999 through 2001, The current strategy was submitted to the Cabinet meeting and promulgated in 2007 after being enhanced step by step. The Strategy which is taken up by the Seventh Five Year Plan is not the specific strategy for a certain time. Instead, it is a body of strategies which have been updated time to time. The one, which is discussed in the following paragraphs, is the most recent version of such strategies.

The Strategy is assumed to be implemented by the concerned agencies and institutes. Directorate of Industry of MOCI is responsible for monitoring the progress of implementation. The result of the progress monitoring is reported to the Cabinet twice a year.

The part of the strategy assigned to the MOCI is further detailed to a separate plan, and the progress of them are reviewed regularly with modification of its direction and contents as necessary. However, there is no separate budget allocated for implementation of the strategy besides the overall ministry budget, and therefore, the budget for GOIC is often mobilized for the survey and other activities like seminars, when necessary.

As already mentioned in the above, “implementation of the future strategy” is placed on the top among 14 policies and mechanisms assumed for achieving the Seventh Five Year Development Plan. Further, the Strategy is the core documents for industrial development, as easily understood from the fact that it also includes most of other 13 items in it, and that these 13 items are the one dealing with that of specific areas of issues.

2.2.5.2 Contents of “the Future Industrial Strategy”

The Strategy consists of 11 agendas. These may be summarized by their target areas as in the following table, with a comparison to the 13 items in the Seventh Five Year Development Plan.

| | The Future Industrial Strategy | Seventh Five Year Plan (*) |
|--|---|---|
| Setting of strategic priority areas for industrial development, and its promotion | <ol style="list-style-type: none"> 1) Science and knowledge based industry <ol style="list-style-type: none"> 1. Comprehensive and effective ICT promotion policy 2. Promotion of KOM 2) Six new industrial sectors and two existing industries requiring restructuring <p>New industrial sectors</p> <ol style="list-style-type: none"> 1. IT, software, e-business and knowledge-intensive activities 2. Biotechnology based modern industries 3. Petrochemical industries 4. Low energy consuming industries (e.g. assembly and knowledge-based industries) 5. Free Zones trade and assembly & re-export industries 6. Tourism related industries <p>Existing industries requiring re-structure</p> <ol style="list-style-type: none"> 1. SMIs associated with international companies 2. High value added industries (including food industries based on fisheries and agricultural industries, and engineering industries) | <ol style="list-style-type: none"> 1) Petrochemical industries 2) Assembly and re-export industries 3) Downstream industries of gas-based mega industries 4) Industrial clusters of competitive advantage and ability of grow |
| Improvement and enhancement of support measures and institutional systems for industrial development | <p>Financial support</p> <ul style="list-style-type: none"> - Amending the mechanisms for granting Government soft loan <p>Non-financial support</p> <ol style="list-style-type: none"> 1) Provision of assistance for restructuring companies facing difficulties (Encouraging mergers, etc.) 2) Activating R&D 3) Implementing the strategy of exporting non-oil products of Omani origin | <ol style="list-style-type: none"> 1) Encouraging operations and integration among industrial companies to improve competitiveness 2) Provision of R&D service 3) Support of SMEs in manufacturing sector |

| | | |
|--|--|--|
| Improvement of business/investment environment | <ol style="list-style-type: none"> 1) Improving the level of services and industrial incentives to keep abreast with what is provided in competitive neighboring countries 2) Developing and applying the legal and legislative framework for creating the appropriate environment | <ol style="list-style-type: none"> 1) Provision of institutional, legislative and infrastructure environment 2) Simplification of investment procedures, and unifying the local and foreign investment law and the company law 3) Speed up the executive aspects of the GCC unified industrial regulation law 4) Speed up the formulation of executive laws and regulations to protect the industry against harmful practices in world trade |
| Human resource development in the field of industry, and increased participation of Omani people in industry | <ol style="list-style-type: none"> 1) Training Omani businessmen 2) Developing abilities of national manpower | <ol style="list-style-type: none"> 1) Provision of work opportunities for national labor force 2) Coordination with concerned authorities to introduce the manufacturing subjects as a basic subject in academic curricula in all the education stages |
| Harmonization of economic development and environmental regulations | - Balancing between the economic development objectives and environmental stipulations | (Not applicable) |

Note (*): “1-3-4 Policies and mechanisms to achieve the manufacturing sector objectives in the Plan” (Seventh Five Year Plan)

2.2.5.3 Specific activities for implementation, and performances so far

The respective government agencies and institutions are assumed to take actions by themselves for realization of the relevant strategies. Directorate General of Industry of MOCI is in charge of coordination among the different agencies and institutions, and progress monitoring. The current progress of respective strategies as of the end of August 2009 are as follows:

(1) Adoption of comprehensive and effective policy for development of science and knowledge-based industries

For implementation of this particular strategy, a committee consisting of 5 relevant government agencies and firms (ITA, Telecom Regulatory, KOM, Omantel, and DG of Industry of MOCI) was established, and the following activities have been accomplished through the committee:

- 1) Ministry of Education
 - Development of syllabus for training of teachers for IT education
- 2) Omantel
 - Comparative study on the prices of Internet access in other countries
 - Installation of broad-band internet to the relevant government agencies and public institutions such as public hospitals

- Provision of license to Telcom and Nawras for development of nation-wide networks
- 3) ITA
- Establishment of definition of “IT industry” for issuance of licenses and provision of incentives
 - Collaboration and coordination among the concerned authorities and institutions including Research Council and KOM, etc.
 - Implementation of a program to disseminate the knowledge on computer to the Government staff (IC3)
- (2) Defining the strategic industrial sectors
- Following are the major programs under implementation (or already implemented)
- Study by JICA, and encouragement of investment based on the study
 - Implementation of a seminar with participation of industries related to fishery resource (such as fishery, fish processing, transportation and government sector)
- (3) Amending the mechanisms for granting Government soft loans
- This policy is to provide equity/venture fund reducing the reliance of projects on Government soft loans, but the plan has stopped due to objection by the Ministry of Finance.
- (4) Providing assistance for restructuring companies facing difficulties
- Following are under implementation:
- MOCI set up Department of Industrial Development within the Ministry, and are implementing supports to the “Sick Enterprises” by providing rescheduling of debt, and/or additional loans
 - The ad-hoc committee was organized to follow up the support performance, and to identify the “Sick Enterprises”
- (5) Improving the level of services and industrial incentives to keep abreast with what is provided in the competing neighboring countries
- Following 2 types of studies are planned to be implemented through contracts to consultants:
- Comparison of production costs between Oman and other countries: a consultant was nominated
 - Evaluation of industrial incentives in Oman compared with that of international level: not started yet

(6) Activation of R&D

The ad-hoc committee was organized among Research Council and Industrial Innovation Center, etc., but the actual activities still remain at the initial stage.

(7) Implementation of strategy of exporting non-oil products of Omani origin

This policy strategy was treated as a part of the general export promotion policy, and not included in the original draft of this strategy. However, it was added to this strategy considering the strong needs for updating the export strategy in recent years. Currently, the study is underway to figure out the influence of recent global economic crisis on the export of non-oil products in Oman, and to examine the countermeasures to be taken.

(8) Developing and applying the legal and legislative framework in the area of trade and competition

The Directorate General of Organization and Trade Relation, MOCI, is in charge of this matter, including the following:

- Law of Industrial license: Issue is the harmonization with the unified GCC law
- Anti-dumping law: Currently the enforcement regulation is under preparation, while the organization for surveillance was established already. This agenda includes anti-dumping performed against the products imported to GCCs, and complaints filed for the products exported from GCCs.
- Electronic transactions law: The law was enacted in Oman, but the GCC unified law is still to be established.

(9) Harmonization of the economic development and the environmental stipulations

This policy strategy was added by the Cabinet. It is not necessarily new, rather these have been existed and continued. The Ministry of Environment has taken initiative on this matter. Directorate General of Industry of MOCI will be responsible for coordination among the concerned government agencies.

(10) Lead by the Government in training Omani businessmen

(11) Development of abilities of national manpower to raise Omanization ratio

The Ministry of Manpower is in charge of (10) and (11).

3 Present State and Future Outlook of Supply and Demand of Oil, Gas and Alternative Energies

3 Present State and Future Outlook of Supply and Demand of Oil, Gas and the Alternative Energies

The supply and demand of oil and natural gas, and that of the energies derived from them, are the critical factors affecting industrial development in the Sultanate. The current chapter summarizes the present supply and demand situation of oil and natural gas, and the announced projects related to the supply and demand of them, as the basis to make projection of the future outlook of the supply and demand balances. Also summarized is the present state and future outlook of development of alternative sources of energies in Oman other than the oil and gas.

3.1 Supply and Demand of Oil

3.1.1 Overview

Oman's oil production in 2008 is estimated at 760,000 barrels per day (bbl/d) in total, composed of 670,000 bbl/d of crude and 90,000 bbl/d of condensate. In the foreseeable future the production level of 760,000 to 800,000 bbl/d is expected to be maintained, which will consist of 700,000 bbl/d of crude and 100,000 bbl/d of condensate (see Figures 3.1-1 and 3.1-1B).

On the demand side, 680,000 bbl/d of the 760,000 bbl/d are exported as Omani crude and petroleum products (Oil Liquids), while the remaining 80,000 bbl/d are consumed domestically as the raw materials for petroleum products and petrochemical products. The export of petroleum products and petrochemical products is equivalent to 90,000 bbl/d¹.

If the Duqm Refinery comes into operation, the export of oil liquid will decrease by the volume to be used in this new refinery, and that of petroleum products will decrease by the volume to be used in the naphtha cracker for ethylene production. However, the export of 1,000,000 tons of ethylene per annum, which is equivalent to 57,000 bbl/d² of oil, or its downstream-products will increase, since the domestic plastic demand is still limited to 10,000 tons.

¹ The export volume of 90,000 bbl/d was estimated deducting the local demand of 80,000 bbl/d from 165,000 bbl/d of the total consumption of oil at the refinery, while the total consumption at the refinery was estimated deducting 594,000 bbl/d of oil export from 759,000 bbl/d of oil production.

² Assuming that 2.7 Million MTA of light naphtha of specific gravity of 0.8 tons /m³ is used for production of 1,000 KMTA of ethylene.

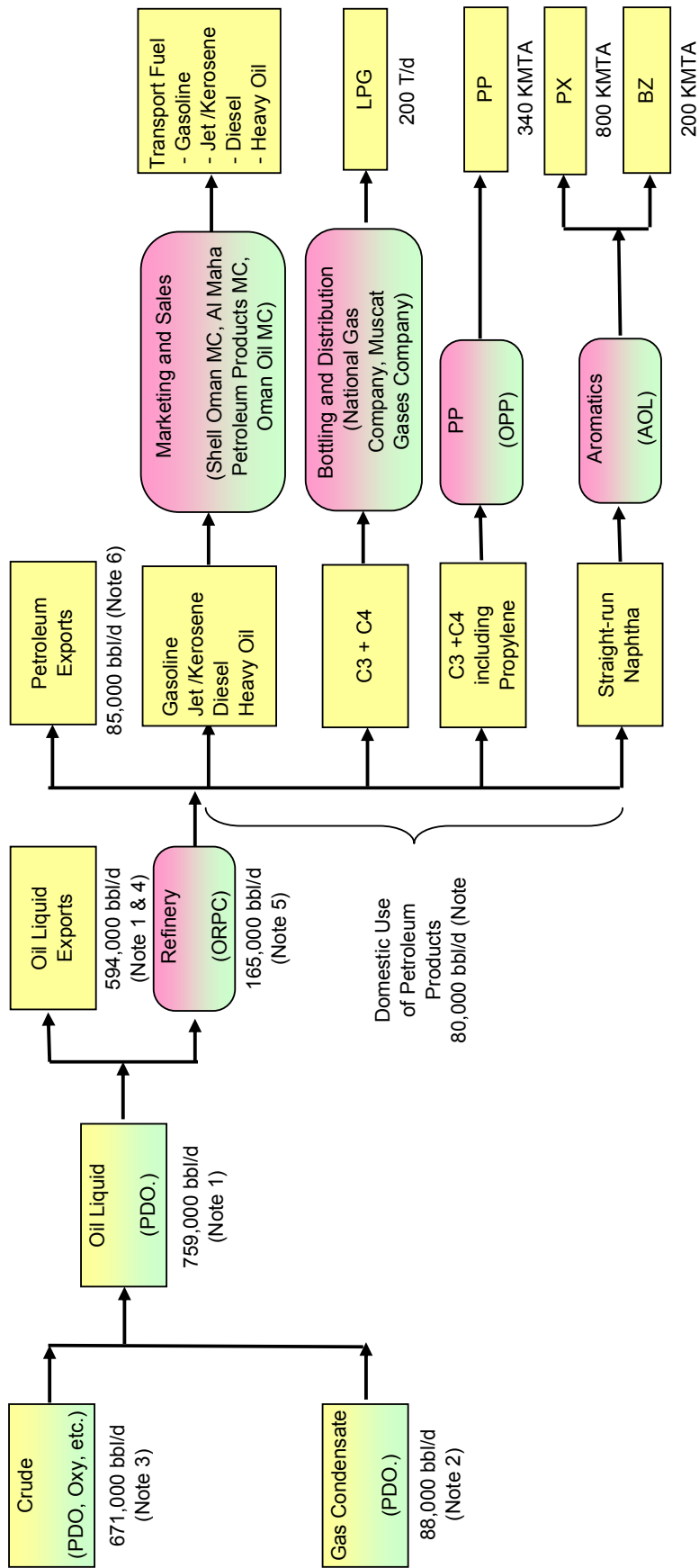


Figure 3.1-1 Oil Supply and Demand Flow

Notes 1: According to Central Bank of Oman (CBO)'s Description in "Annual Report 2008" dated July 2009

2: Description of "Energy Information Administration" dated August 2009

3: The figure of 671,000 bbl/d is calculated through deducting the Gas Condensate of 88,000 bbl/d from the Oil Liquid of 759,000 bbl/d. Producing with use of EOR to develop fields of Mukhaizna, Harweel, Qarn Alam².

4: Markets during 2008 were of China, Japan, South Korea, and Thailand².

5: The figure of 165,000 bbl/d is calculated through deducting the Oil-Liquid Export of 594,000 bbl/d from the Oil Liquid of 759,000 bbl/d. Rated Capacity are at 222,000 bbl/d totaling of MFR Rated Capacity: 106,000 bbl/d and SRC: 116,000 bbl/d

6: The figure of 85,000 bbl/d is calculated through deducting the Petroleum Domestic Use of 80,000 bbl/d from the Refinery Production of 165,000 bbl/d.

7: : Commodities or Products, : Facilities, : Company Names

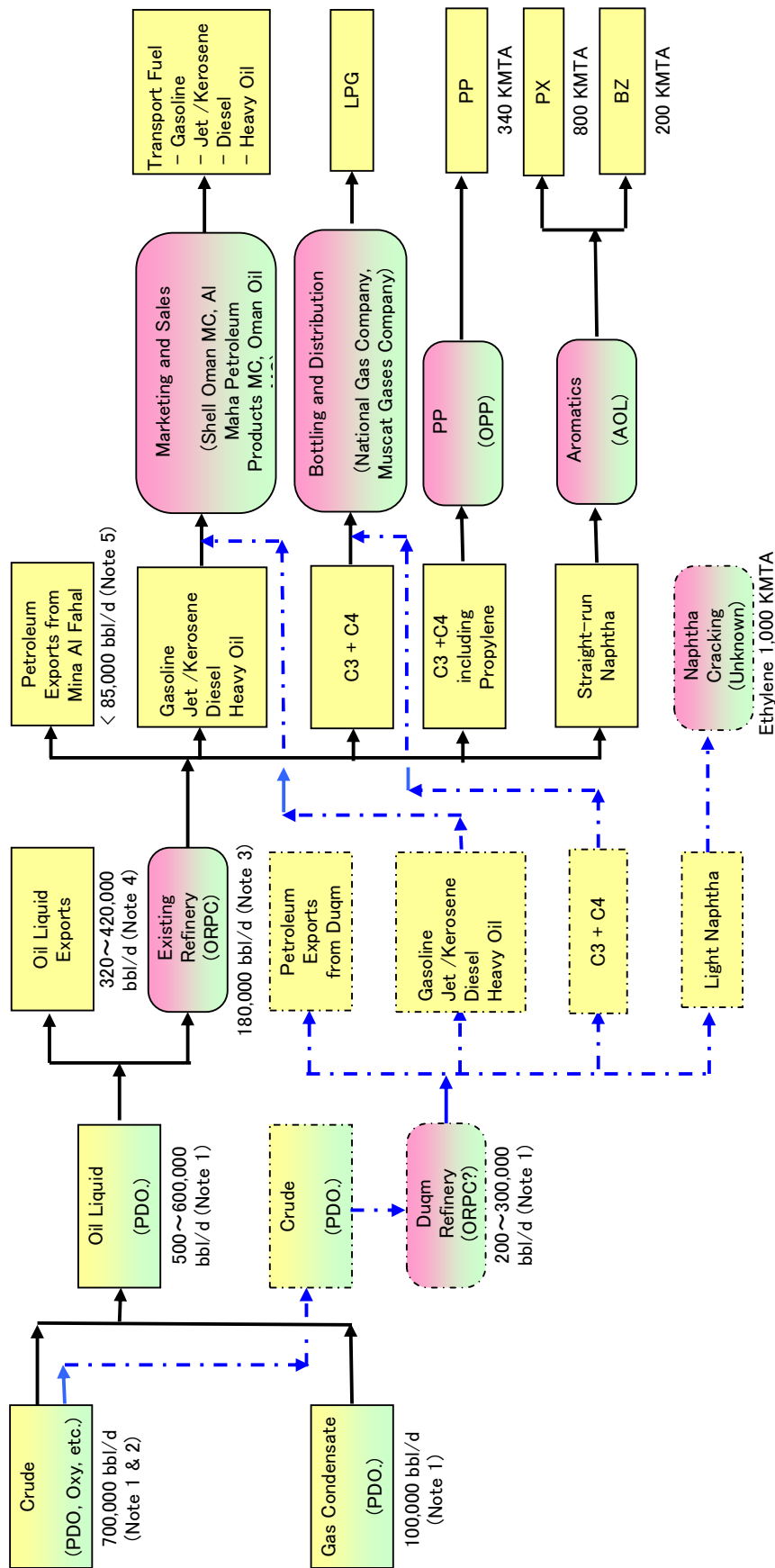


Figure 3.1-1B Oil Supply and Demand Flow (Future)

Notes 1: Figures according to the Interview to MOG

- 2: Producing with use of EOR to develop fields of Mukhaizna, Harweel, Qarn Alam¹
- 3: The figure of 180,000 bbl/d is calculated totaling the MFR Rated Capacity of 106,000 bbl/d and SRC Rated Capacity of 116,000 bbl/d using 40,000 bbl/d of atmospheric residue from MFR. (180,000 = 106,000 + 116,000 - 40,000)
- 4: The figure of 320,000 to 420,000 bbl/d is calculated deducting Existing Refinery Use of 180,000 bbl/d from Oil Liquid of 500,000 to 600,000 bbl/d.
- 5: The volume of Petroleum Exports from Mina Al Fahal may reduce from the current figure of 85,000 bbl/d.

6: Commodities or Products, Facilities, Company Names, Future Development

3.1.2 Production of crude and condensate

(1) Present State

Oman's oil production is estimated at 759,000 bbl/d in 2008, which came from 671,000 bbl/d³ of crude and 88,000 bbl/d⁴ of condensate generated from natural gas⁵.

(2) Prospect

With its limited crude reserves, the production of crude has been decreased year by year (Figure 3.1-2). Therefore, the enhanced oil recovery (EOR) technology has been adopted for production of the crude to increase the production capacity⁶. When considering this fact, the oil production in Oman will be maintained at the present level at most in the future.

On the other hand, the condensate production is expected to reach 90,000 to 100,000 bbl/d by 2011 with increase in the gas production.⁷

Consequently PDO's oil production level will stay at the level of 650,000 bbl/d in 2010 and onwards, as the total of crude production and condensate production.⁸ Besides PDO's production, Occidental Oman Inc. (Oxy) produces crude oil at the Mukhaizna oil field. Nevertheless, MOG estimates Oman's production in 2010 and onwards, at the level of 760,000 to 800,000 bbl/d, which is almost the same level as the current level.⁹

Condensate is produced mainly at the gas fields in the midland of Oman, spiked into crude, and transported as a mixed crude to Mina Al Fahal through PDO's pipeline. The API gravity of the mixed crude is not adjusted currently¹⁰. It means that increase in crude production using EOR results in heavier crude; in other words, the API gravity will be reduced further.

³ The figure is estimated deducting 88,000 bbl/d of condensate production from 759,000 bbl/d of total of crude and condensate.

⁴ Energy Information Administration

⁵ Annual Report 2008, Central Bank of Oman, July 2009

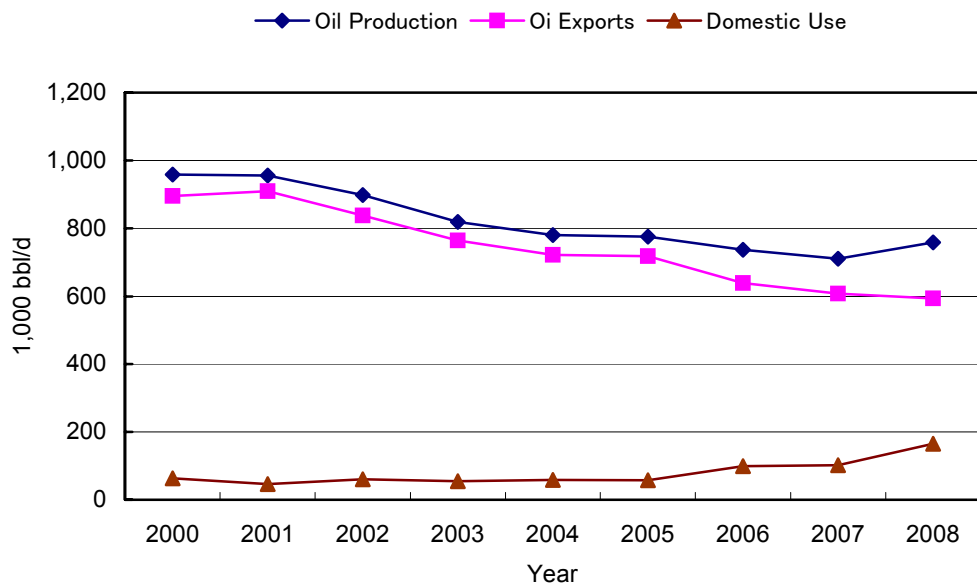
⁶ Project Highlights, "Media Briefing 2008", PDO, 9 February 2009

⁷ LPG World

⁸ Future Plans, "Media Briefing 2008", PDO, 9 February 2009

⁹ MOG

¹⁰ PDO



Source: Annual Reports 2003 to 2008, Central Bank of Oman

Figure 3.1-2 Production, Exports and Domestic Use of Crude Oil & Condensate in Oman

3.1.3 Supply and demand of petroleum products

(1) Present State

Oman's crude refining capacity is approximately 222,000 bbl/d, composed of 106,000 bbl/d at Mina Al-Fahal Refinery (MFR) and 116,000 bbl/d at Sohar Refinery (SRC), which are managed by the state-owned Oman Refineries and Petrochemicals Company (ORPC). Oman consumed around 80,000 bbl/d of petroleum products in 2008¹¹. The SRC refinery processes 40,000 bbl/d¹² of atmospheric residue from MFR in addition to 76,000 bbl/d of the mixed crude. Consequently Oman will have the capacity to export 182,000 bbl/d¹³ of petroleum products, if both refineries operate at their 100% production capacity.

Table 3.1-1 shows the input and output performances of the MFR refinery¹⁴. The production capacity of the middle distillates, namely gasoline, gas oil and jet fuel, is 49,000 bbl/d, 51,000 bbl/d and 8,600 bbl/d respectively, as the combined total capacity in MFR and SRC, as shown in Table 3.1-2.

¹¹ Energy Information Administration

¹² ORPC

¹³ (222,000 bbl/d of total Refinery Capacity) less (40,000 bbl/d of Atmospheric Residue)

¹⁴ The production volume at SRC is not available.

Table 3.1-1 LPG and Middle Distillate Production by ORPC

| Year | Input / Output Results (1,000bbl) | | | | | | Converted Results (bbl/d*) | | | | | |
|-----------------------------------|-----------------------------------|---------------|---------------|---------------|---------------|---------------|----------------------------|---------------|---------------|---------------|---------------|----------------|
| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
| Input | | | | | | | | | | | | |
| Crude Oil (A) | 30,576 | 28,628 | 31,546 | 31,027 | 24,670 | 38,523 | 91,729 | 85,885 | 94,638 | 93,082 | 74,009 | 115,569 |
| Condensate** (B) | 387 | 317 | 317 | 280 | 461 | 0 | 1,162 | 951 | 951 | 839 | 1,382 | 0 |
| Chemicals (MTBE) (C) | 0 | 0 | 0 | 0 | 0 | 2,487 | 0 | 0 | 0 | 0 | 0 | 7,461 |
| Total (D)=(A)+(B)+(C) | 30,964 | 28,945 | 31,863 | 31,307 | 25,130 | 41,010 | 92,891 | 86,836 | 95,589 | 93,921 | 75,391 | 123,030 |
| Output | | | | | | | | | | | | |
| Gasoline (E) | 5,800 | 5,215 | 5,436 | 5,358 | 4,030 | 6,468 | 17,399 | 15,645 | 16,309 | 16,074 | 12,090 | 19,404 |
| Kerosene + Jet Oil (F) | 1,728 | 1,407 | 1,772 | 2,339 | 2,160 | 3,041 | 5,185 | 4,221 | 5,316 | 7,017 | 6,480 | 9,123 |
| Gas Oil (G) | 6,602 | 6,442 | 7,090 | 6,750 | 4,849 | 6,750 | 19,806 | 19,327 | 21,270 | 20,250 | 14,546 | 20,250 |
| Middle Distillate (H)=(E)+(F)+(G) | 14,130 | 13,064 | 14,298 | 14,447 | 11,039 | 16,259 | 42,390 | 39,193 | 42,895 | 43,341 | 33,116 | 48,777 |
| LPG (I) | 545 | 473 | 580 | 630 | 915 | 915 | 1,636 | 1,418 | 1,740 | 1,890 | 2,744 | 2,745 |
| Other Products | 16,288 | 15,408 | 16,985 | 16,230 | 13,177 | 23,836 | 48,865 | 46,225 | 50,954 | 48,690 | 39,531 | 71,508 |
| Total | 30,964 | 28,945 | 31,863 | 31,307 | 25,130 | 41,010 | 92,891 | 86,836 | 95,589 | 93,921 | 75,391 | 123,030 |

* bbl/d = (Figures converted from the left-column ones assuming that annual operating period be 8,000 hours other than maintenance period of the refineries.)

** Condensate from LNG plant

Sources: Statistical Year Books 2006 to 2009, Ministry of National Economy

Table 3.1-2 Production Capacities of Middle Distillates by ORPC

| | m ³ /Year | bbl/Year | bbl/d* |
|---------|----------------------|------------|--------|
| MOGAS90 | 303,226 | 1,907,082 | 5,727 |
| MOGAS95 | 2,317,531 | 14,575,667 | 43,771 |
| GAS OIL | 2,676,145 | 16,831,101 | 50,544 |
| JET A-1 | 455,280 | 2,863,396 | 8,599 |

* bbl/d = (Figures converted from the left-column ones assuming that annual operating period be 8,000 hours other than maintenance period of the refineries.)

Source: ORPC

The detail of petroleum products, including gasoline, jet fuel and diesel oil, which are produced by the above-mentioned two refineries, is yet to be surveyed.

The petroleum products for domestic consumption, including gasoline, kerosene (jet fuel) and diesel oil of a middle distillate are distributed by three marketing companies;¹⁵ gasoline for automobile fuel, kerosene for aviation fuel and diesel oil for vessel and truck fuel.¹⁶ Table 3.1-3 shows the sales volumes of the middle distillates. Oman's domestic sales of the middle distillates in 2008 was about 28.23 million bbl (or around 77,000 bbl/d) in total.

¹⁵ Al Maha Petroleum Products Marketing Company, Shell Oman Marketing Company, and Oman Oil Marketing Company

¹⁶ ORPC

Table 3.1-3 Oman's Trend of Sales of Middle Distillates of Petroleum Products

| | Sales Results (1,000bbl) | | | | | | Converted Results (bbl/d*) | | | | | | Averaged Annual Growth Rates (%)** |
|---------------------|--------------------------|---------------|---------------|---------------|---------------|---------------|----------------------------|---------------|---------------|---------------|---------------|---------------|------------------------------------|
| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | |
| Gasoline | 7,494 | 7,865 | 8,950 | 10,111 | 11,451 | 13,479 | 20,530 | 21,548 | 24,520 | 27,701 | 31,373 | 36,928 | 16% |
| Jet Fuel + Kerosene | 2,867 | 1,547 | 1,803 | 2,516 | 2,792 | 2,450 | 7,855 | 4,238 | 4,938 | 6,892 | 7,650 | 6,713 | -4% |
| Diesel Oil | 5,181 | 5,621 | 6,614 | 7,702 | 10,507 | 12,297 | 14,193 | 15,400 | 18,120 | 21,100 | 28,786 | 33,690 | 24% |
| Total | 15,541 | 15,033 | 17,366 | 20,328 | 24,751 | 28,226 | 42,579 | 41,186 | 47,578 | 55,693 | 67,810 | 77,330 | 12% |

* bbl/d = (Figures converted from the left-column ones assuming that one year equal 365 days)

** Growth rates averaging figures from 2005 to 2007.

Sources: Statistical Year Books 2006 to 2009, Ministry of National Economy

Oman exports and imports middle distillates among the GCC countries, especially with UAE (see Table 3.1-4).

Table 3.1-4 Trade of Middle Distillates between Oman and GCC Countries

| | Import to Oman (tons) | | | | | Export from Oman (tons) | | | | |
|--------------------|-----------------------|----------------|----------------|----------------|----------------|-------------------------|----------------|----------------|------------------|------------------|
| | 2004 | 2005 | 2006 | 2007 | 2008 | 2004 | 2005 | 2006 | 2007 | 2008 |
| Bahrain | 161,838 | 263,680 | 164,009 | 112,060 | 162,661 | 20 | 0 | 0 | 16 | 64 |
| Kuwait | 0 | 0 | 65,953 | 0 | 0 | 0 | 0 | 0 | 186 | 163 |
| Qatar | 2,003 | 24,303 | 0 | 0 | 0 | 0 | 0 | 79 | 0 | 80 |
| Saudi Arabia | 21,830 | 5,584 | 56,828 | 59 | 102 | 13 | 0 | 0 | 0 | 34,869 |
| UAE | 129,327 | 243,834 | 151,889 | 275,743 | 66,487 | 17,248 | 10,056 | 34 | 53,330 | 419,196 |
| GCC Total | 314,998 | 537,400 | 438,678 | 387,862 | 229,250 | 17,281 | 10,056 | 113 | 53,532 | 454,373 |
| Other Countries | 21,917 | 26,061 | 105,673 | 262,558 | 316,989 | 353,756 | 539,334 | 289,279 | 1,760,973 | 2,731,941 |
| Grand Total | 336,915 | 563,462 | 544,351 | 650,420 | 546,239 | 371,036 | 549,390 | 289,392 | 1,814,505 | 3,186,314 |

Source: COMTRADE, HS Code: 2710.11

| | Import to Oman (bbl/d) | | | | | Export from Oman (bbl/d) | | | | |
|--------------------|------------------------|---------------|---------------|---------------|---------------|--------------------------|---------------|--------------|---------------|---------------|
| | 2004 | 2005 | 2006 | 2007 | 2008 | 2004 | 2005 | 2006 | 2007 | 2008 |
| Bahrain | 3,486 | 5,679 | 3,533 | 2,414 | 3,504 | 0 | 0 | 0 | 0 | 1 |
| Kuwait | 0 | 0 | 1,421 | 0 | 0 | 0 | 0 | 0 | 4 | 4 |
| Qatar | 43 | 523 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| Saudi Arabia | 470 | 120 | 1,224 | 1 | 2 | 0 | 0 | 0 | 0 | 751 |
| UAE | 2,786 | 5,252 | 3,271 | 5,939 | 1,432 | 372 | 217 | 1 | 1,149 | 9,029 |
| GCC Total | 6,785 | 11,574 | 9,449 | 8,354 | 4,938 | 372 | 217 | 3 | 1,153 | 9,787 |
| Other Countries | 472 | 561 | 2,276 | 5,655 | 6,828 | 7,619 | 11,617 | 6,231 | 37,929 | 58,843 |
| Grand Total | 7,257 | 12,135 | 11,725 | 14,009 | 11,766 | 7,991 | 11,834 | 6,234 | 39,082 | 68,630 |

Note: Assuming that one year equal 365 days and that distillate have a specific gravity at 0.8 tons /m³

ORPC has exported 96,000 MTPA (or, 2,300 bbl/d¹⁸) of gasoline through OTI¹⁹ in 2008²⁰. As shown in Table 3.1-2, the two refineries produce MOGAS95, which has higher octane value, more compared to MOGAS 90. However, since Oman consumes more MOGAS90 than that of MOGAS95, they export MOGAS95 and import MOGAS90 to balance the domestic supply and

¹⁷ Total sales volume of the three marketing companies. The sales performance of 2004 and before is not available.

¹⁸ MTPA: metric tons per annual. The figure is calculated assuming that the specific gravity of gasoline be of 0.8 tons/m³ and one year equal to 333 days.

¹⁹ Oman Trading International

²⁰ ORPC

demand.

As for the gas oil, ORPC has exported 480,000 MTPA (or, 11,300 bbl/d²¹) in 2008.²²

Regarding the LPG, 264,000 MTPA (or, 793 tons/day) of LPG were exported by OTI, whereas 18,000 MTPA (or, 54 tons/day) was exported by Emirates Gas Company.²³ In the case of domestic markets, LPG is distributed by the sales companies²⁴ other than that of the middle-distillate, being bottled in a cylinder at their LPG bottling plants. 76,080 MTPA (230 tons/day)²⁵ of LPG were shipped from the MFR refinery in 2008²⁶, mainly for use as fuel for cooking. However, all the SRC's LPG are fed to the PP production, instead of use for fuel.

The long residue from MFR will be consumed in SRC as an input oil at the level of 40,000 bbl/d. It has been mostly re-injected at oil fields in and before 2008 (Table 3.1-5).

Table 3.1-5 Sales & Production of Heavy Oil (Long Residue) by MFR

| | Sales / Production Results (1,000bbl) | | | | | | Converted Results (bbl/d*) | | | | | |
|-------------------------|---------------------------------------|--------|--------|--------|--------|--------|----------------------------|--------|--------|--------|--------|--------|
| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
| Production (A) + (B) | 15,306 | 14,247 | 15,445 | 14,947 | 13,178 | 19,871 | 45,965 | 42,783 | 46,382 | 44,885 | 39,572 | 59,673 |
| Long Residue 180 CST | | | | | | | | | | | | |
| Local Sales | 2 | 3 | 5 | 2 | 2 | 0 | 5 | 9 | 14 | 5 | 5 | 0 |
| Exported | 4,353 | 4,511 | 4,841 | 1,681 | 2,379 | 0 | 13,071 | 13,547 | 14,538 | 5,049 | 7,143 | 0 |
| Re-Injected | 10,758 | 9,945 | 10,575 | 8,965 | 8,040 | 8,538 | 32,305 | 29,865 | 31,757 | 26,920 | 24,144 | 25,640 |
| Others** | 194 | -213 | 25 | -188 | -3,020 | -1,770 | 583 | -638 | 74 | -564 | -9,068 | -5,315 |
| Production (A) | 15,306 | 14,247 | 15,445 | 10,460 | 7,401 | 6,768 | 45,965 | 42,783 | 46,382 | 31,411 | 22,224 | 20,324 |
| Long Residue to SRC (B) | 0 | 0 | 0 | 4,487 | 5,777 | 13,103 | 0 | 0 | 0 | 13,474 | 17,348 | 39,348 |

* bbl/d = (Figures converted from the left-column ones assuming that one year equal 365 days)

** Production (A) - {(Local Sales) + (Exported) + (Re-Injected)}, The minus figures mean import volumes.

Source: Statistical Year Books 2006 to 2009, Ministry of National Economy

(2) Prospect

1) Prospect of domestic demand for the middle distillates

As for the middle distillates, the demand for gasoline and diesel oil (gas oil) have increased by 11% and 19% annually on the average, respectively during the period from 2003 to 2007, while that of kerosene has remained almost unchanged during the period (Table 3.1-3). The demand for the middle distillates is expected to increase in accordance with the GDP growth in the future, too. The growth rates of GDP were 9.3% for the period from 2003 to 2007, and 7.6% for 10 years from 2000 to 2009.

²¹ Calculated assuming that the specific gravity of diesel oil be 0.8 tons/m³ and one year equal to 333 days.

²² ORPC, By many distributors.

²³ ORPC, Calculated on the basis of 333 days/year.

²⁴ National Gas Company, Muscat Gases Company, etc. ORPC

²⁵ ORPC

²⁶ 2,744 bbl/d with 0.53 tons/m²

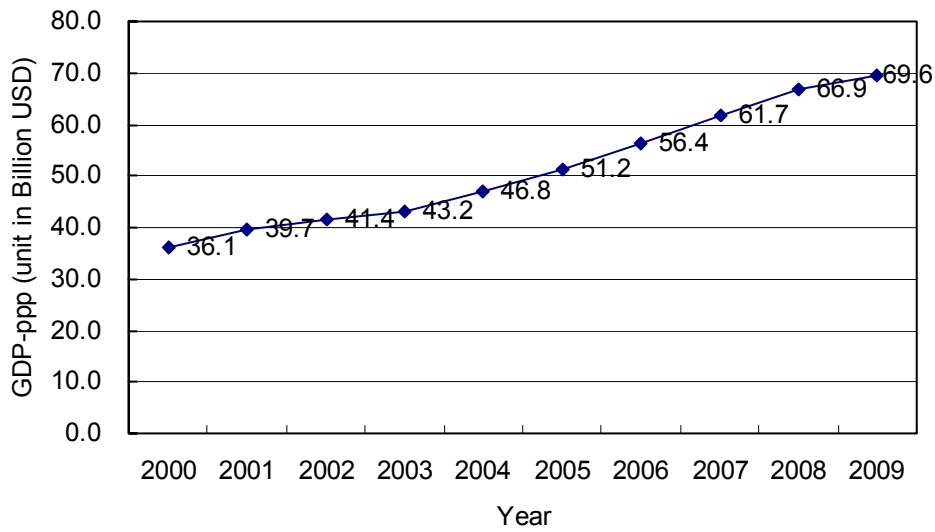


Figure 3.1-3 Growth trend of Oman’s GDP at the PPP base from 2000 to 2009 (data in 2009 is projection)

Assuming 10% annual growth rate of GDP during the period of 2009 through 2015, and the same growth rate is applied for that of demand for gasoline, and diesel oil, the demand for gasoline will reach 49,000 bbl/d of its production capacity in 2011 (Figure 3.1-4), whereas that of the diesel oil will reach the capacity of 51,000 bbl/d in 2013.

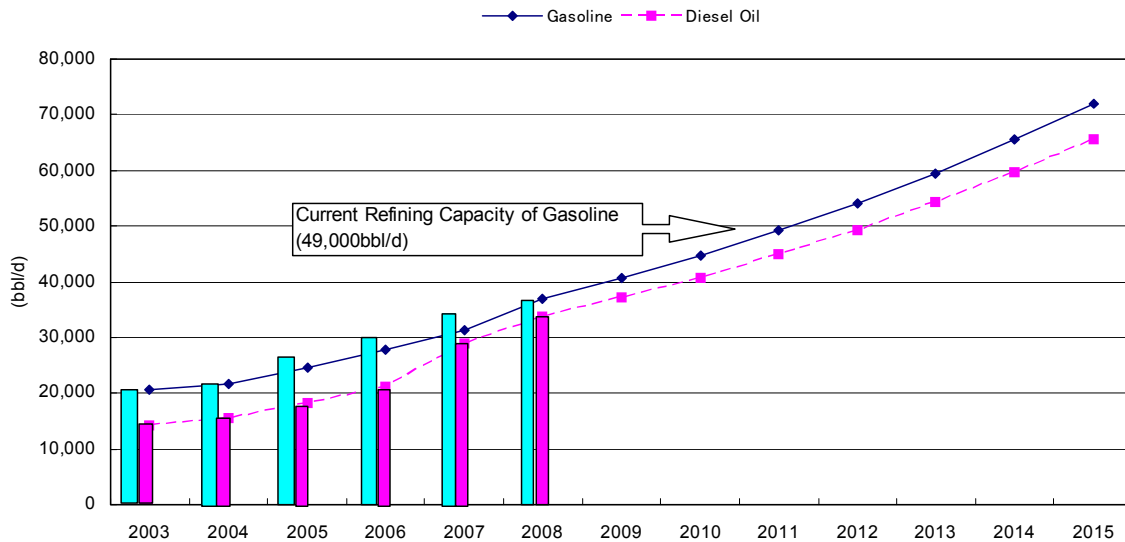


Figure 3.1-4 Projection of Demand for Gasoline and Diesel Oil

2) Outlook for production of middle distillates in Oman

Countermeasures to be taken by the existing refineries against the heavier crude

Increase in crude production using EOR will result in heavy crude²⁷. If no countermeasure is taken by the refineries against it, yields of the middle distillates at the existing refineries will be decreased, and the supply of the middle distillates will fall short of the domestic demand.

In view of energy-security, ORPC thinks it necessary to take required countermeasures by the domestic refineries to cope with the heavier crude, even if the domestic refining is not economical compared with the crude export.²⁸ ORPC has started a study on the API gravity permissive to the existing refineries. The measures to increase in yields of middle distillate at SRC is also under study, including installation of vacuum distillation, etc.²⁹ in the upstream of RFCC.³⁰

New Refinery Construction Project

The Government has decided construction of a new refinery in Duqm at a capacity ranging from 200,000 bbl/d to 300,000 bbl/d besides the existing two refineries, and that of crude oil exporting terminal.³¹ The objectives of the new refinery are as follows: (i) to support the production of middle-distillate of the existing refineries; (ii) to increase in export the petroleum products; and (iii) to develop a petrochemical sectors further.³²

The support of production of the middle-distillate of the existing refineries, on the above, means that the new refinery and the terminal will handle a crude minimizing spiking of the condensate into the crude, and keep the API gravity of the mixed crude handled by the existing refineries in Mina Al Fahal at an permissive level.

3) Prospect on Supply and Demands of Middle Distillates

If the new refinery construction is completed and the counter measures are taken against the heavier-gravity crude oil, the existing refineries can continue production of middle distillates and LPG without decreasing the current production level. And then, the addition of new refinery's production will make the domestic production of middle distillate possible to fulfill its demand even with the increase in the future. However, since it will take at least five to six years for a detailed feasibility study (DFS) and EPC of construction of the new refinery, the

²⁷ The two refineries were designed for crude at an API gravity of 33.1; however, the present crude is at an API of 32.3, which means that the crude is heavier (ORPC).

²⁸ ORPC

²⁹ Process routes like vacuum distillation, solvent de-asphalting, and bitumen production are being considered.

³⁰ Residue Fluid Catalytic Cracking

³¹ MOG, OOC (Oman Oil Co.), and ORPC, etc.

³² MOG

completion of the refinery construction will not be in or before 2014. Therefore, import of middle distillate will become necessary until it is completed from the year of 2011, when the domestic demand will exceed production capacity of the existing refineries.

3.1.4 Present state and future plan of petrochemical industries in the downstream of refineries

(1) Downstream petrochemical industries of the existing refineries

The existing refineries do not assume additional development of downstream petrochemical industries any more. It is presumed that the existing refineries will not increase the supply of naphtha for new downstream ethylene production, in addition to the present level.

The following paragraphs describe the present state of downstream petrochemical industries of the existing refineries.

1) Polypropylene (PP)

Oman Polypropylene LLC (OPP) produces 340,000 T/Y of PP in Sohar utilizing crude propylene from Propylene Recovery Unit (PRU) of SRC. It is estimated that most of the produced PP are exported to India, Middle East and Asia under a long-term contract. The current PP-production capacity of 340,000 T/Y corresponds to 100%-operation of the PRU; therefore, it is necessary to find out new propylene resources to expand the production of PP further.

2) Paraxylene (PX) and Benzene (BZ) (plant under construction)

Aromatics Oman (AOL) will produce 800,000 T/Y of PX and 200,000 T/Y of BZ in Sohar with use of straight-run naphtha as the raw-material from SRC³³, and it is scheduled to commence the production at 2010.³⁴ The produced PX will be used as a raw-material for PTA production. BZ can be processed into polystyrene (PS) through ethyl-benzene (EB) of a middle raw-material; however, since the downstream projects do not exist in Oman at present, all the PX and BZ may be exported.

3) PTA (under study³⁵)

A project to produce 500,000 T/Y of PTA in Sohar with use of 800,000 T/Y of AOL's PX is under planning stage. The supply agreement with AOL for 25 years is in progress. The planned production capacity will be increased as much as possible for taking the advantage of

³³ Aromatics Oman LLC (AOL)

³⁴ Takamul Investment Co.

³⁵ Takamul Investment Co.

scale of production economy, though it may be smaller than 500,000 T/Y³⁶. There is a plan of use of the PTA for PET in a PET production plant in Salalah.

(2) Downstream petrochemical industries of the new refinery

Duqm is far from the gas field of the central region, though located near the oil fields of the south region. Further, the available gas resources in Oman are already limited. Therefore, development of gas-based chemical industries is presumed difficult at Duqm³⁷.

Although the detail is not available, there is a reported plan of the downstream petrochemical complex for the new refinery.³⁸ However, the production capacity of ethylene is necessary to be more than one million tons per year in order to be competitive in the global markets, requiring 370,000 bbl/d³⁹ of the crude with assumption that the new refinery can supply crude oil at an API gravity, which is similar to the present one, and that all the available light naphtha will be used for the ethylene production without producing gasoline. This requirement of 370,000 bbl/d is far bigger than the planned capacity of 300,000 bbl/d of the new refinery. Thus, in order to realize the plan of ethylene production at 1 million tons per year, the refinery needs to ensure the considerable volume of light crude as their input.

³⁶ Takamul Investment Co.

³⁷ MOG

³⁸ Energy Information Administration

³⁹ Calculated assuming that the crude API be 33, that the gasoline yield is 14.1% and that 2.66 million tons of light naphtha are required for production of one million tons of ethylene.

3.2 Natural Gas

3.2.1 Overview

Oman's natural gas production in 2008 is estimated at nearly 848 billion cubic feet (Bcf) and the production volume is projected to reach 1,200 Bcf by 2013. In addition, Oman imported 12 Bcf of natural gas from Qatar to meet the supply shortage (Figure 3.2-1).

Around 55% of the natural gas produced are consumed for LNG production, in the case of the year 2008 (Table 3.2-1), and most is exported under long-term contracts. Approximately 8% of the gas was used for production of methanol and urea, both being exported under long-term contracts.

The remaining 37% of the gas were used as fuel for electricity generation and desalination.

Table 3.2-1 Gas Consumption in Oman at the Year of 2008

| Gas Applications | Gas Users | Shares (%) | Consumptions Calculated (BCF) | |
|----------------------------|--------------------------------------|------------|-------------------------------|---------|
| Fuel | Power & Water desalination plants | 22 | 190 | Note 1) |
| | Other users of Sohar port industries | 8 | 70 | 2) |
| | Other smaller industries | 7 | 60 | 2) |
| LNG Raw-material | LNG complex (OLNGC + QLNG) | 55 | 470 | 3) |
| Raw Material for Chemicals | Methanol plants (OMC) | 6 | 50 | 4) |
| | Sur & Sohar fertilizers (OMIFCO) | 2 | 20 | 5) |
| Total | | 100 | 860 | |

Notes 1): Calculated from Fuel Requirements for Power & Water Desalination: 14.8 MMSm³/D (@2008), OPWP's 7Year Statement

2): Calculated respectively with use of the total consumption of 860 Bcf and the share figures described in Customers of Gas in Oman, Fact File, As of June 2009, PDO

3): p40, "Annual Report", by Central Bank of Oman, July 2009

4): Out of the Methanol Plants, only the OMC plant (5,000T/D) run in 2008.

5): Out of the Ammonia Plants, only the OMIFCO plant (2,000T/D) run in 2008.

It is not clear whether the gas production level of 1,200 Bcf in 2013 can be maintained in and after 2014.

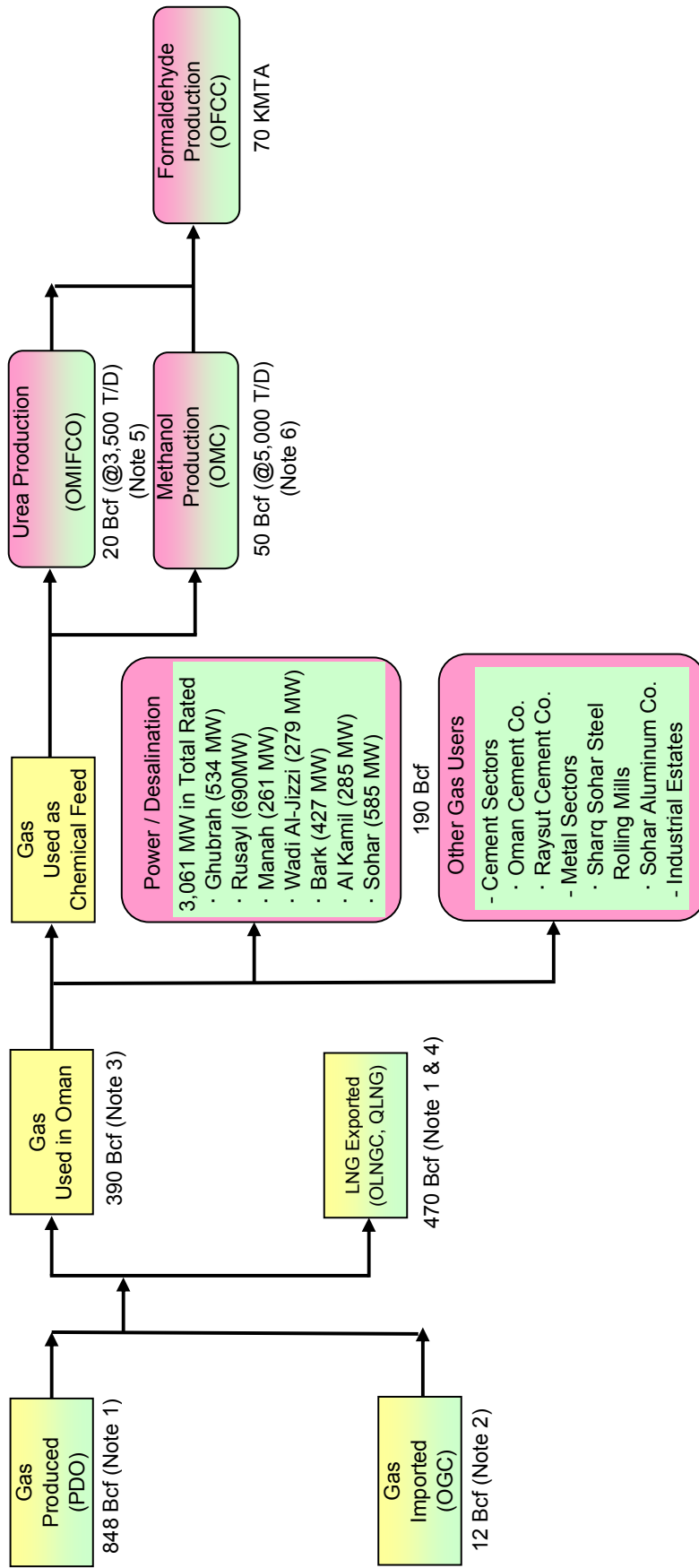


Figure 3.2-1 Gas Supply and Demand Flow

- Notes: 1) Bcf = Billion cubic feet. Figures at 2008 according to the description of "Annual Report" by Central bank of Oman, dated July 2009
- 2) Imported through Dolphin Project from Qatar, according to the description of "Energy Information Administration" dated August 2009
- 3) Figure calculated deducting the LNG exports of 470 Bcf from the total supply of 860 Bcf.
- 4) Long-term Shipping: (1) OLNCG: Korea, Japan, India, (2) QLNG: Spain, Japan
- 5) About 20 Bcf of Natural Gas is required for production of Ammonia 2,000 T/D (Urea 3,500 T/D)
- 6) About 50 Bcf of Natural Gas is required for production of Methanol 5,000 T/D
- 7) : Commodities or products, : Facilities, : Company names

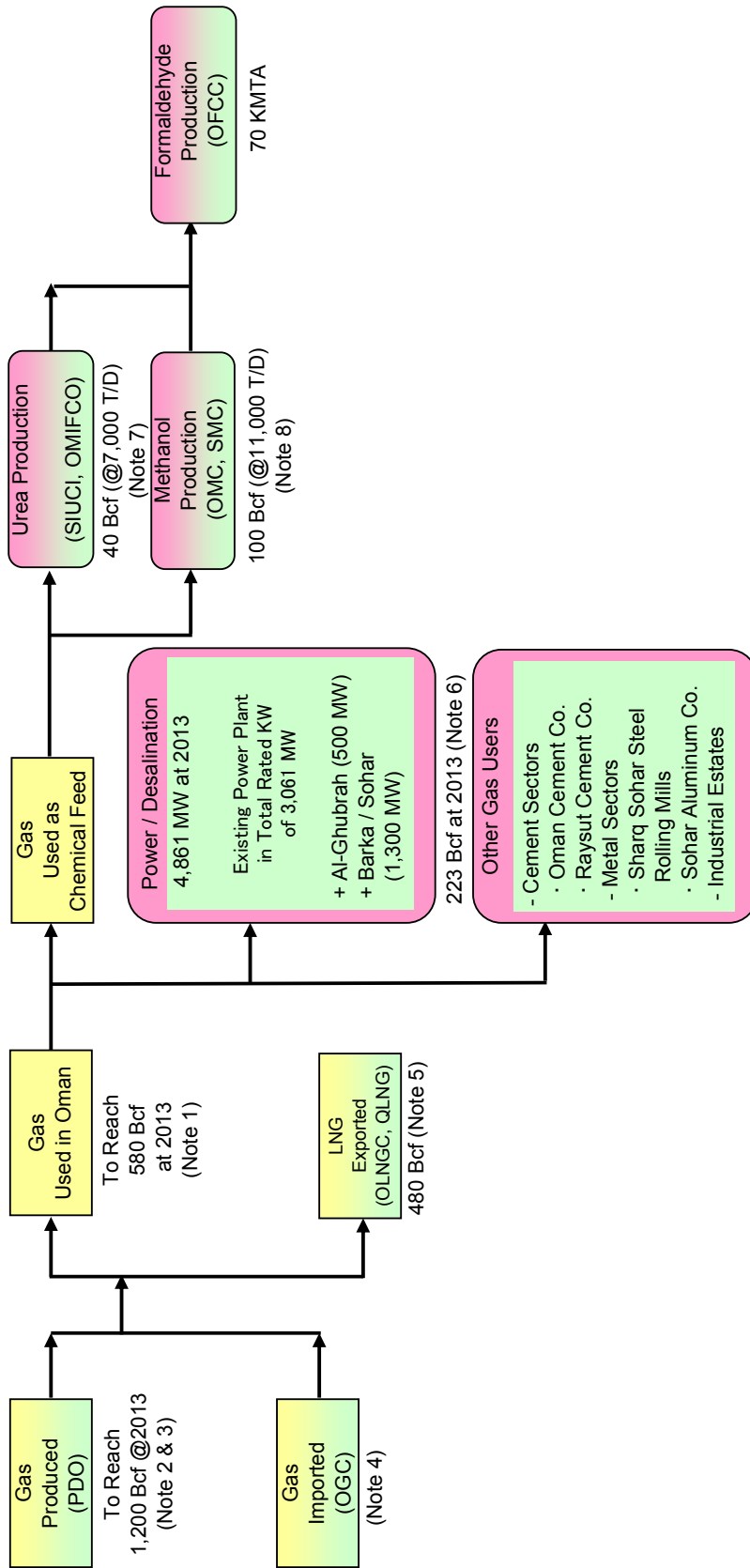


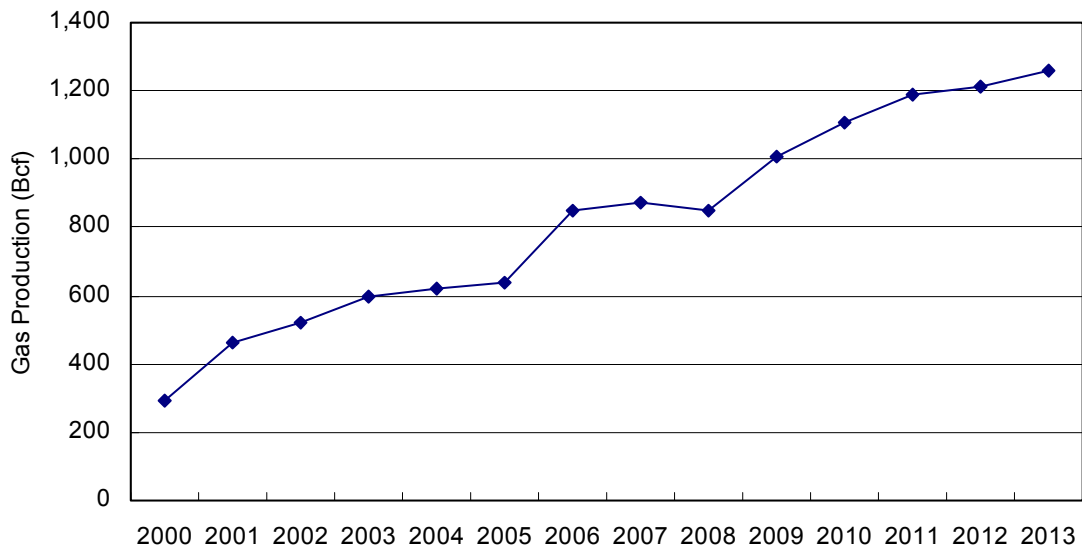
Figure 3.2-1B Gas Supply and Demand Flow (Future)

- Notes: 1) Bcf= Billion cubic feet. Figures at 2008 according to the description of "Energy Information Administration" dated August 2009
- 2) Gas-production volume could reach 1,200 Bcf at 2013, according to PDO pamphlet, which is far over the current consumption of 850 Bcf. However, the domestic consumption may be restricted by the Omani related authorities in order to secure the gas production after 2013.
- 3) Figure according to PDO pamphlet. PDO will use EOR to develop Khazzan and Makarem1"
- 4) Imported through Dolphin Project from Qatar
- 5) Figure at the total Rated Capacity. Long-term Shipping: (1) OLNGC: Korea, Japan, India, (2) QLNG: Spain, Japan
- 6) Figure of 223 Bcf is calculated with use of the estimation of "OPWP's 7 Year Statement", December 2008.
- 7) 40 Bcf of Natural Gas is required for production of Ammonia 4,000 T/D (Urea 7,000 T/D)
- 8) 100 Bcf of Natural Gas is required for production of Methanol 11,000 T/D
- 9) : Commodities or products, : Facilities, : Company names

3.2.2 Production and Supply of Natural Gas

Although the current production of natural gas is around 848 billion cubic feet (Bcf)¹ in 2008, PDO estimates that it will reach 1,200 Bcf by 2013 (Figure 3.2-2). However, Omani gas has been produced from technically challenging fields, being operated by foreign contractors. For example, gas fields such as Khazzan fields and Makarem fields, which are located in the central area, are currently developed by BP with use of advanced technologies of "tight gas"². Therefore, it is not clear whether Oman can keep the production level at 1,200Bcf in and after 2014.

In 2008, Oman imported 12 Bcf of gas from Qatar through the Dolphin pipeline to meet the supply shortage of the gas.



Source: "Media Briefing 2008", by PDO, Feb. 2009

Figure 3.2-2 Trends and Forecasting of Omani Gas Production

¹ The figure of 848 billion bcf is calculated deducting the gas-field use of 221 billion Bcf from the gas-use prospect of 1,069 billion Bcf, as shown in "Annual Report 2008", Central Bank of Oman, July 2009.

² EIA describes that the Khazzan and Makarem fields could nearly double Omani reserves. BP is currently developing the fields with the intent of achieving production sometime in 2010.

3.2.3 Consumption of Natural Gas

(1) LNG Production

In 2008, Oman exported approximately 470 Bcf³ of the LNG produced from the natural gas. The two-thirds of export went to South Korea, while the remainder shipped to Japan, India, Taiwan, and Spain. Table 3.2-2 shows the offtakers of Omani LNG. The offtakings are conducted under a long-term contract, and the short-term contract is only of 700,000 T/Y in OLNGC (All the LNG from QLNG are offtaken under a long-term contract).

**Table 3.2-2 Offtaking Contract of Omani LNG
(Volumes Corresponding to the LNG Rated Capacities)**

| | Offtakers | MMTPA ¹⁾ | Bcf ²⁾ |
|-------|--------------------------------|---------------------|-------------------|
| OLNGC | Korea Gas Corporation (KOGAS) | 4.10 | 180 |
| | Osaka Gas (Japan) | 0.70 | 30 |
| | Dabhol Power Company (India) | 1.60 | 80 |
| | Short-term Offtakers | 0.70 | 30 |
| | Total Capacity | 7.10 | 320 |
| QLNG | Union Fenosa Gas (Spain) | 1.65 | 80 |
| | Mitsubishi Corporation (Japan) | 0.80 | 40 |
| | Osaka Gas (Japan) | 0.80 | 40 |
| | Short-term Offtakers | 0.00 | 0 |
| | Total Capacity | 3.25 | 160 |

Notes: 1) LNG volumes (in MMTPA: million tons per annual).

2) Gas volumes (Bcf) corresponding to LNG volumes (MMTPA).

Source: Internet sites of OLNGC and QLNG

(2) Gas for Power Generation and Desalination

The gas used for the electricity generation and desalination is estimated at 190Bcf⁴ as of 2008.

Table 3.2-3 lists the power plants and the current rated generation capacities of them.⁵ Most of the power plants use gas as the fuel for the generation.

³ According to the LNG-export experience at 2008 in the footnote 1. The 470 billion Bcf of Table 3.2-2 is of the figure of the offtaking contract at the commencement of the LNG plant operation, which is based on the description by the internet sites of OLNGC and QLNG.

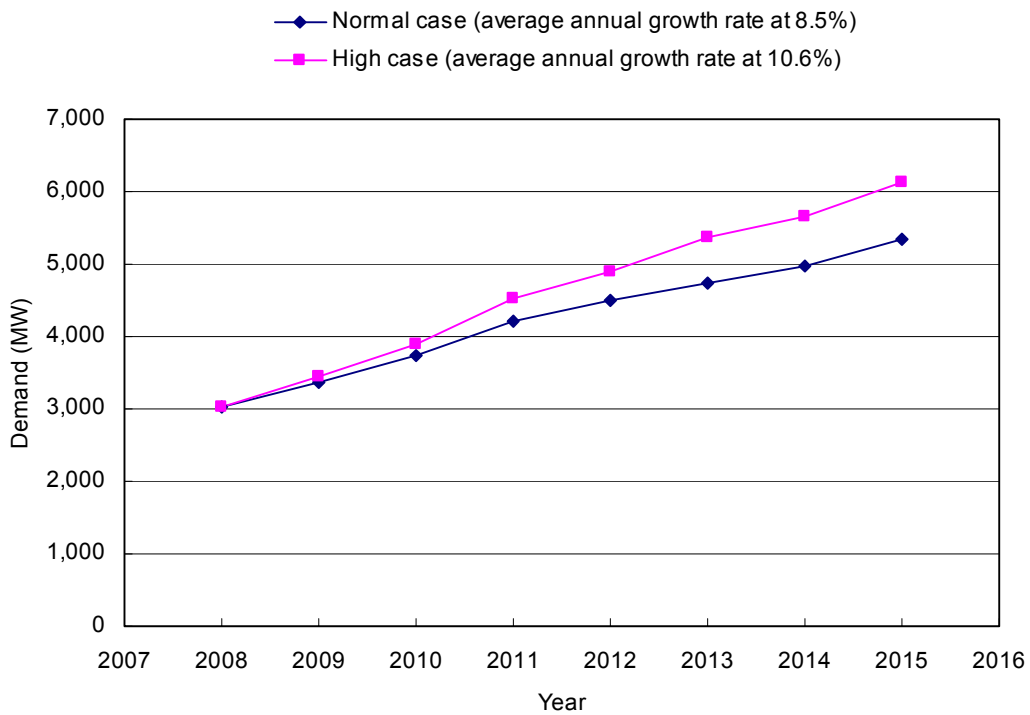
⁴ Calculated with use of Fuel Requirements for Power & Water Desalination: 14.8 MMSm³/D(@2008), OPWP's 7Year Statement.

⁵ Electricity Holding Company

Table 3.2-3 Power Plants and Rated Generation MWs Thereof in Oman

| Power plant | Rated (MW) |
|---------------|--------------|
| Ghubrah | 534 |
| Rusayl | 690 |
| Manah | 261 |
| Wadi Al-Jizzi | 279 |
| Bark | 427 |
| Al Kamil | 285 |
| Sohar | 585 |
| Total | 3,061 |

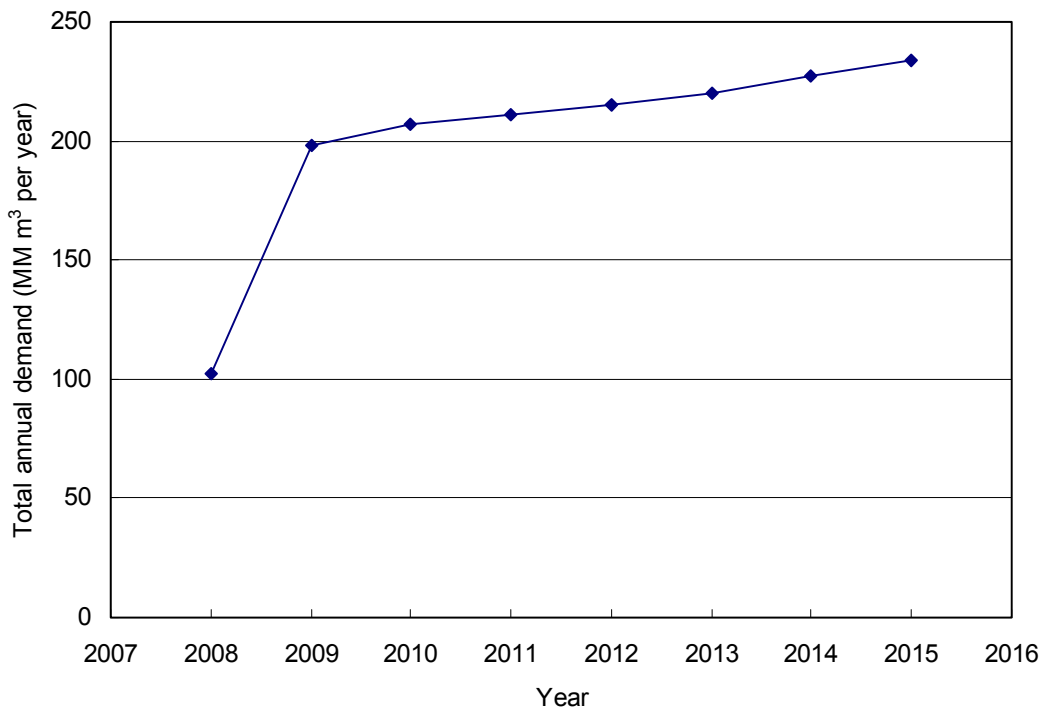
As for the electricity demand in Oman, the authorities concerned forecast the averaged annual growth rate at 8.5% as the normal case, and 10.6% as the high case during the period from 2009 to 2015. Figure 3.2-3 illustrates the forecast of the electricity and energy made by the Oman Power and Water Procurement (OPWP), including the demand for desalination which is shown in the Figure 3.2-4.



Source: p15, Power and Energy Demand, OPWP's 7 Year Statement, December 2008

Figure 3.2-3 Forecast of Electricity and Energy Demand (MW) in MIS⁶ in Oman

⁶ Main Interconnected System



Source: p21, Expected Desalinated Water Demand, OPWP's 7 Year Statement, December 2008

Figure 3.2-4 Forecast of Desalination Demand in MIS in Oman (MMm³/Year)

To meet the forecast demand increase in electricity, as above-mentioned, diversification of fuel resources for the power generation is under planning and implementation.

The government decided to construct a coal-fired power plant (IWPP) in Duqm at 2015, which will have a capacity of 1,000 MW. The plant will be operated with use of an environmental-friendly technology, despite the use of coal as the fuel.⁷ (Table 3.2-4).

⁷ OPWP

Table 3.2-4 Projected Fuel Requirement for Electricity Generation

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|--|-------|-------|-------|-------|-------|-------|-------|
| Energy demand (MW) | 3,371 | 3,739 | 4,220 | 4,507 | 4,742 | 4,984 | 5,348 |
| Desalinated water demand (MMm ³) | 198 | 207 | 211 | 215 | 220 | 227 | 234 |
| Total fuel consumption (MM GJ) | 204 | 218 | 241 | 243 | 234 | 242 | 256 |
| Gas consumption (MM GJ) | 204 | 218 | 241 | 243 | 234 | 242 | 227 |
| Coal consumption (MM GJ) | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| Max diesel consumption (MM GJ) | 0 | 0 | 6 | 5 | 0 | 8 | 0 |
| Gas consumption (Bcf) | 195 | 208 | 229 | 232 | 223 | 231 | 217 |
| Coal consumption (MM tons) | 0 | 0 | 0 | 0 | 0 | 0 | 1.1 |
| Max diesel consumption (MM liters) | 0 | 0 | 180 | 151 | 0 | 235 | 0 |

Source: p32, OPWP's 7 Year Statement, OPWP, December 2008

Oman and UAE are in the process to interconnect the MIS each other. The physical interconnection was completed, and an agreement is expected to be concluded at the end of December, 2009, enabling Oman to buy electricity from UAE⁸.

(3) Gas for raw-material of chemical products

Fertilizer Production (Under Operation)

Sohar International Urea and Chemical Industries (SIUCI), located in Sohar, produces 2,000 metric tons per day (T/D) of ammonia and 3,500 T/D of urea. Oman India Fertilizer Company SAOC (OMIFCO), located in Sur, produces 2,000 T/D of ammonia and 3,500T/D of urea. These 4,000T/D of ammonia productions requires 40 Bcf⁹ of natural gas. The produced urea is partly used for production of urea-formaldehyde, while most of the urea are exported for use as fertilizer.

Methanol Production (Under Operation)

In Sohar, Oman Methanol Company LLC (OMC) produces 3,000 T/D of methanol, and Sohar Methanol Co. is constructing another methanol plant in Sohar, at a capacity of 5,000 T/D. Salalah Methanol Company is also constructing a 3,000 T/D methanol plant in Salalah. These 11,000T/D of methanol production in total requires 100 Bcf¹⁰ of natural gas. A part of the produced methanol is used currently for the production of formaldehyde, while the rest of them

⁸ OPWP

⁹ Calculated, with assumption where 1 ton of ammonia requires 30.1MMBTU of natural gas and of a base of 4,000T/D production.

¹⁰ Calculated, in assumption where 1 ton of methanol requires 29.9 MMBTU of natural gas and of a base of 11,000T/Dproduction.Methanol. The Table 3.2-1 shows the experience at 2008

are exported as methanol.

Formaldehyde Production (Under Operation)

Oman Formaldehyde Chemical Company LLC (OFCC) produces 45,000 T/Y of urea-formaldehyde and 70,000 T/Y of formaldehyde¹¹, which uses methanol from Sohar Methanol Co. and urea from SIUCI as the raw-materials. The formaldehyde production at a capacity of 70,000 T/Y requires 2 Bcf of natural gas.¹² Most of the urea-formaldehyde and formaldehyde are estimated to be exported.

Ethylene Production (Under Planning)

Oman Petrochemical Industries Company (OPIC) has a plan of ethylene production at a capacity of 1,000,000 T/Y with use of ethane-cracker. However, the plan seems difficult to be materialized, considering the fact that the production requires 640 Bcf¹³ of natural gas, which is too big compared to the projected supply capacity of the natural gas in this country.

3.3 Alternative Energy

3.3.1 Overview

The most feasible alternative energy sources in Oman are solar and wind power. Geothermal power generation seems to be very difficult to commercialize because of insufficient temperature to produce steam. Wave power is not feasible due to low energy density. Finally, biomass power generation using wastes and dung are found to be impractical partly because they are already used to make organic fertilizer within the country and partly because a large amount of such raw materials needs to be collected for commercial power generation, resulting in a high cost.

The cumulative global solar power generation capacity in 2008 is 13,400MW, and its electricity production amounts to 0.1 trillion KW hours (TKWh), 0.5% of the global total production of 19TKWh. On the other hand, the cumulative wind power generation capacity is 121,000MW. Electricity production is estimated at 0.2TKWh, representing 1% of the total. These energy sources have been boosting installed capacity rapidly throughout the world. Between 2000 and 2008, solar power generation capacity grew by 19 times and wind power

¹¹ Annual Industrial Report 2009, MOCI

¹² Calculated, in assumption where 1 ton of formaldehyde requires 1.17 tons of methanol, whose production at 1 ton needs 29.9 MMBTU of natural gas. In the formaldehyde production, methanol and urea are consumed as raw-materials and it does not mean that the natural gas is directly consumed.

¹³ Assumed that 1 ton of ethylene production requires 1.23 tons of ethane and that 10% of ethane is included in the natural gas.

generation capacity by 7 times.

In the case of Oman, Authority for Electricity Regulation (AER) has prepared a report based on their assessment on the power generation using the renewable energies including that of solar, wind power, bio, geothermal heat, and wave power¹⁴. As a result, it was decided to place the focus of alternative energy development on that of photo voltaic and wind power in Oman.

Currently, two levels of committees were established as of December 2009, to make positive efforts for the renewable energy development. These are Ministerial Committee and Technical Committee¹⁵. However, no renewable energy source has been considered as one of the feasible sources of energies yet, since the development plan is still in the initial stage.

3.3.2 Solar Power Generation

(1) Current state and future outlook for global solar power generation

Solar power generation capacity of 5,600MW was added in 2008, increasing the cumulative installed capacity to estimated 13,400MW (equivalent to electricity production of 0.12TKWh) or 0.5% of the global total production (19TKWh). As of 2008, 94% of the installed capacity is connected to power grids, while only 6% are separately used.

Table 3.3-1 World Trend of Solar Power Generation (2000-2008)

| Year | Off-grid | | Grid-connected | | Total | | Grid-Connected Share % |
|------|---------------|-------------------|----------------|-------------------|---------------|-------------------|------------------------|
| | Cumulative MW | Annual Increase % | Cumulative MW | Annual Increase % | Cumulative MW | Annual Increase % | |
| 2000 | 277MW | 14% | 439MW | 65% | 716MW | 40% | 61% |
| 2001 | 319MW | 15% | 656MW | 49% | 975MW | 36% | 67% |
| 2002 | 354MW | 11% | 964MW | 47% | 1,318MW | 35% | 73% |
| 2003 | 410MW | 16% | 1,400MW | 45% | 1,810MW | 37% | 77% |
| 2004 | 450MW | 10% | 2,385MW | 70% | 2,835MW | 57% | 84% |
| 2005 | 485MW | 8% | 3,703MW | 55% | 4,188MW | 48% | 88% |
| 2006 | 535MW | 10% | 5,092MW | 38% | 5,627MW | 34% | 90% |
| 2007 | 663MW | 24% | 7,203MW | 41% | 7,866MW | 40% | 92% |
| 2008 | 741MW | 12% | 12,684MW | 76% | 13,425MW | 71% | 94% |

Source: p39, Trends in Photovoltaic Applications, IEA, September 2009

(2) Feasibility of solar power generation in Oman

The following pilot projects are under way in Oman to define the feasibility of solar power generation.

¹⁴ "Study on Renewable Energy Resources, Oman", Authority for Electricity Regulation

¹⁵ PAEWand RAECO

1) A pilot plant project by Rural Areas Electricity Co. (RAECO)

The project is for establishment of a hybrid system of small scale community-based power generation combining the existing diesel power generation with wind power generation or photovoltaic generation.

The objective of the project is not only to confirm the performance and efficiency of the proposed system, but also to provide the enterprises in Oman with the opportunity to operate and maintain such system. The size of the system is small with the generation capacity in-between 10 kV and 200 kV. The proposed system is assumed to be operated without connecting to the main grid such as MIS¹⁶.

2) A Large-scale Solar Power Project by PAEW

The project is a feasibility study on photovoltaic power generation with the capacity between 100 MW and 200 MW. The project started in October 2009, and is scheduled to prepare the Strategy Report, which summarizes the findings from the Project, to the Government in May 2010. The project will also analyze the possible risks of the photovoltaic power generation. It will be implemented in 4 to 6 different locations with the following conditions; 1) the system can be connected to the MIS, 2) the venue is in a desert area with high density of energy, and 3) topographically flat with little wind to cause dust in order to minimize the deterioration of power generation efficiency. Directorate General of Metrology and Air Navigation, Ministry of Transport and Communication (MOTC) is planning to collect the detailed data over a year on weather conditions.

In Oman, sunlight has fairly high energy density, especially in desert areas, making the country suitable for solar power generation. In coastal areas, however, energy density is relatively low due to short hours of sunlight as a result of rainfall in summer (Salalah) and foggy weather in Sur.

The results of pilot operation conducted by Authority for Electricity Regulation (AER) indicate that efficiency of power generation decreases by 10% in comparison to installation in non-desert areas, partly due to a high atmospheric temperature at the installation and partly due to contamination of the module surface by sand¹⁷.

On the other hand, there is no technical problem relating to grid connection of solar power installations. Distributed power sources such as solar PV achieve smooth variable

¹⁶ Main Interconnected System

¹⁷ Study on Renewable Energy Resources, Oman, Authority for Electricity Regulation, Oman, May 2008

components with a larger scale and a more decentralized installation, so that it is easy to handle on the grid system.

Also, as Oman is currently relying on diesel power generation in rural areas that are not grid connected, small solar power installations (off-grid applications) can be used to reduce diesel oil consumption.

Research conducted to this date indicate that the largest problem relating to solar power generation in the country is high generation cost; R.O. 80/MWh (\$207/MWh) for CSP (solar thermal plant) and R.O. 96/MWh (\$250/MWh) for large scale connected PV installations, well above R.O. 12/MWh (\$31/MWh) for conventional gas-fired power generation.

3.3.3 Wind Power Generation

(1) Current state and future outlook for world wind power generation

Wind power generation capacity has been growing rapidly worldwide. Annual installed capacity in 2008 reached 27,000MW and cumulative capacity 121,000MW (Table 3.3-2). Electricity production is estimated at around 0.2TKWh, representing 1% of the world total production (19TKWh).

Table 3.3-2 World Capacity of Wind Power Generation

| | Cumulative Capacity | Annual Installed Capacity | Annual Increase |
|------|---------------------|---------------------------|-----------------|
| 2000 | 17,400MW | 3,760MW | 9% |
| 2001 | 23,900MW | 6,500MW | 73% |
| 2002 | 31,100MW | 7,270MW | 12% |
| 2003 | 39,431MW | 8,133MW | 12% |
| 2004 | 47,620MW | 8,207MW | 1% |
| 2005 | 59,091MW | 11,531MW | 41% |
| 2006 | 74,052MW | 15,245MW | 32% |
| 2007 | 93,823MW | 19,865MW | 30% |
| 2008 | 120,791MW | 27,056MW | 36% |

Source: Global Wind Energy Council

(2) Feasibility of wind power generation in Oman

The following program is under way in Oman regarding the power generation by the use of wind:

- Wind Monitoring Program : To start preparation of a Wind Map in 2010
- Construction of wind farms : To start the project in 2011 with 15 years project period with PPA contract under BOO.

Wind data are collected by DGCAM¹⁸ at 21 points throughout the country. They suggest that coastal areas in the south and mountainous areas in the north of Salalah are suitable for wind power generation. In these areas, data indicate wind velocities similar to those recorded in the interior of Europe where a lot of wind farms are operated. Furthermore, the highest wind velocity is recorded in summer, which is the country's peak season for electricity demand.

Electricity produced by wind turbines is characterized by output fluctuation, and consideration is required for grid connection; generally, operational rules are set to limit the grid intake of wind power to 15-20% of electricity produced by conventional sources. If this rule is applied to Oman, where electricity demand is expected to reach 5,000MW for MIS¹⁹ and 600MW²⁰ in Salalah, upper limits for grid-connectable wind power generation are 750MW and 90MW, respectively.

It is reported that the wind power generation cost in Oman is estimated at R.O. 28/MWh (\$74/MWh), more than twice that for conventional gas-fired power generation, R.O. 12/MWh (\$31/MWh)²¹.

3.3.4 Need for Acceleration of related Research through Technical Cooperation with Countries with Advanced Technology

As discussed earlier, crude oil and natural gas supply capacities in Oman are increasingly limited and the government opt to impose restriction on industrial projects consuming a large amount of oil or natural gas. Nevertheless, energy consumption is inevitable for industrial development, such as the downstream sector for heavy and chemical industry products.

As solar and wind power generations are already commercialized in various countries and Oman is endowed with natural conditions suitable for both of them, it is desirable to accelerate research and development activities.

The current development status of solar and wind power generations in industrialized countries is summarized below.

¹⁸ Directorate General of Civil Aviation & Meteorology

¹⁹ MIS : Main Interconnected System, OPWP's 7 Year Statement

²⁰ OPWP's 7 Year Statement

²¹ Study on Renewable Energy Resources, Oman, Authority for Electricity Regulation, Oman, May 2008. This is the estimated cost in 2006 of the existing MIS connected gas fired production facilities. The estimate is based on the gas price at 1.5US\$/MMBTU

(1) Research and development cases on solar power generation

In Germany, Spain and Japan, solar power generation capacity has been growing steadily under strong government support. In the Middle East, Turkey is only one country that carries out solar power generation on a commercial basis, but installed capacity is limited to 4MW.

Germany enacted the Renewable Energy Act (EEG) in 2000. It was amended in 2004 to allow electricity generated by solar power installations to be entirely sold to power companies at fixed prices during the ensuing 20 years. As the fixed prices are set higher for early installations than later ones, there are a lot of projects commenced after 2004 and installed capacity has been growing rapidly²².

Japan became the largest producer of photovoltaic cells in 1999 and maintains the top position since then. In 2007, electricity generation by solar power installations in Japan reached 920MW, one fourth (24.6%) of the world total production (3,733MW). The Japanese government sets the goal of boosting the installed capacity by 10 times in 2010 and 40 times in 2030. To accomplish the goal, concerted efforts by the public and private sectors are taken to reduce the home PV system price by half in the next three to five years²³. As for materials, the Research Center for Photovoltaics of the National Institute of Advanced Industrial Science and Technology (AIST) implements comprehensive research projects ranging from development of new devices, to provision of solar cell standards and system development on the user side. Its mission is to develop basic technology that reduces the present generation cost by half in 2010 and to one seventh toward 2030²⁴.

In Japan, a verification research projects on solar power generation in desert areas is underway. Conducted as an international cooperation project, NEDO²⁵ is building a distributed hybrid power generation system in an interior desert area in China, consisting of solar PV and wind power generation systems, and maintenance-free, long-life storage batteries developed in Japan. The project is designed to verify technologies used for efficient and stable supply of electricity to small scale loads. So far, the project has verified the improvement of power generation efficiency, the mitigation of effects of output fluctuation on load systems, and effectiveness of storage battery.

Previous research projects in industrialized countries suggest the need for selection of a power

²² National Institute for Environmental Studies, Japan

²³ "Present Circumstances and Future-policy Directions of Solar Power Generation", Ministry of Economy, Trade and Industry, Japan

²⁴ Internet-site and materials by National Institute of Advanced Industrial Science and Technology

²⁵ New Energy and Industrial Technology Development Organization

generation method. Solar power generation systems are roughly divided into conventional PV²⁶ and CSP (concentrating solar power). The latter allows conversion of heat energy obtained from concentrated sunlight to nighttime power supply, and electricity can be generated throughout the day. Furthermore, the CSP system can be configured on a large scale, as much as 200-300MW. While it is still at the development stage, CSP appears to be suitable for the country.

For further commercial development, research needs to be conducted in the following areas.

- Design of a solar power generation system suitable for grid connection
- Preliminary and detailed designs of modules, inverters, cables, and other equipment
- Estimation of a base angle (optimal angle) that maximizes annual electricity production
- Detailed design of the base and the foundation corresponding to the optimal angle
- Assessment of a commercial power generation system from economic and environmental perspectives

These research efforts should be accelerated through cooperation with countries having advanced technology relating to solar power generation

(2) Research and development cases on wind power generation

As for the cumulative installed capacity, the U.S. comes first, followed by Germany and Spain. In particular, wind power generation boasts high share in northern Germany and the state of California. These countries position wind power generation as core of environmental and energy policies and provide various incentives for investment including the mandatory purchase by power companies.

In the Middle East, Egypt produces the largest amount of electricity from wind power. The installed capacity is expected to increase from 365MW in 2008 to 560MW in 2010, partly due to assistance by Japan and other countries. The historical background including milestone events is summarized as follows²⁷.

- In 1986, the New & Renewable Energy Authority (NREA) was established. NREA's mission is to establish a testing and verification laboratory and promote related human resources. In particular, it carries out assessment of renewable energies by means of pilot projects and conducts research and study on technology selection.
- Detailed Wind Atlas (annual average wind velocity data) was completed in 2005 to promote use of wind power.

²⁶ solar photovoltaic

²⁷ Global Wind Energy Council – GWEC: Egypt 2009

- In 2008, the Egyptian Supreme Council of Energy approved a plan to secure 20% of the country's electricity production from renewable energy sources in 2010, with wind power accounting for 12% (7,200MW). To achieve the 7,200MW goal, the plan envisages annual production of 400MW by the private sector and 200MW by NREA. In addition, market reforms relating to power supply are underway, while the Electric Power Law is being prepared to reinforce a concerned government organization.
- In Zafarama, Egypt, installed capacity of 75MW will be added in 2006 under assistance of the Japanese government²⁸. In 2010, a 120MW plant will be constructed in 2010 in cooperation with the Danish government, totaling the installed capacity of 560MW. In addition, a wind power generation plan aiming at the installed capacity of 720MW in El-Zayt Gulf is carried out in partnership with Japan, Spain, and Germany/EIB.

²⁸ Clean Development Mechanism Activities conducted by JBIC and JCF.

4 Industry Sector

4 Industry Sector

4.1 Overview of the Industrial Sector in Oman

4.1.1 Domestic Markets for Industrial Products, and Import and Export of Industrial Products

(1) The Industrial Sector in the GDP

The share of the industrial sector in Oman's GDP, which was even less than 0.3% in 1975, started to increase steadily from 1980, achieving 2.3% in 1985, 3.7% in 1990 and 4.3% in 1992. After 2000, the increase has been accelerated further and reached 10% in 2006.

Shares in GDP and Annual Growth Rates by Industry in Oman (at current prices)

(Unit: %)

| | Shares in GDP | | | Annual Growth Rates | | |
|-------------------------|---------------|------|------|---------------------|------|-------|
| | 1999 | 2006 | 2007 | 1999 | 2006 | 2007 |
| Oil | 40.4 | 47.6 | 45.2 | 40.7 | 14.7 | 7.3 |
| Crude oil | 39.3 | 43.5 | 40.7 | 42.0 | 13.3 | 5.9 |
| Natural gas | 1.1 | 4.1 | 4.4 | 5.2 | 31.7 | 21.7 |
| Non oil | 59.9 | 54.1 | 56.4 | -2.0 | 22.0 | 17.9 |
| Of which, Manufacturing | 4.4 | 10.8 | 10.5 | 4.2 | 51.6 | 10.0 |
| Petroleum products | 0.6 | 0.4 | 0.8 | -9.0 | 8.0 | 143.2 |
| Chemicals & products | 0.3 | 7.3 | 6.4 | 2.4 | 79.4 | -0.9 |
| Others | 3.5 | 3.2 | 3.4 | 7.3 | 15.9 | 20.0 |

Source: MOCI

Among the subsectors in the manufacturing industry, the share of the subsector petroleum-refinery products and LNG is predominantly high, followed by the subsectors of food and beverage, chemical and chemical products, non-metallic mineral products, and electrical machinery and cables/ wires, which are the subsectors each with over 2.5 billion of annual gross value added (see Tables 4.1-1 and 4.1-2).

Table 4.1-1 Gross Value Added in Manufacturing Sector by Subsector

(Unit: T.R.O)

| SITC | Industry | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|--|--|----------------|----------------|----------------|------------------|------------------|------------------|
| 15 | Food Product & Beverages | 57,797 | 67,851 | 75,534 | 77,093 | 78,201 | 108,868 |
| 18 | Readymade Garments | 8,766 | 7,743 | 4,635 | 3,276 | 3,014 | 1,417 |
| 20 | Products of Wood Except Furniture | 2,632 | 2,492 | 3,986 | 6,996 | 11,017 | 8,565 |
| 21 | Paper / Paper Products | 5,203 | 3,304 | 5,194 | 5,241 | 6,286 | 3,676 |
| 22 | Printed Materials / Recorded Media | 10,394 | 11,417 | 9,871 | 9,567 | 7,090 | 16,203 |
| 23 | Refined Petrol-Products & Liquid Gas | 377,739 | 454,787 | 449,299 | 589,019 | 685,376 | 687,503 |
| 24 | Chemical / Chemical Products | 28,188 | 28,575 | 34,251 | 141,775 | 127,358 | 164,725 |
| 25 | Rubber / Plastic Products | 12,804 | 13,100 | 13,500 | 17,609 | 17,438 | 30,292 |
| 26 | Other Non-metallic Products | 58,534 | 74,305 | 98,992 | 128,507 | 148,056 | 178,654 |
| 27 | Basic Metals | 13,757 | 18,298 | 27,890 | 27,150 | 26,053 | 57,444 |
| 28 | Fabricated Metal Products | 15,545 | 17,036 | 21,614 | 17,790 | 32,562 | 44,471 |
| 29 | Machinery & Equipment nec. | 7,135 | 5,915 | 7,189 | 9,629 | 9,772 | 16,498 |
| 30 | Office, Accounting / Computing Machinery | 176 | 168 | 0 | 0 | 0 | 0 |
| 31 | Electrical Machinery / Apparatus | 11,851 | 7,812 | 11,039 | 16,984 | 25,537 | 46,856 |
| 33 | Medical, Precision / Optical Instrument | 1,411 | 1,291 | 1,802 | 1,720 | 1,550 | 3,237 |
| 34 | Motor Vehicle, Trailers | 172 | 338 | 1,435 | 2,366 | 482 | 358 |
| 36 | Furniture Manufacturing | 13,458 | 11,532 | 21,104 | 18,165 | 20,631 | 32,757 |
| 99 | Other Manufacturing | 2,928 | 2,543 | 3,814 | 5,924 | 3,358 | 2,779 |
| | Total | 629,493 | 728,507 | 791,148 | 1,078,811 | 1,203,779 | 1,404,301 |
| (*) GDP by Manufacturing (in R.O. million) | | 669 | 738 | 821 | 1,007 | 1,527 | 1,679 (**) |
| - Refined Petrol-Products | | 62 | 45 | 25 | 47 | 51 | 123 |
| - Chemical / Chemical Products | | 306 | 390 | 459 | 572 | 1,026 | 1,017 |
| - Other Manufacturing | | 301 | 304 | 337 | 388 | 450 | 540 |

Note: (**) Provisional

Source: MOCI, "Yearly Industrial Statistical Book" (Data: 2002 through 2007)

(*) MNE, "Statistical Year Book 2008"

Table 4.1-2 Gross Value Added in Manufacturing Sector by Subsector (in % of Total)

| SITC | Industry | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|------|--|------|------|------|------|------|------|
| 15 | Food Product & Beverages | 9.2 | 9.3 | 9.5 | 7.1 | 6.5 | 7.8 |
| 18 | Readymade Garments | 1.4 | 1.1 | 0.6 | 0.3 | 0.3 | 0.1 |
| 20 | Products of Wood Except Furniture | 0.4 | 0.3 | 0.5 | 0.6 | 0.9 | 0.6 |
| 21 | Paper / Paper Products | 0.8 | 0.5 | 0.7 | 0.5 | 0.5 | 0.3 |
| 22 | Printed Materials / Recorded Media | 1.7 | 1.6 | 1.2 | 0.9 | 0.6 | 1.2 |
| 23 | Refined Petrol-Products & Liquid Gas | 60.1 | 62.4 | 56.8 | 54.6 | 56.9 | 49.0 |
| 24 | Chemical / Chemical Products | 4.5 | 3.9 | 4.3 | 13.1 | 10.6 | 11.7 |
| 25 | Rubber / Plastic Products | 2.0 | 1.8 | 1.7 | 1.6 | 1.4 | 2.2 |
| 26 | Other Non-metallic Products | 9.3 | 10.2 | 12.5 | 11.9 | 12.3 | 12.7 |
| 27 | Basic Metals | 2.2 | 2.5 | 3.5 | 2.5 | 2.2 | 4.1 |
| 28 | Fabricated Metal Products | 2.5 | 2.3 | 2.7 | 1.6 | 2.7 | 3.2 |
| 29 | Machinery & Equipment nec. | 1.1 | 0.8 | 0.9 | 0.9 | 0.8 | 1.2 |
| 30 | Office, Accounting / Computing Machinery | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 31 | Electrical Machinery / Apparatus | 1.9 | 1.1 | 1.4 | 1.6 | 2.1 | 3.3 |
| 33 | Medical, Precision / Optical Instrument | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 |
| 34 | Motor Vehicle, Trailers | 0.0 | 0.0 | 0.2 | 0.2 | 0.0 | 0.0 |
| 36 | Furniture Manufacturing | 2.1 | 1.6 | 2.7 | 1.7 | 1.7 | 2.3 |
| 99 | Other Manufacturing | 0.5 | 0.3 | 0.5 | 0.5 | 0.3 | 0.2 |

Source: Table 4.1-1

(2) Size of local markets, and domestic production rates

The local market sizes, domestic productions, and exports and imports are estimated by industrial subsector in Table 4.1-3. The estimated local market size (in current prices) has escalated by five-fold from R.O. 1.42 billion in 1991 to R.O. 7.04 billion in 2007¹. The market size for chemical products and petroleum products has expanded the most among the industrial subsectors, to R.O. 2.84 billion in 2007², due to increases in oil- and gas-based production. The market size of the machine and electrical machine subsector followed with R.O. 2.48 billion reflecting an increase in machine and vehicle imports.

Though the size is comparatively smaller than the above two, the markets for food and beverages and for non-metallic mineral products, which are mainly utilized for construction followed with R.O. 0.7 billion and R.O. 0.33 billion respectively.

Table 4.1-4 estimates the self-sufficiency rate (local production ratio vis-à-vis the domestic market size) of each subsector. Basic metal products subsector shows the highest rate of 230% in 2007, because of the fact that the greater portion of the products are manufactured for export. Next to them, the chemical products and petroleum products subsector and the non-metallic mineral products subsector, which are also export oriented, follow with 93% and 84% respectively.

On the other hand, the self-sufficiency rates of the food and beverage subsector and paper products subsector remains at the level of 40% because both of them are local oriented products. Further, that of machine and electric apparatus subsector, which is heavily dependent on imports, remains as low as 12%.

Changes in the self-sufficiency rates have been an increase from 15% in 1991 to 47% in 2007 in the case of the food and beverage sector, but a much more conspicuously increase, from 66% to 93%, in the chemical and petroleum products sector. The rate has declined drastically in the apparel sector, from 46% to 3.5% signifying a destructive blow to its exports.

¹ The Estimated local market scale is calculated with the formula “(Domestic Production)+(Import - Re-Export)-(Export)” at current prices. The estimated market size at current prices is often overestimated than the actual because of (1) price increase and (2) double counting due to roundabout production.

² The market size of chemicals and petroleum-products subsector is overestimated due to multiple counting of the production caused by development of downstream production. Accordingly, domestic production rate (93%, in terms of domestic production/ market size), import rate (17%, in terms of import less re-export/ market size), and export rate (11%, in terms of export/ domestic production) are lower than the actual situation. In fact, the amount of domestic production is much bigger compared with a domestic market size, and the large portion of domestic production is exported (as to be discussed later)

Table 4.1-3 Import, Export and Production by Subsector, Manufacturing Industry (Excluding Oil Sector)

(Unit: R.O. '000)

| | 2007 | | | | 1991 | | | | H.S. sections for import/export | ISIC sections for production | |
|--|--------------------|--------------------|---|--------------------|--------------------|--|---|--------------------|--|------------------------------|----------|
| | Total import (A) | Re-export (B) | Import for domestic consumption (A-B) | Production (C) | Total import (A) | Re-export (B) | Import for domestic consumption (A-B) | Production (C) | | | |
| | Production (C) | Export (D) | Production for domestic consumption (C-D) | Total supply (A+C) | Production (C) | Export (D) | Production for domestic consumption (C-D) | Total supply (A+C) | | | |
| | Total supply (A+C) | Total export (B+D) | Total domestic consumption (A-B)+(C-D) | Total supply (A+C) | Total export (B+D) | Total domestic consumption (A-B)+(C-D) | Total supply (A+C) | Total export (B+D) | Total domestic consumption (A-B)+(C-D) | | |
| Food & Beverage | 603,600 | 30,180 | 573,420 | 227,600 | 17,394 | 210,206 | 227,600 | 17,394 | 210,206 | I through 4 | 15 |
| | 364,385 | 176,584 | 187,801 | 32,443 | 31,806 | 637 | 32,443 | 31,806 | 637 | | |
| | 967,985 | 206,764 | 761,221 | 260,043 | 49,200 | 210,843 | 260,043 | 49,200 | 210,843 | | |
| Textile & Garments | 121,700 | 42,135 | 79,565 | 64,500 | 4,480 | 60,020 | 64,500 | 4,480 | 60,020 | 8,11,12 | 18 |
| | 2,602 | 8,026 | -5,424 | 42,112 | 10,835 | 31,277 | 42,112 | 10,835 | 31,277 | | |
| | 124,302 | 50,161 | 74,141 | 106,612 | 15,315 | 91,297 | 106,612 | 15,315 | 91,297 | | |
| Wooden Products | 56,800 | 244 | 56,556 | 16,300 | 421 | 15,879 | 16,300 | 421 | 15,879 | 9 | 20 |
| | 14,539 | 179 | 14,360 | 24,753 | 130 | 24,623 | 24,753 | 130 | 24,623 | | |
| | 71,339 | 423 | 70,916 | 41,053 | 551 | 40,502 | 41,053 | 551 | 40,502 | | |
| Paper & Paper Products | 68,600 | 1,632 | 66,968 | 19,500 | 350 | 19,150 | 19,500 | 350 | 19,150 | 10 | 21 |
| | 48,752 | 6,953 | 41,799 | 9,429 | 884 | 8,545 | 9,429 | 884 | 8,545 | | |
| | 117,352 | 8,585 | 108,767 | 28,929 | 1,234 | 27,695 | 28,929 | 1,234 | 27,695 | | |
| Chemicals & Chemical Products | 494,500 | 13,587 | 480,913 | 103,800 | 7,915 | 95,885 | 103,800 | 7,915 | 95,885 | 6,7 | 23,25 |
| | 2,647,134 | 289,622 | 2,357,512 | 174,941 | 6,035 | 168,906 | 174,941 | 6,035 | 168,906 | | |
| | 3,141,634 | 303,209 | 2,838,425 | 278,741 | 13,950 | 264,791 | 278,741 | 13,950 | 264,791 | | |
| Non-Metallic Mineral Products | 93,600 | 287 | 93,313 | 20,500 | 999 | 19,501 | 20,500 | 999 | 19,501 | 13 | 26 |
| | 277,813 | 41,809 | 236,004 | 111,492 | 244 | 111,248 | 111,492 | 244 | 111,248 | | |
| | 371,413 | 42,096 | 329,317 | 131,992 | 1,243 | 130,749 | 131,992 | 1,243 | 130,749 | | |
| Basic Metals, Fabricated Metal Products | 408,600 | 17,697 | 390,903 | 136,000 | 4,934 | 131,066 | 136,000 | 4,934 | 131,066 | 5,15 | 27 |
| | 317,987 | 570,810 | -252,823 | 8,795 | 26,639 | -17,844 | 8,795 | 26,639 | -17,844 | | |
| | 726,587 | 588,507 | 138,080 | 144,795 | 31,573 | 113,222 | 144,795 | 31,573 | 113,222 | | |
| Machinery/ Equipment, Electric Machinery/ Apparatus nec. | 3,246,200 | 888,393 | 2,357,807 | 541,100 | 123,476 | 417,624 | 541,100 | 123,476 | 417,624 | 16,17,18 | 29,32,33 |
| | 302,676 | 179,717 | 122,959 | 31,386 | 763 | 30,623 | 31,386 | 763 | 30,623 | | |
| | 3,548,876 | 1,068,110 | 2,480,766 | 572,486 | 124,239 | 448,247 | 572,486 | 124,239 | 448,247 | | |
| Others | 160,100 | 9,177 | 150,923 | 99,100 | 5,128 | 93,972 | 99,100 | 5,128 | 93,972 | 14,19,20,21 | 36,99 |
| | 59,826 | 17,033 | 42,793 | 800 | 1,730 | -931 | 800 | 1,730 | -931 | | |
| | 219,926 | 26,210 | 193,716 | 99,900 | 6,858 | 93,042 | 99,900 | 6,858 | 93,042 | | |
| Total | 5,253,700 | 1,003,332 | 4,250,368 | 1,228,400 | 165,097 | 1,063,303 | 1,228,400 | 165,097 | 1,063,303 | | |
| | 4,035,714 | 1,290,733 | 2,744,981 | 436,150 | 79,066 | 357,084 | 436,150 | 79,066 | 357,084 | | |
| | 9,289,414 | 2,294,065 | 6,995,349 | 1,664,550 | 244,163 | 1,420,387 | 1,664,550 | 244,163 | 1,420,387 | | |

Source: Compiled from "Statistical Year Book 2008", "Yearly Industrial Statistical Book 2008"

Table 4.1-4 Indices of Domestic Production Ratio, Import Ratio and Export Ratio

(Unit: %)

| | 2007 | | | 1991 | | |
|---|--------------------------------------|---|----------------------------|--------------------------------------|---|----------------------------|
| | Domestic Production Ratio Index | Import Ratio Index | Export Ratio Index | Domestic Production Ratio Index | Import Ratio Index | Export Ratio Index |
| | Production (C)/ Domestic Consumption | Import for domestic Consumption (A-B)/ Domestic Consumption | Export (D)/ Production (C) | Production (C)/ Domestic Consumption | Import for domestic Consumption (A-B)/ Domestic Consumption | Export (D)/ Production (C) |
| Food Products/ Beverage | 47.9 | 75.3 | 48.5 | 15.4 | 99.7 | 98.0 |
| Wearing Apparel; Dressed/ Dyed Fur | 3.5 | 107.3 | 308.5 | 46.1 | 65.7 | 25.7 |
| Wood/ Products of Wood/ Cork, including Furniture | 20.5 | 79.8 | 1.2 | 61.1 | 39.2 | 0.5 |
| Paper & paper products, printing & publishing | 44.8 | 61.6 | 14.3 | 34.0 | 69.1 | 9.4 |
| Chemicals & chemical products, products of petroleum & coal | 93.3 | 16.9 | 10.9 | 66.1 | 36.2 | 3.4 |
| Other Non-Metallic Mineral Products | 84.4 | 28.3 | 15.0 | 85.3 | 14.9 | 0.2 |
| Mineral Products, Basic Metals, Fabricated Metal Products (Excluding Natural Gas) | 230.3 | 283.1 | 179.5 | 7.8 | 115.8 | 302.9 |
| Machinery/ Equipment, Electric Machinery/ Apparatus nec. | 12.2 | 95.0 | 59.4 | 7.0 | 93.2 | 2.4 |
| Others | 33.9 | 74.5 | 24.8 | 0.9 | 101.0 | 216.4 |
| Total | 57.7 | 60.7 | 31.9 | 30.7 | 74.9 | 18.1 |

Source: Table 4.1-3

(3) Production (or shipment) by subsector and by commodity group

Table 4.1-5 shows the change in production of manufacturing industry by subsector.

Table 4.1-6 further details the annual production (actually, in shipment value) of the manufacturing industry into that of commodity groups (further analysis of this data is given in 4.2). Two categories of commodity groups which are large in the production size (in shipment value), are seen from this data. The first category of the commodity groups is that of oil and gas related products, namely the petroleum-refinery products (accounting for 57.7% of the total production of the manufacturing industry), and chemical fertilizers (2.9%). Another category is the commodity groups which have grown accordingly with growth of demand in the local market and markets in the neighboring countries. These are the commodity groups related to construction of infrastructures, plants, offices and residences, and a food related product group. The former commodity groups are cement (accounting for 2.7% of the manufacturing sector), building/ construction materials of non-metallic minerals (2.1%), iron and steel (4.0%), insulated cables and wires (5.3%), whereas the latter commodity group is that of the grain and grain processed products.

The production (in shipping value) of manufacturing industry as a whole showed a significant growth of 24% annually on the average during 5 years of 2002 through 2007. The subsectors, in which many commodity groups of high growth rate of more than 20% during the same period are observed, are food and beverage, chemical and chemical products, plastics products, construction/ building materials of non-metallic minerals, iron and steel, and machineries related to power distribution and transmission including cables and wires.

Table 4.1-5 Finished Goods Manufactured

| SITC | Industry | Finished Goods Manufactured (T.R.O.) | | | | | | | Average Annual Growth Rate (%) | | |
|------|--|--------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|--------------------------------|-----------|--|
| | | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2002-2005 | 2002-2007 | 2005-2007 | |
| 15 | Food Product & Beverages | 175,402 | 202,345 | 256,238 | 261,529 | 277,043 | 364,385 | 14 | 16 | 18 | |
| 18 | Readymade Garments | 17,471 | 17,222 | 9,319 | 7,682 | 6,719 | 2,602 | -24 | -32 | -42 | |
| 20 | Products of Wood Except Furniture | 5,103 | 5,117 | 8,606 | 12,155 | 17,391 | 14,539 | 34 | 23 | 9 | |
| 21 | Paper / Paper Products | 11,574 | 10,561 | 13,935 | 16,498 | 18,900 | 23,457 | 13 | 15 | 19 | |
| 22 | Printed Materials / Recorded Media | 15,824 | 17,400 | 17,241 | 18,815 | 19,845 | 25,295 | 6 | 10 | 16 | |
| 23 | Refined Petrol-Products & Liquid Gas | 812,953 | 959,361 | 1,030,610 | 1,417,702 | 1,722,608 | 2,270,993 | 20 | 23 | 27 | |
| 24 | Chemical / Chemical Products | 66,020 | 70,024 | 85,676 | 211,467 | 203,265 | 285,367 | 47 | 34 | 16 | |
| 25 | Rubber / Plastic Products | 30,143 | 33,875 | 36,045 | 49,870 | 63,018 | 89,774 | 18 | 24 | 34 | |
| 26 | Other Non-metallic Products | 104,319 | 128,346 | 158,663 | 202,662 | 236,823 | 277,814 | 25 | 22 | 17 | |
| 27 | Basic Metals | 51,720 | 66,717 | 102,383 | 134,530 | 153,353 | 212,125 | 38 | 33 | 26 | |
| 28 | Fabricated Metal Products | 28,237 | 33,174 | 42,543 | 48,395 | 71,065 | 105,863 | 20 | 30 | 48 | |
| 29 | Machinery & Equipment nec. | 10,768 | 12,008 | 16,080 | 18,906 | 16,966 | 30,502 | 21 | 23 | 27 | |
| 30 | Office, Accounting / Computing Machinery | 634 | 592 | 0 | 0 | 0 | 0 | - | - | - | |
| 31 | Electrical Machinery / Apparatus | 34,859 | 36,513 | 59,852 | 86,439 | 154,852 | 265,835 | 35 | 50 | 75 | |
| 33 | Medical, Precision / Optical Instrument | 3,332 | 2,732 | 3,053 | 3,311 | 3,678 | 5,677 | -0 | 11 | 31 | |
| 34 | Motor Vehicle, Trailers | 342 | 657 | 1,755 | 2,686 | 800 | 659 | 99 | 14 | -50 | |
| 36 | Furniture Manufacturing | 24,227 | 22,702 | 34,948 | 34,592 | 36,597 | 59,826 | 13 | 20 | 32 | |
| 99 | Other Manufacturing | 6,790 | 6,539 | 9,408 | 11,320 | 8,038 | 8,939 | 19 | 6 | -11 | |
| | Total | 1,399,728 | 1,625,884 | 1,886,355 | 2,538,561 | 3,010,959 | 4,044,703 | 22 | 24 | 26 | |

Source: MOCI, "Yearly Industrial Statistical Book" (Data: 2002 through 2007)

**Table 4.1-6 Yearly Shipment by Manufacturing Sector by Commodity
(All Subsectors)**

| SITC | Commodity | Shipment | | | | | | Average Annual Growth Rate (%) | | |
|------------------------------|------------------------------|----------|------------|----------|------------|----------|------------|--------------------------------|-----------|-----------|
| | | 2002 | | 2005 | | 2007 | | 2002-2005 | 2002-2007 | 2005-2007 |
| | | (T.R.O.) | % of total | (T.R.O.) | % of total | (T.R.O.) | % of total | | | |
| 1512 | Fish processing | 14,419 | 1.0 | 18,250 | 0.7 | 25,874 | 0.6 | 8.2 | 12.4 | 19.1 |
| 1531, 1533, 1541, 1543 | Grains and grain products | 59,587 | 4.3 | 81,755 | 3.2 | 104,757 | 2.5 | 11.1 | 11.9 | 13.2 |
| 1513 | Fruits & vegetables | 7,769 | 0.6 | 11,093 | 0.4 | 19,364 | 0.5 | 12.6 | 20.0 | 32.1 |
| 1514 | Edible oil & fats | 15,807 | 1.1 | 31,973 | 1.3 | 58,453 | 1.4 | 26.5 | 29.9 | 35.2 |
| 1520 | Daily products | 31,829 | 2.3 | 55,166 | 2.2 | 63,429 | 1.5 | 20.1 | 14.8 | 7.2 |
| 1554 | Mineral water and ice making | 29,841 | 2.1 | 39,558 | 1.6 | 45,880 | 1.1 | 9.9 | 9.0 | 7.7 |
| Other 15xx | Other foods & beverages | 14,784 | 1.1 | 21,316 | 0.8 | 36,509 | 0.9 | 13.0 | 19.8 | 30.9 |
| 15 | Processed foods & beverages | 174,036 | 12.5 | 259,111 | 10.3 | 354,266 | 8.6 | 14.2 | 15.3 | 16.9 |
| 17 | Textiles | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | - | - | - |
| 18 | Garments | 12,713 | 0.9 | 6,673 | 0.3 | 2,404 | 0.1 | -19.3 | -28.3 | -40.0 |
| 17&18 | Textiles & garments | 12,713 | 0.9 | 6,673 | 0.3 | 2,404 | 0.1 | -19.3 | -28.3 | -40.0 |
| 20xx | Wooden products | 3,673 | 0.3 | 5,997 | 0.2 | 7,913 | 0.2 | 17.8 | 16.6 | 14.9 |
| 3610-32~ 39 | Wood furniture | 848 | 0.1 | 1,180 | 0.0 | 1,946 | 0.0 | 11.6 | 18.1 | 28.4 |
| 20 & 36103x | Wooden products | 4,521 | 0.3 | 7,177 | 0.3 | 9,859 | 0.2 | 16.7 | 16.9 | 17.2 |
| 2101 | Paper | 475 | 0.0 | 0 | 0.0 | 283 | 0.0 | - | -9.8 | - |
| 2102 | Paper packaging materials | 7,273 | 0.5 | 11,146 | 0.4 | 15,856 | 0.4 | 15.3 | 16.9 | 19.3 |
| 2109 | Paper products | 2,935 | 0.2 | 5,098 | 0.2 | 4,866 | 0.1 | 20.2 | 10.6 | -2.3 |
| 22xx | Printing | 9,184 | 0.7 | 13,460 | 0.5 | 19,878 | 0.5 | 13.6 | 16.7 | 21.5 |
| 21&22 | Paper products & printing | 19,867 | 1.4 | 29,704 | 1.2 | 40,883 | 1.0 | 14.3 | 15.5 | 17.3 |

| SITC | Commodity | Shipment | | | | | | Average Annual Growth Rate (%) | | |
|--|---|----------|------------|-----------|------------|-----------|------------|--------------------------------|-----------|-----------|
| | | 2002 | | 2005 | | 2007 | | 2002-2005 | 2002-2007 | 2005-2007 |
| | | (T.R.O.) | % of total | (T.R.O.) | % of total | (T.R.O.) | % of total | | | |
| 2320 | Refined petroleum products | 848,715 | 61.0 | 1,492,947 | 59.1 | 2,373,259 | 57.7 | 20.7 | 22.8 | 26.1 |
| 2411 | Basic chemicals | 15,148 | 1.1 | 13,585 | 0.5 | 17,804 | 0.4 | -3.6 | 3.3 | 14.5 |
| 2412 | Fertilizers | 185 | 0.0 | 117,519 | 4.7 | 118,734 | 2.9 | 759.6 | 264.3 | 0.5 |
| 2422 | Paints/ varnishes | 12,449 | 0.9 | 16,045 | 0.6 | 20,294 | 0.5 | 8.8 | 10.3 | 12.5 |
| 2423 | Pharmaceuticals | 9,367 | 0.7 | 19,982 | 0.8 | 29,623 | 0.7 | 28.7 | 25.9 | 21.8 |
| 2424 | Soaps/ detergents/ cosmetics | 24,248 | 1.7 | 21,236 | 0.8 | 17,284 | 0.4 | -4.3 | -6.5 | -9.8 |
| 24xx excl.2413 | Other chemical products | 1,857 | 0.1 | 3,384 | 0.1 | 9,994 | 0.2 | 22.1 | 40.0 | 71.9 |
| 2320 & 24 (excl.2413) | Petro-products, chemicals & chemical products | 911,969 | 65.5 | 1,684,698 | 66.7 | 2,586,992 | 62.9 | 22.7 | 23.2 | 23.9 |
| 2413 | Plastic resins | 0 | 0.0 | 13,729 | 0.5 | 75,952 | 1.8 | - | - | 135.2 |
| 2511&2519 | Tires & rubber products | 405 | 0.0 | 838 | 0.0 | 1,076 | 0.0 | 27.4 | 21.6 | 13.3 |
| 25201x & 25209x | Plastic products | 13,337 | 1.0 | 9,503 | 0.4 | 25,371 | 0.6 | -10.7 | 13.7 | 63.4 |
| 25202x | Plastic sacks & packages | 7,582 | 0.5 | 19,310 | 0.8 | 26,787 | 0.7 | 36.6 | 28.7 | 17.8 |
| 25203x | Plastic building materials | 7,257 | 0.5 | 15,498 | 0.6 | 20,177 | 0.5 | 28.8 | 22.7 | 14.1 |
| 25 (incl.2413) | Plastics | 28,581 | 2.1 | 58,878 | 2.3 | 149,363 | 3.6 | 27.2 | 39.2 | 59.3 |
| 2610 | Glass & glass fiber products | 14,309 | 1.0 | 23,865 | 0.9 | 32,037 | 0.8 | 18.6 | 17.5 | 15.9 |
| 2691 | Ceramic kitchen & sanitary ware | 452 | 0.0 | 1,325 | 0.1 | 2,321 | 0.1 | 43.1 | 38.7 | 32.4 |
| 2692, 2693, 2694 excl. 2694-40, 2695, 2699 | Non-metallic mineral construction/building materials (excl. cement) | 64,699 | 4.6 | 71,857 | 2.8 | 84,296 | 2.1 | 3.6 | 5.4 | 8.3 |
| 2694-40 | Cement | 13,454 | 1.0 | 71,974 | 2.8 | 112,925 | 2.7 | 74.9 | 53.0 | 25.3 |
| 2696 | Marble | 10,029 | 0.7 | 24,390 | 1.0 | 34,937 | 0.8 | 34.5 | 28.4 | 19.7 |
| 26 | Non-metallic mineral products | 102,943 | 7.4 | 193,411 | 7.7 | 266,516 | 6.5 | 23.4 | 21.0 | 17.4 |
| 2710 | Iron & steel | 35,067 | 2.5 | 100,810 | 4.0 | 163,499 | 4.0 | 42.2 | 36.1 | 27.4 |
| 2720 | Non-iron/steel | 13,240 | 1.0 | 24,000 | 0.9 | 39,983 | 1.0 | 21.9 | 24.7 | 29.1 |
| 2731 & 2732 | Cast iron/steel | 607 | 0.0 | 748 | 0.0 | 970 | 0.0 | 7.2 | 9.8 | 13.9 |

| SITC | Commodity | Shipment | | | | | | Average Annual Growth Rate (%) | | |
|----------------------------|---|-----------|------------|-----------|------------|-----------|------------|--------------------------------|-----------|-----------|
| | | 2002 | | 2005 | | 2007 | | 2002-2005 | 2002-2007 | 2005-2007 |
| | | (T.R.O.) | % of total | (T.R.O.) | % of total | (T.R.O.) | % of total | | | |
| 27 | Basic metals | 48,914 | 3.5 | 125,558 | 5.0 | 204,452 | 5.0 | 36.9 | 33.1 | 27.6 |
| 28 excl. 2811-42&44 | Metal products (excl. aluminum products) | 11,919 | 0.9 | 27,753 | 1.1 | 63,350 | 1.5 | 32.5 | 39.7 | 51.1 |
| 2811-42&44 | Aluminum products | 8,076 | 0.6 | 1,099 | 0.0 | 2,806 | 0.1 | -48.6 | -19.1 | 59.8 |
| 3610 | Metal furniture | 20,554 | 1.5 | 26,180 | 1.0 | 44,334 | 1.1 | 8.4 | 16.6 | 30.1 |
| 28, 36101x & 36102x | Metal products | 40,549 | 2.9 | 55,032 | 2.2 | 110,490 | 2.7 | 10.7 | 22.2 | 41.7 |
| 291x & 292x | General purpose machinery | 5,929 | 0.4 | 12,973 | 0.5 | 20,736 | 0.5 | 29.8 | 28.5 | 26.4 |
| 2930 | Household apparatus | 1,738 | 0.1 | 2,750 | 0.1 | 4,261 | 0.1 | 16.5 | 19.6 | 24.5 |
| 3120 | Electrical machinery for power transmission | 5,713 | 0.4 | 11,076 | 0.4 | 24,991 | 0.6 | 24.7 | 34.3 | 50.2 |
| 3130 | Insulated wire and cable | 20,803 | 1.5 | 60,577 | 2.4 | 217,445 | 5.3 | 42.8 | 59.9 | 89.5 |
| 3140 | Batteries | 5,516 | 0.4 | 10,236 | 0.4 | 19,809 | 0.5 | 22.9 | 29.1 | 39.1 |
| 3150 | Lamps | 632 | 0.0 | 372 | 0.0 | 571 | 0.0 | -16.2 | -2.0 | 23.9 |
| 29 & 31 | Machineries | 40,331 | 2.9 | 97,984 | 3.9 | 287,813 | 7.0 | 34.4 | 48.1 | 71.4 |
| | Others nec. | 7,080 | 0.5 | 8,435 | 0.3 | 98,128 | 2.4 | 6.0 | 69.2 | 241.1 |
| Manufacturing Sector Total | | 1,391,504 | 100 | 2,526,661 | 100 | 4,111,166 | 100 | 22.0 | 24.2 | 27.6 |

Source: MOCI, "Yearly Industrial Statistical Book" (Data: 2002, 2005 & 2007)

(4) Export of industrial products

Figure 4.1-1 and Table 4.1-7 shows the change in export (in terms of value) by industrial subsector. From the viewpoint of export contribution, the subsectors may be categorized into the following:

- 1) Subsector with rapid export growth and large volume of exports
 - Chemical products subsector
 - Machine and electric apparatus subsector
- 2) Subsector with large export volume with slowly growing export market
 - Food and beverage products subsector
- 3) Subsector with small-scale exports with lower but constant growth
 - Non-metallic mineral products subsector
 - Basic metal products subsector
- 4) Subsector with small-scale export with slow and slight growth
 - Petroleum products subsector
 - Plastic products subsector
 - Furniture subsector
- 5) Subsector with small-scale export with little growth
 - Wood and wood products subsector
 - Metal products subsector
 - Machine apparatus subsector

The readymade garments subsector was successful in export trade until 2004, however the exports decreased rapidly and are now barely profitable.

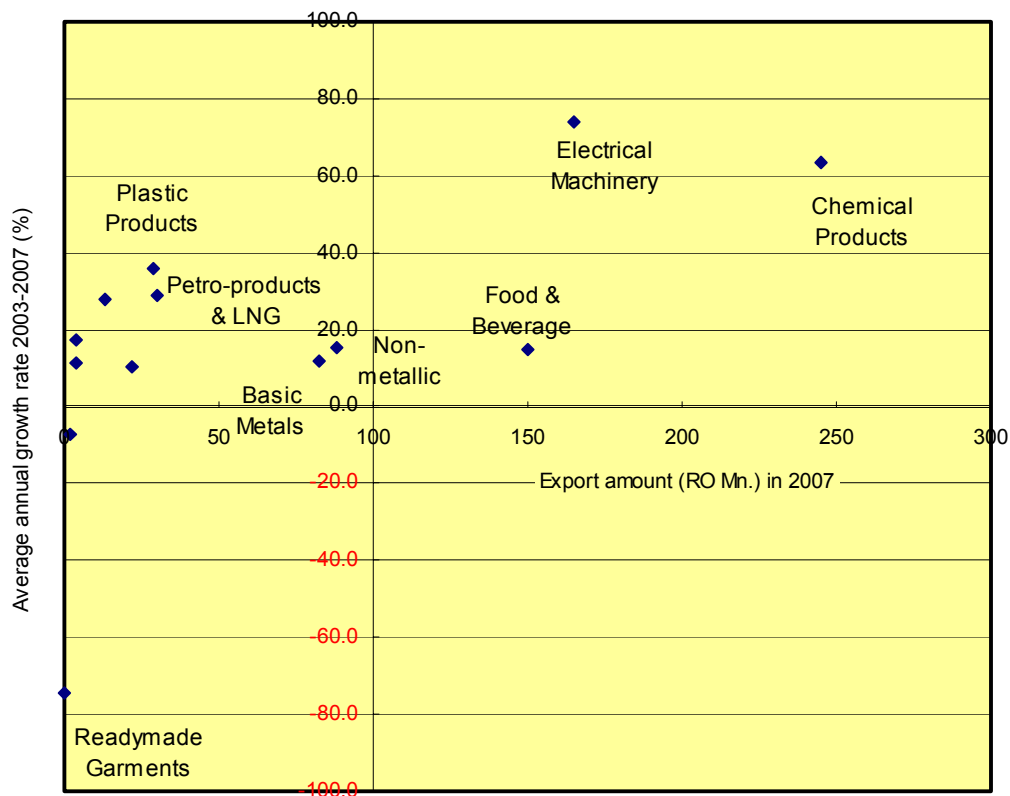


Figure 4.1-1 Export of Industrial Products and Its Average Annual Growth Rates (2003-07) by Industrial Subsector

Table 4.1-7 Change in Export of Industrial Products by Subsector

(Unit:R.O. Mn)

| ISIC code | Subsector | 2003 | 2004 | 2005 | 2006 | 2007 | 2003-07 Average annual growth rate |
|-----------|-------------------------------------|-------|-------|-------|-------|-------|--|
| 15 | Food Product & Beverages | 86.6 | 120.7 | 122.3 | 120 | 150 | 14.7 |
| 18 | Readymade Garments | 47.9 | 52.8 | 3.3 | 3.1 | 0.2 | -74.6 |
| 20 | Products of Wood Except Furniture | 2.7 | 3.2 | 3.3 | 0 | 2 | -7.2 |
| 23 | Refined Petro-Products & liquid gas | 10.9 | 11.6 | 16.7 | 27 | 30 | 28.8 |
| 24 | Chemical/Chemical Products | 34.5 | 42.1 | 100.4 | 146.5 | 245 | 63.2 |
| 25 | Rubber & Plastic Products | 8.5 | 12.6 | 20.5 | 26.2 | 29 | 35.9 |
| 26 | Other Non-Metallic Products | 49.8 | 54 | 61.8 | 86.1 | 88 | 15.3 |
| 27 | Basic Metals | 53.2 | 76.1 | 99.8 | 82.3 | 82.4 | 11.6 |
| 28 | Fabricated Metal Products | 2.1 | 4.2 | 5 | 4.8 | 4 | 17.5 |
| 29 | Machinery & Equipment nec. | 2.6 | 2.2 | 3.2 | 3.3 | 4 | 11.4 |
| 31 | Electrical Machinery/Apparatus | 18 | 30 | 50.9 | 96.9 | 165 | 74.0 |
| 36 | Furniture Manufacturing | 14.9 | 16.3 | 16.9 | 20.4 | 22 | 10.2 |
| 99 | *Other Manufacturing | 4.9 | 7.5 | 6.9 | 10.3 | 13 | 27.6 |
| | Total | 336.6 | 433.3 | 511 | 626.9 | 834.6 | 25.5 |

*Includes (17)Textiles, (19) Dressed Leather/Handbags and (37) Recycling.

Note: Census covered only industrial establishments with capital investment five thousand R.O and above.

Source: MOCI

GCC countries are the largest export destination of non-oil products excluding LNG, accounting for 45.6% of the total. Actually, the export to GCC countries is regarded as domestic trade, rather than export in the case of Oman.

The detail of the export is as follows, and UAE takes more than any other GCC country.

| Country/Region | Amount (R.O. million) | Percentage to the total export excluding Oil and Gas (%) | Percentage to the total import (%) |
|-----------------|--------------------------|--|--|
| UAE | 503.38 | 28.3 | 26.5 |
| Bahrain, Kuwait | 47.72 | 2.7 | 1.1 |
| Saudi Arabia | 162.58 | 9.1 | 2.4 |
| Qatar | 98.04 | 5.5 | 0.2 |

Electric machinery is the major products of export for all the above GCC countries without exception.

Apart from GCC countries, India is the most significant destination with R.O. 210 million, account for 12% of total export excluding Oil and LNG. Chemical product such as fertilizer has the largest among them, accounting for R.O. 169 million, or more than 80% of total export to India.

The major export destinations other than the above are as follows:

| Region | Amount (R.O. million) (Excluding Oil) | Percentage in total export (%) (Excluding Oil) | Percentage in total export (%) (Excluding Oil and Gas) |
|---------------------------|---|--|--|
| Iran, Iraq | 151.3 | 5.3 | 8.5 |
| Syria, Jordan | 23.9 | 0.6 | 1.2 |
| Pakistan | 39.0 | 1.3 | 2.0 |
| North Africa (*1) | 28.6 | 1.0 | - |
| East Africa (*2) | 31.1 | 1.0 | - |
| Europe (*3) | 171.5 | 6.0 | - |
| Japan, South Korea, China | 957.0 | 33.6 | 10.2 |

Notes: *1) North Africa includes Algeria, Egypt, Libya, Morocco, Sudan, Tunisia

*2) East Africa includes Kenya, Tanzania, Uganda, Djibouti, Eritrea

*3) The figure for Europe is that of 2007

(5) Import and industrial subsector

Table 4.1-8 classifies imports (on a value basis) by production source (subsector) and purpose of consumption³. As far as industrial products are concerned, finished goods account for R.O. 465 million which is 7.6% of total imports. If one adds the transport equipment (most of which are vehicles and their parts), which amounted to 28.1% (or R.O. 1.727 billion), the total will account for 35.7% of total imports.

Meanwhile, the raw material and fuels for industrial production account for 3.1% of total import, and machine and parts 23.7%.

The total value of imports (including those not classifiable) has increased by five times from R.O. 1.28 billion in 1991 to R.O. 6.14 billion, of which, raw material and semi-manufactured products (including food and fuel) have shown an increase of 5.1 times from R.O. 479 million to R.O. 2.487 billion.

Although the expansion of the production has naturally entailed increase of the import in raw material and fuel, the increase in import of machines and their parts has also been remarkable, which indicates that upgrade and renewal of the production facilities are proactively pursued.

³ Since the table excludes the value for category not known, the total does not tally with the total from the above table.

Table 4.1-8 Import by Objective of Use

(Unit: R.O. '000)

| | Years | Total | Primary & Processed Food & Beverages | Primary & Processed Industrial Supplies | Fuels & Lubricants | Machinery & Other Capital Equipment, Parts & Accessories | Transport Equipment & Parts & Accessories | Consumer Goods |
|---|-----------------------------|-------------|--------------------------------------|---|--------------------|--|---|----------------|
| Agriculture, Hunting Forestry | 2005 | 82,163 | 64,203 | 16,070 | 425 | 10 | | 1,455 |
| | 2006 | 89,630 | 72,671 | 15,820 | 411 | 1 | 0 | 727 |
| | 2007 | 114,632 | 93,675 | 19,614 | 392 | 1 | 0 | 950 |
| Fishing | 2005 | 18 | 18 | | 0 | 0 | 0 | 0 |
| | 2006 | 19 | 17 | 2 | 0 | 0 | 0 | 0 |
| | 2007 | 32 | 32 | | 0 | 0 | 0 | 0 |
| Mining & Quarrying | 2005 | 61,688 | 0 | 60,969 | 719 | 0 | 0 | 0 |
| | 2006 | 88,901 | 0 | 87,772 | 1,129 | 0 | 0 | 0 |
| | 2007 | 70,769 | 0 | 69,025 | 1,744 | 0 | 0 | 0 |
| Manufacturing | 2005 | 3,184,888 | 297,896 | 785,011 | 139,517 | 670,999 | 998,513 | 292,952 |
| | 2006 | 3,940,599 | 341,332 | 1,018,443 | 127,420 | 897,964 | 1,213,471 | 341,969 |
| | 2007 | 5,952,413 | 464,289 | 1,650,819 | 187,668 | 1,456,508 | 1,727,435 | 465,694 |
| | (1991) | (1,108,215) | (109,903) | (266,680) | (20,745) | (257,462) | (253,887) | (199,538) |
| | (%) of total import in 2007 | 97 | 7.6 | 26.9 | 3.1 | 23.7 | 28.1 | 7.6 |
| Electricity, Gas & Water Supply | 2005 | 10 | 0 | 0 | 10 | 0 | 0 | 0 |
| | 2006 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| | 2007 | 13 | 0 | 0 | 13 | 0 | 0 | 0 |
| Other Community, Social & Personal Services | 2005 | 2,189 | 0 | 57 | 0 | 0 | 0 | 2,132 |
| | 2006 | 2,217 | 0 | 60 | 0 | 0 | 0 | 2,157 |
| | 2007 | 950 | 0 | 200 | 0 | 0 | 0 | 750 |
| Total Imports (excludes unclassified) | 2005 | 3,330,956 | 362,117 | 862,107 | 140,671 | 671,009 | 998,513 | 296,539 |
| | 2006 | 4,121,367 | 414,020 | 1,122,097 | 128,961 | 897,965 | 1,213,471 | 344,853 |
| | 2007 | 6,138,809 | 557,996 | 1,739,658 | 189,817 | 1,456,509 | 1,727,435 | 467,394 |
| | (1991) | (1,190,833) | (176,060) | (282,851) | (20,889) | (257,548) | (253,887) | (199,598) |

Source: Statistical Year Book 2008

4.1.2 Distribution of Enterprises by Subsector

Table 4.1-9 shows the number of the companies by subsector and by size of number of employees. There are 725 companies in the manufacturing sector, and the details are as follows:

Non-metallic mineral products subsector is dominant within the category of those with less than 100 employees, with 162 enterprises. Of them 59 of them are in the tile and, block subsectors, followed by crusher, concrete subsector of 42 enterprises. Further the food processing subsector has 123 establishments, among which 25 are in the bakery subsector, and 20 in the ice-making subsector.

Table 4.1-9 Number of Enterprises by Subsector and by Number of Employees

| Subsector | Total | Number Enterprises by Number of Employee | | | % of Total | | |
|---------------------------------------|------------|--|------------|--------------|--------------|--------------|--------------|
| | | Over 100 | 10-99 | Less than 10 | Over 100 | 10-99 | Less than 10 |
| Food Product & Beverages | 151 | 28 | 69 | 54 | 23.5 | 19.1 | 22.0 |
| Readymade Garments | 3 | 3 | 0 | 0 | 2.5 | 0.0 | 0.0 |
| Products of Wood Except Furniture | 35 | 4 | 6 | 25 | 3.4 | 1.7 | 10.2 |
| Paper/Paper Products | 13 | 8 | 5 | 0 | 6.7 | 1.4 | 0.0 |
| Printed Materials / Recorded Media | 37 | 2 | 26 | 9 | 1.7 | 7.2 | 3.7 |
| Refined Petro-Products & liquid gas | 15 | 3 | 10 | 2 | 2.5 | 2.8 | 0.8 |
| Chemical/Chemical Products | 47 | 11 | 31 | 5 | 9.2 | 8.6 | 2.0 |
| Rubber & Plastic Products | 46 | 4 | 41 | 1 | 3.4 | 11.4 | 0.4 |
| Other Non-Metallic Products | 183 | 21 | 85 | 77 | 17.6 | 23.5 | 31.4 |
| Basic Metals | 18 | 6 | 5 | 7 | 5.0 | 1.4 | 2.9 |
| Fabricated Metal Products | 102 | 13 | 40 | 49 | 10.9 | 11.1 | 20.0 |
| Machinery & Equipment nec. | 13 | 1 | 10 | 2 | 0.8 | 2.8 | 0.8 |
| Electrical Machinery/Apparatus | 13 | 4 | 8 | 1 | 3.4 | 2.2 | 0.4 |
| Medical, Precision/Optical Instrument | 1 | 0 | 1 | 0 | 0.0 | 0.3 | 0.0 |
| Motor Vehicle, Trailers | 6 | 0 | 3 | 3 | 0.0 | 0.8 | 1.2 |
| Furniture Manufacturing | 30 | 7 | 17 | 6 | 5.9 | 4.7 | 2.4 |
| *Other Manufacturing | 12 | 4 | 4 | 4 | 3.4 | 1.1 | 1.6 |
| Total | 725 | 119 | 361 | 245 | 100.0 | 100.0 | 100.0 |

Note: Data in 2007, except for data on enterprises with employees less than 10, which are in 2005.

4.2 Manufacturing Industry by Sector

4.2.1 Food and Beverage Sector

4.2.1.1 Overview

The food and beverage industry in Oman produces almost all the necessary foodstuffs, such as bakery and confectionary goods, snack food production, meat and fishery processing, vegetable and fruits processing, oil and fats processing, grain milling, and bottling of water and soft drinks.

Table 4.2-1 shows the production (in shipment value) of the food and beverage sector by subsector. The largest size of the production is seen in grain milling and their product subsector, while the highest growth rate is seen in oil and fats processing subsector.

Most of the subsectors are mainly oriented toward the domestic market, but a part of its output has been exported, while the fish processing subsector was established specifically as an export oriented industry.

**Table 4.2-1 Yearly Shipment by Manufacturing Sector by Commodity
(Food and Beverage Subsector)**

| SITC | Commodity | Shipment | | | | | | Average Annual Growth Rate (%) | | |
|----------------------------|------------------------------|-----------|------------|-----------|------------|-----------|------------|--------------------------------|-----------|-----------|
| | | 2002 | | 2005 | | 2007 | | 2002-2005 | 2002-2007 | 2005-2007 |
| | | (T.R.O.) | % of total | (T.R.O.) | % of total | (T.R.O.) | % of total | | | |
| 1512 | Fish processing | 14,419 | 1.0 | 18,250 | 0.7 | 25,874 | 0.6 | 8.2 | 12.4 | 19.1 |
| 1531, 1533, 1541, 1543 | Grains and grain products | 59,587 | 4.3 | 81,755 | 3.2 | 104,757 | 2.5 | 11.1 | 11.9 | 13.2 |
| 1513 | Fruits & vegetables | 7,769 | 0.6 | 11,093 | 0.4 | 19,364 | 0.5 | 12.6 | 20.0 | 32.1 |
| 1514 | Edible oil & fats | 15,807 | 1.1 | 31,973 | 1.3 | 58,453 | 1.4 | 26.5 | 29.9 | 35.2 |
| 1520 | Daily products | 31,829 | 2.3 | 55,166 | 2.2 | 63,429 | 1.5 | 20.1 | 14.8 | 7.2 |
| 1554 | Mineral water and ice making | 29,841 | 2.1 | 39,558 | 1.6 | 45,880 | 1.1 | 9.9 | 9.0 | 7.7 |
| Other 15xx | Other foods & beverages | 14,784 | 1.1 | 21,316 | 0.8 | 36,509 | 0.9 | 13.0 | 19.8 | 30.9 |
| 15 | Processed foods & beverages | 174,036 | 12.5 | 259,111 | 10.3 | 354,266 | 8.6 | 14.2 | 15.3 | 16.9 |
| Manufacturing Sector Total | | 1,391,504 | 100 | 2,526,661 | 100 | 4,111,166 | 100 | 22.0 | 24.2 | 27.6 |

Source: MOCI, "Yearly Industrial Statistical Book" (Data: 2002, 2005 & 2007)

Apart from fish resources, the most of materials for the subsector are depending on materials from foreign countries. For instance, the bakeries as the secondary food processing, utilizes local wheat flour, which is produced by imported raw material.

The following table estimates the supply and demand of food and beverage based on the statistics of import and local production of food and beverages. The input as raw materials for food processing includes that of primary and secondary food processing, and as a result, the local consumption may be underestimated accordingly.

Table 4.2-2 Import, Export, Domestic Production and Estimated Domestic Consumption of Processed Food and Beverage

(R.O. million in 2007)

| SITC | Sector (SITC) | Import | Re-export | Balance | Input as raw material (E) | Production (D) | Export (C) | Domestic consumption |
|--------|--------------------------------|--------------|-------------|--------------|---------------------------|----------------|--------------|----------------------|
| | | (A) | (B) | (C)=(A-B) | (D) | (E) | (F) | (G)=(C-D+E-F) |
| 00 | Live animal (*1) | 26.8 | 9.4 | 17.4 | | | 3.5 | 13.9 |
| 01 | Meat | 66.7 | 0.4 | 66.3 | 2.6 | 14.1 | 2.6 | 75.2 |
| 02 | Dairy products and eggs | 109.1 | 0.5 | 108.6 | 46.9 | 63.4 | 47.0 | 78.1 |
| 03 | Fish processing | 10.3 | 1.2 | 9.1 | 17.5 | 25.9 | 35.3 | -17.8 |
| 04 | Cereal processing | 110.2 | 0.9 | 109.3 | 49.3 | 81.9 | 22.9 | 118.9 |
| 05 | Fruit and vegetable processing | 94.6 | 1.8 | 92.8 | 13.3 | 19.4 | 11.2 | 89.3 |
| 06 | Sugars | 17.5 | 0.9 | 16.6 | 5.3 | 1.7 | 0.6 | 12.4 |
| 07 | Tea and coffee processing | 33.4 | 1.5 | 31.9 | 11.8 | 13.1 | 3.1 | 29.9 |
| 08 | Animal feed | 12.0 | | 12.0 | 0.3 | 18.7 | 0.5 | 29.9 |
| 09 | Others | 28.6 | 0.2 | 28.4 | 0.5 | | 11.5 | 16.5 |
| 11 | Beverages | 24.5 | 3.5 | 21.0 | | 37.1 | 3.3 | 54.7 |
| 41, 42 | Vegetable oils and fats | 45.0 | 1.1 | 43.9 | 38.4 | 56.4 | 39.7 | 22.2 |
| | Total | 578.7 | 21.5 | 557.2 | 185.8 | 331.6 | 181.2 | 521.7 |

Source: Statistical Year Book 2008, Yearly Industrial Statistical Book 2008

According to the above table, 64% (E / G in the table) was satisfied by Omani products, while 55% (F / E in the table) of Omani products were exported.

In 2007, 150 manufacturing enterprises were identified in the food and beverage sector which accounts for around 21% of all the manufacturing enterprises. As for the scale of employment, 64% of the total enterprises are fall into the group of enterprises with less than 29 employees.

| Number of employees | Number of enterprises | % of total |
|---------------------|-----------------------|--------------|
| 200 or more | 14 | 9.3 |
| 100-199 | 14 | 9.3 |
| 30-99 | 26 | 17.4 |
| 10-29 | 42 | 28.0 |
| Less than 10 | 54 | 36.0 |
| Total | 150 | 100.0 |

As for the sub-sectors small businesses with employees less than 29 are particularly common in the bakery, and ice making sub-sectors. On the other hand, a few large companies exist in most of the subsectors. Particularly, in the case of the sub-sector comprising cooking oil, animal feed and grain mills, only a few companies are seen.

| ISIC Classification | Subsectors | Number of enterprises | (Of which, those with less than 10 employees) |
|---------------------|---|-----------------------|---|
| 1511 | Meat processing | 6 | 2 |
| 1512 | Fish processing (including frozen and fresh fish) | 17 | 2 |
| 1513 | Vegetable and fruit processing | 8 | |
| 1514 | Edible oil | 3 | 1 |
| 1520 | Milk processing and dairy products | 4 | 1 |
| 1531 | Grain processing | 3 | |
| 1533 | Animal feed | 4 | |
| 1541 | Bakery | 55 | 25 |
| 1543 | Confectionaries | 1 | |
| 1544 | Food not classifiable | 1 | |
| 1549 | Other processed food (including tea and coffee, etc.) | 10 | 3 |
| 1554 | Ice-making, drinking water | 39 | 20 |
| Total | | 151 | 54 |

The food and beverage industry can be divided into three categories.

The first category represents small and micro size enterprises with less than 30 employees supplying daily foods to the local markets within limited areas, close to the enterprises. This category can be found particularly in the bakery, ice making and fish processing sub-sectors using limited investment and ordinary technology.

The second category with 30-150 employees are those using a certain types of machinery which are sophisticated compared with those used in the above category of firms, but are mostly dependent on labor. They aim particularly at niche markets wherever they are in Oman and other countries. Most of them do not have any special technology, but exercise their ingenuity in devising their products so as to seize and maintain niche markets. For example, a certain fish processing company has received recognition in the market for its strict quality management, while a certain dates processing company is known for its product development and excellent packaging,

However, some of companies without competitive edge are suffering from tough competition from imported products.

The third one is large scale businesses with more than 150 employees which is scarce in Oman. According to the statistics, which defines the large size enterprises as with more than 100 employees, there are 28 enterprises with more than 100 employees. However, actuality, those with characteristics of large enterprises may be far less than that. They are the enterprise seen in the sub-sectors of bakery, grain mills, cooking oil and soft drinks. All these enterprises have modern and large scale facilities. However, they are not necessarily competitive. Some are strong, while others are weak. Having large scale and sophisticated technology does not make the enterprise strong. Competitive edge where it exists seems to come from factors other than facilities and scale of production.

4.2.1.2 Fish processing subsector

Most fish processing enterprises in Oman have small scale personnel structures with 10-50 employees except a certain large company with 350 employees, which is engaged in a wide range of businesses, notably fresh fish, frozen fish, and high valued semi-cooked products. Most of them have been set up as an export-oriented businesses equipped with simple frozen and steam processing facilities. Besides these companies, there is a company producing fish meal and fish oil, which was established to treat the fish wastes in the fish markets and fish processing factories as an environmental measure.

Omani marine products have established their credibility in the export markets, particularly in EU and Asia with ensured quality management of HACCAP and ISO 9001, which has formed a strong competitive edge of fish exports in Oman.

However, the fish catch has declined significantly in the recent years due to the trawl fishing by foreign fishing boats, that has damaged the fish processing industry in Oman.

While the total catch has peaked out at 165,000 tons in 2004, the commercial catch – targeting the export market - decreased by 40% from 26,000 tons in 2004 to 16,000 tons in 2007. (It should be noted, however, that the catch by local fishermen using a small boat and a traditional fishing method remains stable at around 130,000 tons in the recent few years. Also, the number of fishing licenses issued to local people only increases rapidly despite the decline in the total catch.)

Table 4.2-3 Fish Catch and Exports

(1,000 tons)

| Year | Commercial fishing | Conventional fishing | Fish catch total | Export | Number of fishing licenses issued |
|------|--------------------|----------------------|------------------|--------|-----------------------------------|
| 2003 | 20 | 125 | 145 | 49 | 3,439 |
| 2004 | 26 | 139 | 165 | 83 | 3,368 |
| 2005 | 25 | 133 | 158 | 51 | 2,959 |
| 2006 | 17 | 131 | 148 | 46 | 5,548 |
| 2007 | 16 | 134 | 150 | 35 | 8,204 |

Source: Statistical Year Book 2008

Due to the decline in commercial catch, the country's fish exports fell by 40% from 83,000 tons in 2004 to 35,000 tons in 2007. In terms of fish species, those caught by trawling, including mackerel, bonito and tuna, show rapid declines, and only one fish canner in the country has suspended operation due to difficulty in obtaining fish.

Table 4.2-4 Commercial Fish Catch by Fish Species

(Unit: ton)

| Year | Tuna | Cuttlefish | Chub Mackerel | Red Sea Bream | Bonito |
|------|-------|------------|---------------|---------------|--------|
| 2003 | 1,483 | 4,240 | 538 | 600 | 589 |
| 2004 | 3,120 | 4,239 | 1,449 | 1,733 | 979 |
| 2005 | 3,835 | 3,059 | 1,191 | 1,063 | 2,515 |
| 2006 | 3,320 | 2,045 | 334 | 482 | 1,718 |
| 2007 | 2,826 | 3,066 | 180 | 502 | 781 |

Source: Statistical Year Book 2008, 2007,2006

Without assurance of a certain level of prospects for marine resources, either by prohibiting the trawling by big vessels to permit recovery of the marine resources, or by expanding the current inshore fishing to the deep-sea fishing, it will be difficult to expand the business in this sector.

4.2.1.3 Grain mill products subsector

The grain mill industry in Oman is operated by three enterprises, while the downstream animal feed industry includes seven enterprises, which including the aforementioned two grain milling companies, and the bakery industry includes 55 enterprises. There are further downstream industries, but the information on them is not available so far.

Two of the grain mill companies have large scale of storages facilities and advanced processing facilities. Of the two, one is a governmental company with 200 employees, and another has 70 employees. The production capacity of the former exceeds domestic demand, thus they have exported 25% of their products.

One of the big secondary businesses of the grain mill is animal feed production. In addition to the above 2 big grain mill companies, which have already entered into the down stream, there are other three firms producing animal feed.

The grain mill and the animal feed sector are both capital intensive using advanced technology and large scale facilities; thus, productivity is fully dependent on processing scale including loading and unloading capacity. Omani business in this sector is not a good position compared to similar sector in the GCC, even though current Omani demand is rather strong. In order to take advantage of this demand, it is indispensable to reduce the logistic costs at Omani port and to develop further downstream businesses in Oman so as to keep capacity utilization high.

Among the secondary processing sector, baking is the major sub-sector in terms of size. There are 55 enterprises in the sector, of which 25 enterprises are community-based small operations with less than 10 employees. Their market is basically local, including a company with 250 employees having 44 sales stores nation-wide. They are backed by stable demand for daily consumption in each town.

Development of downstream industries, such as bakery industry and flour product industries, will strengthen the upstream flour mill industry. Further, these industries are good for nurturing SMEs. For the downstream set up, a big flour mill is planning to form a chain of bakery store and cooking school in rural area. There some small bakeries which targets specifically expatriate residents who are from Egypt, Sudan, or Lebanon, etc.

Another grain mill company is engaging in rice milling and re-packaging.

4.2.1.4 Oil and fats processing subsector

There are four enterprises in the oil and fats processing industry. Among them, the largest company has 450 employees. Similar to operations in the abovementioned grain milling sector, a high operating rate and effective use of facilities are the source of the companies' competitive edge. The big company has the production capacity several times as large as the domestic demand in Oman, and 75% of production is exported steadily competing with GCC, using quality products with customer oriented package and delivery as their leverage. Compared with this company, another enterprise with 60 employees, is exporting 60% of their products, but is in a sluggish state because of the small production capacity.

Another two companies in this subsector are engaged in small scale repacking and distribution.

4.2.1.5 Dairy Products Subsector

The industry was started to substitute for imports. Local producers are relatively small and face competition with products from other GCC countries that have increase as a result of trade liberalization. The number of producers decreased from seven in 2005 to five, of which only three companies are actively operating. The industry is lobbying the government for price control, as done in the UAE, in order to control dumping practice. Products from the southern region (province of Dhofar) where milking cows can be raised commercially may be able to compete with imports on account of freshness, other areas cannot be viable with dairy products alone and product diversification is demanded.

4.2.1.6 Mineral water and ice-making subsector

In Oman, there are 39 enterprises in the mineral water and ice making sector. Twenty of them are small in scale, having less than 10 employees. The ice-making industry has been established in relationship with the fish processing industry.

In the beverage subsector, albeit at a small scale, popular drinks that mix water with an imported flavor are widely sold. A manufacturer is planning to add equipment.

There are 12 mineral water manufacturers, reflecting growing demand for clean water in the country due to the increase in population and the raising concern about health. Water is increasingly imported from the UAE, but demand cannot be met by natural water only. Soft drinks manufacturers and some mineral water bottlers use water made from desalination plants. The situation suggests that allocation of water resources to the water and beverage industries will serve as a critical factor for their future growth potential.

4.2.1.7 Food repacking subsector

Thirteen companies are engaged in repacking and re-exporting of a variety of products, including tea, coffee, powdered milk, tomato paste, salt, spice, and rice. They pack imported products, without further processing, in containers and packages with elaborate designs and materials, which are successfully meeting the specific (niche) market needs.

For instance, powdered milk cannot be sold well in Africa if it is put in a large package because it is still considered to be a luxurious product. In Oman, it is consumed in large quantities and is thus suitable for a 2.5kg plastic bag. On the other hand, consumers in Saudi Arabia buy canned products only. The ability to meet market needs with alacrity is a principal source of competitiveness, and information gathering, innovation, and capital investment are key success

factors.

4.2.1.8 Vegetable and fruit processing subsector

There are eight companies in the subsector. Five companies make date products by using locally produced materials, as seen in the fish processing subsector. Leveraging a global brand power of Oman dates, three large manufacturers export their products widely to the GCC, India, and Southeast Asia. Some companies sell processed products and use all parts of dates efficiently, i.e., extraction of a syrup, processing of the remains to powder for bread and cake making, and the roasting of kernels to make non-caffeine coffee.

As for agricultural products to target niche markets, mushroom farms are successfully operated for export to high-end markets in Dubai and other GCC countries. They enjoy monopolistic position because of no competitor within the region and are planning diversification of production. In addition, there are cases of vegetable exports in the off-season, which are made by air to an area where fresh vegetables are not produced, typically after November. The rest of vegetables produced locally are shipped to the domestic market but are not competitive for production of processed products.

4.2.2 Textile and Apparel Sector

4.2.2.1 Overview

The production, export, import and estimated domestic consumption of textile and apparel in Oman are shown below.

Table 4.2-5 Production, Export, Import and Estimated Domestic Consumption of Textile and Apparel in Oman

(Unit: R.O. million)

| Year | Import (A) | Production (B) | Export (C) | (A+B-C) |
|------|------------|----------------|------------|---------|
| 2005 | 60.8 | 15.2 | 31.7 | 44.3 |
| 2006 | 64.3 | 11.2 | 37.4 | 38.7 |
| 2007 | 90.6 | 6.2 | 41.6 | 55.2 |

The total output of the textile and apparel industry in 2007 was R.O. 6,180,000, down from R.O. 2,190 million in 2003, to a low of 0.3% of the 2003 value. The production accounts for 0.16% of the total production of manufacturing sector in 2007. The number of workforces engaged in the industry was 950 persons only.

The import has been increased steadily, indicating the increase in the domestic consumption.

The majority of companies in the export-oriented apparel sector, which existed till around 2003, have lost their business due to abolition of the U.S. quota system. Only a small number of enterprises, targeting local and GCC countries' market, has survived. These are one company in the thread processing sector (they dye imported thread), one company in the textile sector, three companies in the ready-made garments sector using imported textiles, one company in the carpet manufacturing sector, and one company in the towel manufacturing sector.

Table 4.2-6 Distribution of Enterprises by Product Group in Textile and Apparel Industry

| ISIC | Product | Number of enterprises | (Of which, those with less than 10 employees) |
|-------|--------------------------|-----------------------|---|
| 1711 | Textile fibers/ textiles | 1 | |
| 1712 | Sewing thread | 1 | |
| 1721 | Made-up textile articles | 1 | |
| 1722 | Carpets/rugs | 1 | |
| 1810 | Wearing apparel | 3 | |
| Total | | 7 | 0 |

The spinning sector has been non-existent in Oman. Thus, the thread, which is the main material for the textile and apparel industry, has been imported from overseas.

No linkage is observed among the above subsectors. They import raw materials, and export products, without any local transaction among them. The reasons for this is the fact that the export-oriented apparel sector has been wiped out.

Previously, the thread processing sector supplied most of their products to the export-oriented apparel companies in Oman. After these apparel companies lost their business, they have survived by changing their strategy to export their products to the export-oriented apparel enterprises in India and Pakistan.

The existing apparel companies are those which have engaged in export-oriented garment manufacturing in the past. They have managed to maintain their businesses seeking for specific demand of garments within the domestic and GCC markets. However, the capacity utilization rates of these companies are low, and they are in a very serious condition at present.

The major reason for the imbalanced growth among the subsectors is inflow of mass produced and inexpensive textile and apparel products from China, India, and Pakistan, etc.

Although some expect revitalization of the export-oriented apparel sector with launching of FTA with the U.S., it is not clear whether the expectation be realized actually or not at present.

4.2.2.2 Textile subsector

The textile sector consists of only one company which has a long history since 1989. Originally, the company used to produce the material for Thijs Tasha and women's garments for the domestic and GCC countries' markets. However, sales decreased sharply because of the significant inflow of inexpensive textiles from China and India. The company has made big efforts to find out niche markets, avoiding direct competition with these products, by measures including development of high-value added products of printed textile, and fine-tuned services to the customers through small-lot production and frequent design update, etc.

As a result, their sales have recovered to some extent. In the case of production of the sabotage textiles for armies, which are their main products currently, they could share the high percentage of the domestic and GCC markets almost without competitors.

However, such products as shirts are unable to compete with the Indian and Chinese products in the low-end market segment, while in the high-end market segment, such products as high-grade textiles are not capable of competing with Japanese products. As a result, their operating rate in 2009 remains at 60% of production capacity, since domestic and GCC countries market size are too small only with the present products lineup.

Major reason for the high cost is the high price of the thread imported from Indonesia and Thailand. In fact, only one company is not sufficient to form a thread processing "sector". The textiles themselves gain little added value, while the amount of capital investment to a machine is large, and further, suffered from low operating ratio. In addition, labor cost is higher compared with that of Asian nations. Actually, the plant and equipment have not been renewed recently, and capital intensity remains relatively low.

4.2.2.3 Apparel subsector

There were 37 enterprises in the apparel sector until the early 2000s. They were mainly engaged in the apparel business for the U.S. market. However, most of them went bankrupt with the end of U.S. quota system in 2005, and only three companies have stayed in business. These remaining companies manufacture high quality products by introducing the latest model machinery, and by carrying out thorough quality control. Most of the enterprises are still engaged in the US-oriented apparel manufacture, while some enterprises (about 20%) have secured specific demand within the domestic market, such as uniform for the police, military, and factories.

After FTA with the U.S. came into effect in 2008, the OEM export of the low end product for supermarkets and discount stores in the US, turned into the upward tendency again. Nevertheless, the future prospect of the export is still uncertain.

This export oriented sector does not have any linkage with other subsectors of the Oman textile industry and hence they have to depend on imported thread and textiles. In addition, they have to rely on the expatriate labor, being a labor-intensive industry. For these reason, they do not have capacity to compete with the mass-produced and low cost imported garments in the local market. As a result, unless the conditions in the U.S. market improves, a market of sufficient scale will be hard to find.

4.2.2.4 Other subsectors

Apart from the abovementioned sectors, there are one thread processing enterprise, one towel processing enterprise, and one carpet manufacturing enterprise within the Omani textile and apparel industry. Other relevant industries are the shoes manufacturing.

In the case of the thread processing sector, an enterprise is performing dyeing and coating processing using the thread imported from India and Pakistan. The enterprise of a thread industry sector was established to meet the needs of the export garment sector. However, with the decline of the export garment sector, the domestic demand was declined sharply. Currently, they are operating on a contract with the U.S. capital garment company operating in India and Pakistan, instead of local company. However, the operating rate has remained as low as 50% of the production capacity.

4.2.3 Wood Processing Sector

4.2.3.1 Overview

Table 4.2-7 shows the production (in shipment value) of the wood processing sector by subsector, including wooden furniture subsector.

**Table 4.2-7 Yearly Shipment by Manufacturing Sector by Commodity
(Wooden Products Subsector)**

| SITC | Commodity | Shipment | | | | | | Average Annual Growth Rate (%) | | |
|----------------------------|-----------------|-----------|------------|-----------|------------|-----------|------------|--------------------------------|-----------|-----------|
| | | 2002 | | 2005 | | 2007 | | 2002-2005 | 2002-2007 | 2005-2007 |
| | | (T.R.O.) | % of total | (T.R.O.) | % of total | (T.R.O.) | % of total | | | |
| 20xx | Wooden products | 3,673 | 0.3 | 5,997 | 0.2 | 7,913 | 0.2 | 17.8 | 16.6 | 14.9 |
| 3610-32~39 | Wood furniture | 848 | 0.1 | 1,180 | 0.0 | 1,946 | 0.0 | 11.6 | 18.1 | 28.4 |
| 20 & 36103x | Wooden products | 4,521 | 0.3 | 7,177 | 0.3 | 9,859 | 0.2 | 16.7 | 16.9 | 17.2 |
| Manufacturing Sector Total | | 1,391,504 | 100 | 2,526,661 | 100 | 4,111,166 | 100 | 22.0 | 24.2 | 27.6 |

Source: MOCI, "Yearly Industrial Statistical Book" (Data: 2002, 2005 & 2007)

There are two categories of enterprises within the wood processing sector in Oman. The first comprises the enterprises which specialize in the processing of wood into either semi-manufactured products, raw materials, or wood used for construction (hereafter called Category A). Another category of enterprises manufacture furniture and other interior products (Category B). Information on Category A enterprises is not available at the time of writing.

In the case of Category B, there are only a few enterprises which produce ready-made furniture. Rather, most of them also manufacture tailor-made furniture, wooden doors and handrails to be installed in newly-constructed buildings, residential houses, offices and hotels. Some of these enterprises are major companies (Category B-1) targeting the demand of the domestic market as well as of GCC countries (mostly the UAE). Others are small companies (Category B-2) targeting only the local market.

According to the Ministry of Commerce and Industry, the number of enterprises in the wood processing sector classified by the number of employees is as follows.

It should be noted that some enterprises which are classified as wood processors (ISIC code 2022) also manufacture furniture. On the other hand, the enterprises classified as furniture manufacturers (ISIC code 3610) include not only those producing wooden furniture but also those producing steel furniture (including for office use), urethane foam-sofas and bed mats.

(Unit: Number of enterprises)

| ISIC | Subsector | Classification by Number of Employees | | | | | |
|------|---------------------------|---------------------------------------|---------|-------|-------|--------------|-------|
| | | More than 200 | 100-199 | 30-99 | 10-29 | Less than 10 | Total |
| 2022 | Wood Processing Subsector | 2 | 2 | 2 | 4 | 25 | 35 |
| 3610 | Furniture Sector | 16 | | | | 5 | 21 |

4.2.3.2 Middle and large-sized furniture manufacturing enterprises

Medium and large enterprises in the furniture manufacturing sector (referring provisionally to the enterprises with 30 or more employees) are targeting large-scale projects including first-class hotels, business complexes, and government buildings. Hence, they deal with the order in package including wooden furniture, doors and other furnishings. More than 90% of their sales is on a contract base, and they do not engage in ready-made furniture business. 50% of their business is with foreign customers of hotels and offices in GCC countries.

Although the furniture manufacturing process is a labor-intensive process requiring extensive manual works, these enterprises are mostly engaged in interior contract services besides the manufacturing of furniture for middle-to-high end market, hiring designers under exclusive contracts, installing the updated machines. The demand for this area of products and services has remained at the same level as public projects are still being carried out, though the private-sector demand has been declined because of the financial crisis since last year.

Currently, most of the low-price furniture consumed in the Omani market is made and imported from China. Until the middle of the 1990s, the furniture manufacturing industry was mainly consisted of small and medium-sized enterprises which manufactured relatively simple and small-sized furniture responding to local customers' orders. However, with inflow of inexpensive Chinese furniture, these enterprises lost their business, and only middle and large-sized enterprises remain in the industry. The demand in this field is still large enough compared with current supply capacity by these enterprises, resulting in less competition. In addition, this type of business is rather stable and large in order size. The situation is same for the overseas markets, with potential demand from hotels and royal palaces in the GCC countries.

On the other hand, the business is easily affected by the prevailing economic situation, particularly in the case of high-end furniture. Although many of these companies received a large number of orders during the "construction boom" in recent years, the demand from private sector has been declined greatly due to the suspension of the initially-planned projects caused by the recent financial crisis.

The operation is dependent on the imported raw material wood and labor force. Therefore, their business entails high cost, although they are using local materials partly, including urethane.

4.2.3.3 Micro and small-sized furniture manufacturing enterprises

As for micro and small furniture manufacturing enterprises (referring provisionally to the enterprises with a scale of 30 or less employees), their main customers are individuals in their local areas. Typically, an individual customer (owner of a house) visits a company and place an order when they construct their house. The enterprise do not deliver the products on the spot. Rather, they manufacture the products, and transport and install them into the designated house.

Generally, these enterprises manufacture not only furniture but also wooden doors and handrails for stairs, etc. The business range of small-size enterprises overlaps with that of furniture manufacturers, woodwork processors, and even carpenters.

The demand for this type of manufacturing and service is quite large, and the provider of these services are not enough yet. However, they have difficulty to expand business due to restriction posed on the number of employees they are allowed to employ.

The raw material (wood) used by these companies is imported mainly from Malaysia and Indonesia, and transported via Dubai.

4.2.4 Paper Products and Printing

4.2.4.1 Overview

The paper products and printing industry consists of the paper packaging material manufacturing subsector, paper products manufacturing subsector and printing subsector in the case of Oman.

The following table shows the recent performance of import, production and export of paper products (excluding that of printing subsector). The production in 2007 amounted to R.O. 21.2 million, with showing 16.6% of average annual growth during 4 years from 2003. It is equivalent to 0.53% of total production of manufacturing sector. The sector employs 769 workers in 2007.

(Unit: R.O. million)

| Year | Import (A) | Production (B) | Export (C) | (A+B-C) |
|------|------------|----------------|------------|---------|
| 2005 | 53.1 | 16.4 | 6.5 | 63.0 |
| 2006 | 56.1 | 18.1 | 5.1 | 69.1 |
| 2007 | 68.6 | 21.2 | 8.6 | 81.2 |

Table 4.2-8 shows the production (in shipment value) of the paper products and printing sector by subsector. Largest size and high growth rate are seen in packaging materials subsector and printing subsector.

**Table 4.2-8 Yearly Shipment by Manufacturing Sector by Commodity
(Paper Products and Printing Subsector)**

| SITC | Commodity | Shipment | | | | | | Average Annual Growth Rate (%) | | |
|----------------------------|---------------------------|-----------|------------|-----------|------------|-----------|------------|--------------------------------|-----------|-----------|
| | | 2002 | | 2005 | | 2007 | | 2002-2005 | 2002-2007 | 2005-2007 |
| | | (T.R.O.) | % of total | (T.R.O.) | % of total | (T.R.O.) | % of total | | | |
| 2101 | Paper | 475 | 0.0 | 0 | 0.0 | 283 | 0.0 | - | -9.8 | - |
| 2102 | Paper packaging materials | 7,273 | 0.5 | 11,146 | 0.4 | 15,856 | 0.4 | 15.3 | 16.9 | 19.3 |
| 2109 | Paper products | 2,935 | 0.2 | 5,098 | 0.2 | 4,866 | 0.1 | 20.2 | 10.6 | -2.3 |
| 22xx | Printing | 9,184 | 0.7 | 13,460 | 0.5 | 19,878 | 0.5 | 13.6 | 16.7 | 21.5 |
| 21&22 | Paper products & printing | 19,867 | 1.4 | 29,704 | 1.2 | 40,883 | 1.0 | 14.3 | 15.5 | 17.3 |
| Manufacturing Sector Total | | 1,391,504 | 100 | 2,526,661 | 100 | 4,111,166 | 100 | 22.0 | 24.2 | 27.6 |

Source: MOCI, "Yearly Industrial Statistical Book" (Data: 2002, 2005 & 2007)

There are 50 enterprises in the paper products and printing industry, of which 46 (or 92% of the total enterprises) have less than 100 employees. Another 27 enterprises (or 54% of the total enterprises) are small or micro size enterprises with less than 30 employees.

| Size in terms of employees | Number of enterprises | % of total |
|----------------------------|-----------------------|------------|
| More than 200 | 1 | 2.0 |
| 100-199 | 3 | 6.0 |
| 30-99 | 19 | 38.0 |
| 10-29 | 18 | 36.0 |
| Less than 10 | 9 | 18.0 |
| Total | 50 | 100.0 |

There are 6 enterprises in the paper packaging manufacturing subsector, which produce and print corrugated boxes, whereas 7 enterprises are seen in the paper products subsector including paper diaper, lady's napkin, tissues, paper boxes and tray for eggs, etc. In the printing subsector, there are 37 enterprises, including 1 manufacturing audio tapes.

| ISIC classification | Product | Number of enterprises | (Of which, those with less than 10 employees) |
|---------------------|--|-----------------------|---|
| 2101 | Paper products (tissues, toilet paper, etc.) | 1 | |
| 2102 | Corrugated board, paper bags | 6 | |
| 2109 | Copying paper, envelops, wall paper | 6 | |
| | Paper products subsector total | 13 | |
| 2211 | Books, booklet | 8 | 3 |
| 2212 | Journal (newspaper, magazine) | 3 | |
| 2213 | Audio cassette tape | 1 | |
| 2221 | Advertisement banner | 22 | 4 |
| 2222 | Billboard, advertising tower | 2 | 2 |
| 2230 | Rerecording | 1 | |
| | Printing subsector total | 37 | 9 |
| | Grand total | 50 | 9 |

The demand for packaging materials, such as corrugated cartons and die cut boxes, is very active at present both for domestic and export market. Two companies are expanding their production capacities in order to meet the demand particularly from beverage sector, food staff sector and agriculture sector.

However, in the case of printing industry, they are now facing difficulties under the current recession. Some company has been forced to reduce the operation by 40% owing to a drop in order for advertising. Despite such situation, new comers are entering after another, and completion become severer.

4.2.4.2 Paper packaging subsector

The beverage sector is the biggest in using paper packaging in Oman, then the food staffs sector and agriculture sector are following. The 80% of domestic market is dominated by the top three companies and they are occupying different geographical territory separately. The export for Dubai is now in good sales. In addition, Pakistan and North African market can be expected as the next target. On the contrary, Indian market is rather hard to penetrate into under the severe price situation, and East African market is risky in solvency.

In comparison of production costs between Oman and Dubai, Oman has an advantage in the utility cost, but Dubai is in a better position than Oman in purchasing raw materials from abroad by using effective logistics. As for the labor cost, there is no difference at this moment, but further Omanization would be a pressure against Oman's competitive edge.

Industrial cluster sometimes bring good effects for paper packaging sector; for example, in the case of one corrugated board company, 40% of the order of the company came from the enterprises in the same industrial estate. However, effectiveness of the industrial cluster is much better in Dubai where the scale of cluster is bigger than Oman's scale.

In the case of corrugated board, 50% of the raw materials comes from recycled paper of cheaper costs. The recycled paper was imported from Saudi Arabia and Dubai, sine no recycled paper is available in Oman. Total paper consumption of paper in Oman has been consistently increasing and has more than four times in 2007 compared to 1991. Further growth of demand can be expected with the expansion of industrial activities and household usage. If the current flood of magazines and advertisements is considered, disposed paper would definitely increase from now on. The recycling will be an important challenge for Oman, including paper and PET.

4.2.4.3 Printing subsector

The printing demand may be categorized into two different types. Demand for printing of news paper and textbooks is regular, while that of advertising materials is affected by the business climate.

The small-sized printing businesses have established closely to the customers to make quick response to the customers' request. On the contrary to this, large scale printing businesses use knowledge intensive management and updated machines, and possess the functions of design, editing, and publishing. Actually, large printing companies in Oman have this type of operation, while small printing businesses form a separate type of businesses.

On the other hand, high potential demand is found in printing of digitized documents as government offices and financial institutions increasingly use computer-generated forms. Because this type of printing service is often outsourced to foreign countries for secrecy reason, it can grow to export-oriented business by gaining experience and expertise in such outsourcing service.

To ensure sustainable growth in the future, the printing industry needs to diversify into information related services that do not depend on hard copy or paper, while introducing latest IT-based printing technology.

Small enterprises in the printing industry are largely of local community types, ranging from on-stop copy service shops for businesses and students, to companies specialized in billboard and banner production, and computer graphic rich, media advertisement shops. As seen in other countries, demand for this type of service is expected to grow in Oman, while diversifying into a variety of forms and styles.

4.2.4.4 Paper products subsector

The paper products subsector makes consumer products such as disposable diapers and tissue paper, but many companies are facing fierce competition with imported products that are flooding the market. In particular, products made in Saudi Arabia are highly competitive because of brand power (produced under license from global companies) and large production capacity.

Tissue paper manufacturers are characterized as repacking business, i.e., the raw material (paper roll) is cut to size and folded and packaged. Packages do not vary greatly in type or size and competitiveness relies mainly on pricing. On the other hand, disposable diapers and sanitary napkins can be differentiated by various features, such as quality and function, but Oman companies cannot compete with global brand products on account of the difference in production cost and/or promotional power.

4.2.5 Refined Petroleum Products, Chemicals and Chemical Products Sector

4.2.5.1 Outline

The chemicals and chemical products industry consists of the following subsectors: (1) basic chemicals; (2) pharmaceuticals; (3) paints and varnishes; (4) detergents, soaps, and cosmetics; and (5) other chemicals. Note that refined petroleum products are also covered here for convenience, whereas the plastics and rubber products industries are covered in 4.2.6.

In addition to refined petroleum products (including gasoline, kerosene, diesel oil, and LPG), chemicals and chemical products made in Oman include urea, methanol and other products that are produced from locally produced crude oil and gas, as well as those made from imported chemicals and chemical products.

Table 4.2-9 shows the production (in shipment value) by subsector. The predominantly largest size of production is seen in petroleum refinery products subsector, followed by chemical fertilizer subsector.

**Table 4.2-9 Yearly Shipment by Manufacturing Sector by Commodity
(Petro-products, Chemicals and Chemical Products Subsector)**

| SITC | Commodity | Shipment | | | | | | Average Annual Growth Rate (%) | | |
|----------------------------|---|-----------|------------|-----------|------------|-----------|------------|--------------------------------|-----------|-----------|
| | | 2002 | | 2005 | | 2007 | | 2002-2005 | 2002-2007 | 2005-2007 |
| | | (T.R.O.) | % of total | (T.R.O.) | % of total | (T.R.O.) | % of total | | | |
| 2320 | Refined petroleum products | 848,715 | 61.0 | 1,492,947 | 59.1 | 2,373,259 | 57.7 | 20.7 | 22.8 | 26.1 |
| 2411 | Basic chemicals | 15,148 | 1.1 | 13,585 | 0.5 | 17,804 | 0.4 | -3.6 | 3.3 | 14.5 |
| 2412 | Fertilizers | 185 | 0.0 | 117,519 | 4.7 | 118,734 | 2.9 | 759.6 | 264.3 | 0.5 |
| 2422 | Paints/ varnishes | 12,449 | 0.9 | 16,045 | 0.6 | 20,294 | 0.5 | 8.8 | 10.3 | 12.5 |
| 2423 | Pharmaceuticals | 9,367 | 0.7 | 19,982 | 0.8 | 29,623 | 0.7 | 28.7 | 25.9 | 21.8 |
| 2424 | Soaps/ detergents/ cosmetics | 24,248 | 1.7 | 21,236 | 0.8 | 17,284 | 0.4 | -4.3 | -6.5 | -9.8 |
| 24xx excl.2413 | Other chemical products | 1,857 | 0.1 | 3,384 | 0.1 | 9,994 | 0.2 | 22.1 | 40.0 | 71.9 |
| 2320 & 24 (excl.2413) | Petro-products, chemicals & chemical products | 911,969 | 65.5 | 1,684,698 | 66.7 | 2,586,992 | 62.9 | 22.7 | 23.2 | 23.9 |
| Manufacturing Sector Total | | 1,391,504 | 100 | 2,526,661 | 100 | 4,111,166 | 100 | 22.0 | 24.2 | 27.6 |

Source: MOCI, "Yearly Industrial Statistical Book" (Data: 2002, 2005 & 2007)

As of 2007, there are 55 companies in the chemicals and chemical products sector (Table 4.2-10), accounting for 8% of 727 companies in the manufacturing sector. These companies are classified according to the number of employees, as shown below. As seen in the table, companies having 30 or more employees represent 53% of the total. Thus, the industry has a relatively large number of medium-sized and large enterprises in comparison to other sectors.

Table 4.2-10 Number of Enterprises by Size of Employee in Chemicals and Chemical- Products Sectors

| ISIC Codes & Industries Scale of Number of Employees | 23 Refined Petroleum Products (A) | 24 Chemicals and Chemical Products (B) | 2413 Plastics in Primary Forms (C) | Total (A) + (B) - (C) | Percents of Total (%) |
|---|---|--|--|--------------------------|-----------------------|
| 200 and More | 3 | 2 | 0 | 5 | 9% |
| 100 to 199 | 0 | 9 | 1 | 8 | 15% |
| 50 to 99 | 0 | 5 | 1 | 4 | 7% |
| 30 to 49 | 2 | 10 | 0 | 12 | 22% |
| 20 to 29 | 2 | 5 | 0 | 7 | 13% |
| 10 to 19 | 5 | 8 | 0 | 13 | 24% |
| Less than 10 | 2 | 4 | 0* | 6 | 11% |
| Total | 14 | 43 | 2 | 55 | 100% |

Note: * Excluding two companies under commission work

Source: p134, Yearly Industry Statistical Book, Data of 2007,

Table 4.2-11 shows the breakdown by subsector. Small enterprises and microenterprises having less than ten employees are seen in subsectors relating to refined petroleum products such as refilling and sales of LPG cylinders, production of organic fertilizers, and production of soaps.

Table 4.2-11 Number of Enterprises by Industry in Chemicals and Chemical- Products Sectors

| ISIC Codes | Industries | Number of Industries | (Those Less Than 10 Thereof) |
|------------|----------------------------------|----------------------|------------------------------|
| 2320 | Refined Petroleum Products | 15 | 2 |
| 2411 | Basic Chemicals | 13 | 0 |
| 2412 | Fertilizers | 5 | 2 |
| 2422 | Paints and Varnishes | 6 | 0 |
| 2423 | Pharmaceuticals | 4 | 0 |
| 2424 | Detergents, Soaps, and Cosmetics | 10 | 2 |
| 2429 | Other Chemical Products | 5 | 0 |
| Total | | 58 | 6 |

Note: This table seems to calculate number of establishments, based on the commodity list, hereby to reach 58 establishments increasing from the 55 ones aforesaid.

Source: Materials Prepared by Ministry of Industry and Commerce

Table 4.2-12 estimates the market size for refined petroleum products and chemicals and chemical products on the basis of their export, import and domestic production data. Domestic production of refined petroleum products, such as gasoline, kerosene, light oil, and LPG, is estimated at R.O. 2,342 million, and chemicals and chemical products R.O. 330 million.

Table 4.2-13 Domestic Production Rates and Exporting Rates by Industry

| | Domestic Production Rates (*1) | Exporting Rats (*2) |
|----------------------------|--------------------------------|---------------------|
| Refined Petroleum Products | 97.4 | 6.6 |
| Basic Chemicals | 72.5 | 141.3 |
| Fertilizers | 1,995.2 | 101.3 |
| Other Chemical Products | 29.6 | 38.1 |

Note: (*1) Domestic Production / Domestic Consumption (%)

(*2) Exporting / Domestic Production (%)

Production of refined petroleum products is basically made for local consumption, and only 6.6% of production are exported. In contrast, production of chemical fertilizers is carried out for export purposes, i.e., the entire quantity produced is exported.

As for basic chemicals, the country does not make all types of products required for local consumption, i.e., 72.5% of domestic demand are satisfied by local supply sources. The chemical industry is not fully developed in the country and most manufacturers import chemical materials. As a result, a small percentage of organic chemicals and 30%⁴ of inorganic chemicals are consumed locally as industrial materials. Thus, if the local chemical industry grows, demand for organic and inorganic chemicals will expand accordingly. On the other hand, some portions of chemical products are exported. For instance, exports of basic chemicals are around 40% larger than those locally consumed⁵.

As for chemical products (e.g., paints and coatings, pharmaceuticals, detergents, and soaps), 29.6% of domestic demand are satisfied by local products, whereas 38.1% of local production go to export.

Note that the above statistical data do not reflect production and export made by a large number of petrochemical plants that are currently operated.

The chemicals industry's cost structure is shown for refined petroleum products and other chemicals/chemical products in Tables 4.2-14 and 4.2-15, respectively.

⁴ Domestic Shipment were valued at R.O. 15.6 million while the domestic consumption as raw material of the same commodity code was valued at R.O. 4.8 million.

⁵ Exporting of basic chemicals was valued at R.O. 32.2 million while the domestic production was valued at R.O. 22.8 million.

Table 4.2-12 Import, Export, Domestic Production and Consumption of Chemicals and Chemical Products

(Unit: R. O. million)

| Commodities (SITC Division) | Import (A) | Re-export (B) | Export (C) | Production (D) | Raw-Material Use Thereof (E) | Import for Domestic Consumption (F) = (A) - (B) | Production for Domestic Consumption (G) = (D) - (C) | Domestic Consumption (H) = (F) + (G) | End Products / Future Market Thereof (I) = (H) - (E) |
|-----------------------------------|---------------|------------------|---------------|-------------------|------------------------------------|--|--|--|---|
| Refinery Products (33) | 212.6 | 1.7 | 149.6 | 2,281.5 | 76.1 | 210.9 | 2,131.9 | 2,342.7 | 2,266.6 |
| Organic Chemicals (51) | 25.2 | 0.1 | 23.8 | 9.6 | 0.2 | 25.1 | -14.2 | 10.9 | 10.8 |
| Inorganic Chemicals (52) | 15.9 | 0.3 | 8.4 | 13.2 | 16.8 | 15.6 | 4.8 | 20.4 | 3.6 |
| Fertilizers (56) | 7.1 | 0.0 | 114.5 | 113.1 | 0.0 | 7.1 | -1.4 | 5.7 | 5.7 |
| Medicines (54) | 54.7 | 0.8 | 1.7 | 29.6 | 2.5 | 53.9 | 27.9 | 81.8 | 79.3 |
| Paints and Dyeing (53) | 21.7 | 0.3 | 3.4 | 20.3 | 7.4 | 21.4 | 16.9 | 38.4 | 31.0 |
| Detergents, Soaps & Perfumes (55) | 65.5 | 6.3 | 13.9 | 17.3 | 3.1 | 59.2 | 3.4 | 62.6 | 59.5 |
| Other Chemicals (59) | 82.9 | 0.2 | 11.0 | 11.5 | 26.1 | 82.7 | 0.5 | 83.1 | 57.1 |
| Total | 485.6 | 9.7 | 326.3 | 2,496.1 | 132.2 | 475.9 | 2,169.8 | 2,645.7 | 2,513.5 |

Note: Yellow portion has potentiality for development of the commodity use as the raw-material in the downstream.

Sources: For (A) to (C), p 207, Statistical Year Book 2008, For (D) and (E), p 111, Yearly Industrial Statistical Book Issued in 2008

Table 4.2-14 Cost Structure of Refined Petroleum Products Subsectors

| Establishment Scale by No. of Employees | (1) Manpower % (G)/(F) | (2) Utility % (M)/(F) | (3) Raw Material % (A)/(F) | (4) Value Added % (K)/(L) |
|---|---------------------------|--------------------------|-------------------------------|------------------------------|
| 200 to 9999 | 1% | 1% | 92% | 30% |
| 100 to 199 | 1% | 1% | 92% | 30% |
| 50 to 99 | 1% | 1% | 92% | 30% |
| 30 to 49 | 11% | 21% | 68% | 80% |
| 20 to 29 | 15% | 9% | 76% | 42% |
| 10 to 19 | 13% | 7% | 78% | 47% |
| Average | 1% | 1% | 92% | 30% |

Code: 23, Refined Petroleum Products

| Establishment Scale by Number of Employees | Raw Materials and the Like Consumed | | | | | | | | | | Other Costs | | | Manufacturing Cost (F)+(G)+(H)+(I) | Gross Value Added* (K) | Finished Goods Manufactured* (L) | Utility Cost (M) = (B)-(C)-(D) | Plant, Machinery and Other Equipment (N) = (End of Year)* - (Start of Year)* |
|--|-------------------------------------|---------------|------------------------|--------------------------|----------------------------|-----------------------------------|-----------------------------------|--------------------|---|---|-------------|-----------|-------|---------------------------------------|---------------------------|-------------------------------------|-----------------------------------|---|
| | Raw Materials* (A) | Fuels* (B) | Electric Power* (C) | Industrial Water* (D) | Other Variable Cost (E) | Sub-total* (F) = SUM(A) to (E) | Compensation of Employees* (G) | Rental Fee* (H) | Depreciation Assumed (I) = (N) / 5 years | Depreciation Assumed (J) = (N) / 5 years | | | | | | | | |
| 200 to 9999 | 1,567,282 | 6,043 | 1,732 | 887 | 3,397 | 1,579,341 | 17,024 | 13 | 99,537 | 1,695,915 | 676,188 | 2,255,529 | 8,662 | 497,686 | | | | |
| 100 to 199 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 50 to 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| 30 to 49 | 1,906 | 107 | 19 | 461 | 8 | 2,501 | 299 | 9 | 0 | 2,809 | 9,948 | 12,449 | 587 | 0 | | | | |
| 20 to 29 | 530 | 57 | 3 | 2 | 0 | 592 | 104 | 0 | 0 | 696 | 436 | 1,028 | 62 | 0 | | | | |
| 10 to 19 | 878 | 68 | 7 | 5 | 10 | 968 | 151 | 10 | 0 | 1,129 | 864 | 1,831 | 80 | 0 | | | | |
| Total | 1,570,596 | 6,275 | 1,761 | 1,355 | 3,415 | 1,583,402 | 17,578 | 32 | 99,537 | 1,700,549 | 687,436 | 2,270,837 | 9,391 | 497,686 | | | | |

Source: * Yearly Industrial Statistical Book, issue in 2008

Table 4.2-15 Cost Structure of Chemicals and Chemical Products Subsectors (Except for Refined Petroleum Products)

| Establishment Scale by No. of Employees | (1) Manpower % (G) / (F) | (2) Utility % (M) / (F) | (3) Raw Material % (A) / (F) | (4) Value Added % (K) / (L) |
|---|-----------------------------|----------------------------|---------------------------------|--------------------------------|
| 200 to 9999 | 12% | 0% | 27% | 79% |
| 100 to 199 | 8% | 2% | 71% | 31% |
| 50 to 99 | 12% | 7% | 52% | 59% |
| 30 to 49 | 11% | 4% | 84% | 50% |
| 20 to 29 | 11% | 4% | 83% | 43% |
| 10 to 19 | 5% | 3% | 92% | 26% |
| Average | 10% | 2% | 52% | 58% |

| Establishment Scale by Number of Employees | Raw Materials and the Like Consumed | | | | | Other Costs | | | | Manufacturing Cost (F)+(G)+(H)+(I) | Gross Value Added* (K) | Finished Goods Manufactured* (L) | Utility Cost (M) = (B)+(C)+(D) | Book Value of Plant, Machinery and Other Equipment (End of Year)* (N) |
|--|-------------------------------------|---------------|------------------------|--------------------------|----------------------------|-------------------------------------|-----------------------------------|--------------------|---|---------------------------------------|---------------------------|-------------------------------------|-----------------------------------|--|
| | Raw Materials* (A) | Fuels* (B) | Electric Power* (C) | Industrial Water* (D) | Other Variable Cost (E) | Sub-total* (F) = SUM((A) to (E)) | Compensation of Employees* (G) | Rental Fee* (H) | Depreciation Assumed (I) = (N) / 5 years | | | | | |
| 200 to 9999 | 26,514 | 9 | 448 | 887 | 846 | 27,823 | 11,244 | 193 | 57,886 | 97,146 | 107,472 | 135,296 | 463 | 289,429 |
| 100 to 199 | 57,547 | 654 | 440 | 0 | 215 | 59,002 | 6,688 | 215 | 15,499 | 81,404 | 27,002 | 86,003 | 1,240 | 77,497 |
| 50 to 99 | 5,089 | 301 | 242 | 0 | 37 | 5,798 | 1,192 | 36 | 2,801 | 9,827 | 8,225 | 14,023 | 672 | 14,006 |
| 30 to 49 | 16,128 | 500 | 193 | 461 | 58 | 16,995 | 2,031 | 49 | 145 | 19,220 | 17,262 | 34,256 | 809 | 726 |
| 20 to 29 | 2,412 | 45 | 44 | 2 | 21 | 2,550 | 328 | 22 | 0 | 2,900 | 2,063 | 4,813 | 117 | 0 |
| 10 to 19 | 5,377 | 90 | 57 | 5 | 13 | 5,550 | 289 | 13 | 0 | 5,852 | 1,916 | 7,466 | 160 | 0 |
| Total | 113,067 | 1,599 | 1,424 | 1,355 | 1,190 | 117,718 | 21,772 | 528 | 76,332 | 216,350 | 163,940 | 281,857 | 3,461 | 381,658 |

Source: * Yearly Industrial Statistical Book, issue in 2008

The refined petroleum product subsector does not include refineries. Three companies with 200 or more employees distribute and sell gasoline, kerosene and diesel oil. As they purchase middle distillates from refineries, their raw material cost is very high at 92%. On the other hand, companies with 49 or less employees are engaged in refilling and sales of LPG cylinders and their cost is dominated by utilities used for LPG liquefaction.

The chemicals and chemical products industry consists of companies representing a variety of subsectors. As shown in Table 4.2-14, there are two companies with 200 or more employees; they are a fertilizer manufacturer and a detergent manufacturer. Their raw material cost is relatively low at around 27%, because the former uses low-cost gas and the latter makes chemical feedstock internally. As for the size group of 100-199 employees, companies are relatively evenly distributed, i.e., from one to three companies are found in a variety of subsectors, including basic chemicals, paints and coatings, pharmaceuticals, and detergents. As a result, the overall cost structure averages out those of the respective subsectors. Companies with 50-99 employees are dominated by manufacturers of paints and coatings. Their cost composition is characterized by a relatively high percentage of utilities (7%) because they make water-based products. Finally, companies with 29 or less employees are mainly found in subsectors making basic chemicals, soaps and other chemical products. They show a very high percentage of raw material cost (92%).

As chemical products that are shipped and consumed as final products, such as pharmaceuticals, paints and coatings, detergents, soaps, and cosmetics, need to compete with international brands, it is important for the industry to improve competitiveness by improving quality and raising consumer recognition.

4.2.5.2 Refined petroleum products

In this subsector, there are 14 company groups that process and sell petroleum products supplied from refineries operated by a state enterprise, Oman Refineries and Petrochemicals Company (ORPC). Of total, 3 companies handle gasoline, kerosene and diesel oil and 11 companies LPG.

Table 4.2-16 shows the value of petroleum product shipments and their domestic consumption as raw material in 2007. Lubricants are made by wholesalers from petroleum stock and intermediate distillates supplied by the refineries. Propylene gas was not used for polypropylene production as of 2007⁶.

⁶ As of December 2009, OPP produces polypropylene by using raw propylene supplied from SRC.

Table 4.2-16 Shipments and Domestic Consumption as Raw Material of Petroleum Products

(Unit in million R.O.)

| Commodities (ISIC Code) | Shipment (A) | Raw-Material Use Thereof (B) | Net Shipment Thereof (C) = (A) - (B) |
|--|-----------------|------------------------------------|--|
| Regular Motor Gasoline (MOGAS 90) (2320.13) | 893.8 | 0.0 | 893.8 |
| Other Light Oil / Preparations (2320.15) | 256.3 | 0.0 | 256.3 |
| Kerosene / Jet Fuel (2320.16) | 129.0 | 0.0 | 129.0 |
| Lubricating Oil / Heavy Preparations (2320.21) | 93.3 | 22.3 | 71.0 |
| LPG (2320.22) | 907.8 | 2.7 | 905.1 |
| Propylene, Other Petroleum Gas (2320.23) | 1.3 | 51.1 | -49.8 |
| Total | 2,281.5 | 76.1 | 2,513.5 |

Sources: For (A) and (B), p 111, Yearly Industrial Statistical Book Issued in 2008

As for intermediate distillates, 3 companies distribute and sell gasoline, kerosene (as aviation fuel), and diesel oil (for waterborne vessels and lorries).

Other 11 companies distribute LPG by refilling cylinders at their respective facilities. LPG is mainly used for household cooking. Small portions are used for drying and heating purposes in the food and chemical industries.

Production by all of the companies is intended for domestic demand, with limited imports.

4.2.5.3 Basic chemicals

In the basic chemicals subsector, there are 18 companies. Four companies are engaged in large-scale production of natural gas-based chemical products; two make urea from ammonia and two produce methanol. Most of their products, including urea, methanol, formalin, and urea formalin, are internationally competitive and are exported under long-term supply contract.

A large enterprise manufacturing basic chemicals makes sulfonic acid and alkyl benzene, 35% of which are used for production of detergents within the company and 65% are exported to Pakistan, GCC countries, and Africa.

Other companies in the basic chemicals subsector manufacture a variety of products, including sulfuric acid, chlorine, caustic soda, oxygen, nitrogen, and sodium chloride. Sulfuric acid is produced from hydrochloric acid, sulfur, and other materials and is mainly used for automotive batteries and exported.

Chlorine and caustic soda are produced by electrolyzing salt water. Local production accounts for only small portions (estimated at slightly less than 5%⁷) and most demand is met by imports. Chlorine is largely used for enhanced oil recovery (EOR) operation in oil fields, and some portions are used by metal and hygiene sectors. Chlorine demand is expected to increase significantly when ethylene is produced and production of polyvinyl chloride (PVC) starts. On the other hand, caustic soda is consumed for the bleaching of paper and production of soaps and detergents. As caustic soda is used in large quantities for smelting of nonferrous metals such as aluminum, its demand is expected to increase substantially with chlorine.

Oxygen is produced from imported liquid oxygen and is filled into cylinders for distribution. In Oman, it is mainly used by hospitals and for welding or fusing operation.

Nitrogen is made in Sohar by air separation method. It is supplied to an aromatics plant under long-term contract. When many projects are expected to complete and start commercial operation in Sohar, a significant increase in nitrogen production and the start of oxygen production are expected to meet increasing demand.

There is a manufacturer of table salt, from salt water, which is a byproduct at the oil fields. The salt water is sun dried, refined, and cristalized in making the table salt. They has priced high compared with other table salt, differentiating the taste of the product. Sodium chloride for use as raw materials of chemical processing, is produced as a byproduct from the desalination process. Raw salt so produced is refined and consumed as final product. It is also used for production of basic chemicals as well as break baking⁸.

4.2.5.4 Pharmaceuticals

There are four pharmaceutical manufacturers in the country, including two large enterprises having 100 or more employees. One of them was started by introducing technology from India to manufacture antibiotics on an OEM basis and export the entire amount to the EU. Then, it expanded into production and distribution of semi-finished products for other drugs and is now exporting to the EU, the Great Arab region, and Africa. It is now developing plans to produce and sell pharmaceutical products under its own brand. On the other hand, another large manufacturer is making a variety of products by using technology licensed from European and American

⁷ Chlorine and caustic soda are classified to 2411.23 of ISIC Code. The value of shipment in the country is R.O. 733 trillion, whereas the value of domestic consumption amounts to R.O. 15,809 trillion (Yearly Industrial Statistical Book Issued in 2008).

⁸ Chemical salt including table salt is classified to 2411.24 of ISIC Code. The value of domestic shipment is R.O. 2,118 trillion and the value of consumption as raw material R.O. 765 trillion. Major consumers are basic chemicals and bakeries (Yearly Industrial Statistical Book issued in 2008).

companies as well as imported machinery, under production management of foreign engineers.

Other two companies are also producing a wide range of pharmaceutical products by using the off-patent technologies. At the same time, it repacks imported materials to small containers. Main materials are imported from the EU, the U.S., India, and other countries. Their working environment is strictly controlled to specific temperature and humidity and is kept clean. Because of this, local employees can be easily recruited and stay longer in comparison to other industries.

Most of the pharmaceutical manufacturers producing final products have initially targeted the domestic market. However, as demand for generic drugs is limited because the country provides medical service with free of charge, they had to opt for export to the GCC countries. Yet, the GCC market is dominated by imports from industrialized countries, holding around 60% share, and there are many pharmaceutical companies in the GCC (10 in Saudi Arabia and 5 in the UAE) to create fierce competition in terms of quality and price. Because products made in the GCC are much weaker in brand power than those made in industrialized countries, they have to explore export markets including other countries in the Middle East and Africa. Also, product diversification from ordinary treatment to preventive medicine and supplements is considered to be a viable strategic direction.

4.2.5.5 Paints and coatings

Industrial paints and decorative paints used for buildings account for major portions of domestic demand. Six companies belong to this subsector. Two companies are multinationals and two are local group companies. As the manufacture of paints and coatings requires a variety of raw materials to be stocked to meet market demand, most manufacturers are relatively large, having more than 70 employees.

The production line is made up of a simple equipment set including raw material tanks and mixers. Raw materials – chemical products and pigments – are largely imported from the GCC countries.

While paints account for only 2% of the average construction cost, owners and contractors try to control the paint cost. In addition, price competition is becoming intensive due to the increase in imports from the UAE (e.g., Shalja and Dubai).

On the other hand, the multinationals can enjoy higher prices because of brand power. Meanwhile, the local group companies take advantage of bargaining power for purchase of raw materials. These companies serve the domestic market only and do not make any exports.

Competitive advantages in the paint industry are price, quality, and on-time delivery. All the six manufacturers strive to meet these requirements by establishing product development and

testing divisions for product improvement and quality assurance. A company offers quality assurance after application. In addition, they feel the need to emphasize product safety and environmental consideration.

4.2.5.6 Detergents, soaps, and cosmetics

This subsector consists of two companies making detergents, five soap manufacturers, and five cosmetics companies. They are required to conduct activities to raise and maintain consumer recognition. There is intensive competition in the domestic market because it is deluged with a variety of international brands including imports.

The two detergent manufacturers employ more than 100 workers. The largest company produces main materials (including sulfonic acid and alkyl benzene) on its own, from which detergents are made through the process of mixing, slurry formation, heating and drying. Their products are widely recognized in the GCC countries including Saudi Arabia, and export large portions. Although they have product development capabilities, they are often restrained by procedures to import a new chemical material, which requires an environmental permit that is time consuming.

The five soap manufacturers are fairly small, around 30 employees at most. Most of them make soaps from imported slurry and other materials.

Similarly, the five cosmetics manufacturers employ 30 – 40 persons. They import stock solutions, and blend and fill them into bottles, cans or sprays according to the market needs. Thus, their operation is essentially considered as refilling.

Most of the manufacturers of soaps and cosmetics use foreign brands to gain consumer recognition. In fact, their products are limited to specific brands. Many of them do not have marketing or sales divisions and are concentrated on production according to the direction of foreign brand companies. The majority of their products are exported.

On the other hand, a company strives to create local brand products with a unique aroma and its continuity. It mainly targets the domestic market and deploys sales activities to distinguish itself from international brands, such as special sales under a tie-up with a supermarket. Although it intends to raise consumer recognition further, it faces financial limitation in the area of advertisement.

4.2.5.7 Other chemicals and chemical products

There are nine companies in this category. Two companies manufacture construction materials from cement and mortar products and chemicals, two companies make adhesives, and one company produces pesticides, while the remaining companies are unknown.

The two companies making construction materials employ 50 – 70 workers. They use cement and mortar products purchased locally and chemicals imported from the GCC countries. Their products are mainly supplied to the domestic market. As competition with imports from the UAE intensifies, the companies try to customize products to market demand by establishing engineering divisions. Because of weak brand power in comparison to imports, they strive to improve price competitiveness. They feel difficulty in procuring various chemical products as they have to go through cumbersome import procedures.

Finally, the manufacturers of adhesives and pesticide appear to be engaged in refilling operation, i.e., they import stock solutions and fill them to small containers. They employ around 30 persons at most and market products under foreign brands. Some portions are exported.

4.2.6 Plastics and Plastic Products

4.2.6.1 Overview

Plastic materials widely used in Oman include polyethylene (PE), polypropylene (PP), polyvinyl chloride (PVC), polystyrene (PS), and polyethylene terephthalate (PET). Of these, only PP and PET are produced locally from pellets that are a primary material made from feedstock. Other plastic materials are made by processing imported pellets. As for PP, however, only homo-polymer (used for sheets and films) is locally produced, whereas PP containers and PP co-polymer (PPR for pipes) are imported.

Major applications of plastic products in the country are as follows.

- PVC: Sewer and irrigation pipes
- PE: Sheets and films for plastic shopping bags and packages, pipes for water and food processing, and high- and low-temperature pipes that are not suitable for PVC
- PP: Applications for PE, and food containers and office supplies
- PS: Disposable cups (to be replaced by PP), containers featuring transparency, insulating materials for walls and roofs using expandable PS (EPS)

Table 4.2-17 shows the production (in shipment value) by subsector.

**Table 4.2-17 Yearly Shipment by Manufacturing Sector by Commodity
(Plastics Subsector)**

| SITC | Commodity | Shipment | | | | | | Average Annual Growth Rate (%) | | |
|----------------------------|----------------------------|-----------|------------|-----------|------------|-----------|------------|--------------------------------|-----------|-----------|
| | | 2002 | | 2005 | | 2007 | | 2002-2005 | 2002-2007 | 2005-2007 |
| | | (T.R.O.) | % of total | (T.R.O.) | % of total | (T.R.O.) | % of total | | | |
| 2413 | Plastic resins | 0 | 0.0 | 13,729 | 0.5 | 75,952 | 1.8 | - | - | 135.2 |
| 2511&2519 | Tires & rubber products | 405 | 0.0 | 838 | 0.0 | 1,076 | 0.0 | 27.4 | 21.6 | 13.3 |
| 25201x & 25209x | Plastic products | 13,337 | 1.0 | 9,503 | 0.4 | 25,371 | 0.6 | -10.7 | 13.7 | 63.4 |
| 25202x | Plastic sacks & packages | 7,582 | 0.5 | 19,310 | 0.8 | 26,787 | 0.7 | 36.6 | 28.7 | 17.8 |
| 25203x | Plastic building materials | 7,257 | 0.5 | 15,498 | 0.6 | 20,177 | 0.5 | 28.8 | 22.7 | 14.1 |
| 25 (incl.2413) | Plastics | 28,581 | 2.1 | 58,878 | 2.3 | 149,363 | 3.6 | 27.2 | 39.2 | 59.3 |
| Manufacturing Sector Total | | 1,391,504 | 100 | 2,526,661 | 100 | 4,111,166 | 100 | 22.0 | 24.2 | 27.6 |

Source: MOCI, "Yearly Industrial Statistical Book" (Data: 2002, 2005 & 2007)

As shown in Table 4.2-18, there are 45 companies in the plastics and plastic products subsector as of 2007, accounting for 66% of the 727 companies in the manufacturing sector. Distribution of the 45 companies by size (workforce) is shown below. Companies with less than 30 employees in the plastics processing subsector (including rubber products) amount to 19, of which only one company employs less than 10 persons.

Table 4.2-18 Number of Enterprises by Size of Employee in Plastics and Plastic Products Sectors

| ISIC Codes & Industries Scale of Number of Employees | 25 Rubber and Plastic Products (A) | 2413 Plastics in Primary Forms (B) | Total (A) + (B) | Percents of Total (%) |
|---|--|--|--------------------|--------------------------|
| 200 and More | 4 | 0 | 4 | 9% |
| 100 to 199 | 5 | 1 | 6 | 13% |
| 50 to 99 | 6 | 1 | 7 | 16% |
| 30 to 49 | 9 | 0 | 9 | 20% |
| 20 to 29 | 5 | 0 | 5 | 11% |
| 10 to 19 | 13 | 0 | 13 | 29% |
| Less than 10 | 1 | 0* | 1 | 2% |
| Total | 43 | 2 | 45 | 100% |

Note: * Excluding two companies under commission work

Source: p134, Yearly Industry Statistical Book, Data of 2007,

Distribution by industry type is shown in Table 4.2-19. Only two companies make plastic products in primary form, others are engaged in processing of plastic products (or processing of retreated tires in the rubber industry).

Most companies in the subsector use extruders and/or injection molding machines. Their operation is capital intensive, and no enterprise is micro-scale with less than 10 employees, except for one.

Table 4.2-19 Number of Enterprises by Industry in Plastics and Plastic Products Sectors

| ISIC Codes | Industries | Number of Industries | (Those Less Than 10 Thereof) |
|------------|---------------------------|----------------------|------------------------------|
| 2413 | Plastics in Primary Forms | 2 | 0 |
| 2511 | Retreated Tires | 3 | 0 |
| 2520 | Plastic Products | 42 | 1 |
| Total | | 47 | 1 |

Note: This table seems to calculate number of establishments, based on the commodity list, hereby to reach 47 establishments increasing from the 45 ones aforesaid.

Source: Materials Prepared by Ministry of Industry and Commerce

In Table 4.2-20, market sizes for major product categories are estimated on the basis of export, import and domestic production data relating to plastics and plastic products. Domestic market sizes for plastics in primary form, those in no primary form, and rubber products are estimated to be R.O. 92 million, R.O. 73 million, and R.O. 52 million.

In the case of products in primary form, local production represents approximately 80% of local consumption. In practice, however, 89% of products made locally are exported and the remaining 10% are used for local processing. Imported materials account for the rest.

Most of the plastic products made in Oman are final products of (1) construction materials; (2) plastic shopping bags and packaging materials; and (3) kitchen goods and household goods. Plastic parts used for automobiles and electrical equipment are not manufactured locally.

There is one company operating on a basis of commission work, where the customer supply resin for processing. They receive processing fee and 30% of the products. Thus, they can supply the products at the lower prices to the markets thanks to the low raw material costs.

Table 4.2-20 Importing, Exporting, Domestic Production and Consumption of Plastics and Plastic Products

(Unit: R.O. million)

| Commodities (SITC Division) | Import (A) | Reexport (B) | Export (C) | Production (D) | Raw-Material Use Thereof (E) | Import for Domestic Consumption (F) = (A) - (B) | Production for Domestic Consumption (G) = (D) - (C) | Domestic Consumption (H) = (F) + (G) | End Products / Future Market Thereof (I) = (H) - (E) |
|-----------------------------------|---------------|-----------------|---------------|-------------------|------------------------------------|--|--|--|---|
| Plastics in Primary Form (57) | 84.2 | 0.2 | 65.6 | 73.4 | 27.7 | 84.0 | 7.8 | 91.8 | 64.1 |
| Plastics in Non-primary Form (58) | 38.4 | 0.2 | 36.4 | 71.5 | 8.2 | 38.2 | 35.1 | 73.3 | 65.1 |
| Rubber Products (62) | 54.2 | 3.8 | 0.0 | 1.1 | 0.4 | 50.4 | 1.1 | 51.5 | 51.1 |
| Total | 176.8 | 4.2 | 102.0 | 145.9 | 36.3 | 172.6 | 43.9 | 216.6 | 180.3 |

Note: Yellow portion has potentiality for development of the commodity use as the raw-material in the downstream.

Sources: For (A) to (C), p 207, Statistical Year Book 2008, For (D) and (E), p 112, Yearly Industrial Statistical Book Issued in 2008

In the rubber products industry, there are only three companies. All of them are engaged in tire recycling. Most tires consumed in the country, including retreaded ones, are imported. While domestic consumption amounts to R.O. 52 Million, domestic production (recycling) is limited to R.O. 1 Million. The local recycling companies are primarily handling high value added lorry tires.

Cost composition and value added ratio for the entire subsector are shown in Table 4.2-21. Companies with 200 or more employees are different in some aspects from other size groups because they include manufacturers of plastics in primary form. A specific character in common with the industry is a relatively low percentage of the utilities cost in the entire production cost, at around 2-3%. In contrast, the raw material cost is high at 83% to reflect a high level of dependency on imported materials.

For the industry to improve competitiveness, it is imperative to transform itself as a sector effectively linked to local supply sources of raw materials.

Table 4.2-21 Cost Structure of Plastics and Plastic Products Subsectors

| Establishment Scale by No. of Employees | (1) Manpower (G)/(F) | (2) Utility (M)/(F) | (3) Raw Material (A)/(F) | (4) Value Added (K)/(L) |
|---|-------------------------|------------------------|-----------------------------|----------------------------|
| 200 to 9999 | 10% | 3% | 81% | 36% |
| 100 to 199 | 7% | 2% | 87% | N.A. |
| 50 to 99 | 17% | 3% | 69% | 48% |
| 30 to 49 | 11% | 3% | 84% | 36% |
| 20 to 29 | 7% | 3% | 90% | 20% |
| 10 to 19 | 19% | 3% | 75% | 32% |
| Average | 10% | 3% | 83% | 26% |

| Establishment Scale by Number of Employees | Raw Materials and the Like Consumed | | | | | Other Costs | | | Manufacturing Cost (F)+(G)+(H)+(I) | Gross Value Added* (K) | Finished Goods Manufactured* (L) | Utility Cost (M) = (B)+(C)+(D) | Book Value of Plant, Machinery and Other Equipment (End of Year)* (N) |
|--|-------------------------------------|---------------|------------------------|--------------------------|----------------------------|--|-----------------------------------|---------------------|---------------------------------------|---------------------------|-------------------------------------|--------------------------------------|--|
| | Raw Materials* (A) | Fuels* (B) | Electric Power* (C) | Industrial Water* (D) | Other Variable Cost (E) | Sub-total* (F) = SUM((A) to (E)) | Compensation of Employees* (G) | Rental Fee** (H) | | | | | |
| 200 to 9999 | 24,487 | 145 | 488 | 132 | 452 | 25,704 | 2,980 | 27 | 1,503 | 30,214 | 39,879 | 765 | 7,513 (Note 2) |
| 100 to 199 | 16,107 | 41 | 323 | 27 | 0 (assumed) | 16,498 | 1,207 (Note 1) | 136 | 580 | 18,421 | 23,169 | 391 | 2,899 (Note 2) |
| 50 to 99 | 3,279 | 18 | 111 | 7 | 47 | 3,462 | 785 | 48 | 461 | 4,756 | 6,615 | 136 | 2,307 |
| 30 to 49 | 7,335 | 95 | 138 | 17 | 39 | 7,624 | 982 | 39 | 110 | 8,755 | 11,961 | 250 | 550 |
| 20 to 29 | 3,903 | 36 | 83 | 7 | 20 | 4,049 | 287 | 17 | 0 | 4,353 | 5,071 | 126 | 0 |
| 10 to 19 | 1,624 | 21 | 39 | 8 | 35 | 1,727 | 409 | 37 | 0 | 2,173 | 2,543 | 68 | 0 |
| Total | 56,735 | 356 | 1,182 | 198 | 593 | 59,064 | 6,650 | 304 | 2,654 | 68,672 | 89,238 | 1,736 | 13,268 |

ISIC Code: 25, Rubber / Plastic Products (Unit: TRO)

Note 1: The figure is calculated assumed that the compensation per capita is the same as that of the group of "200 to 9999" (The numbers of employees are 597 and 1,474 for the "100 to 199" and the "200 to 9999", respectively).

Note 2: The figures are calculated assumed that the book values are in proportion to those of the paid-up capitals (The capitals are 1,950 TRO, 2,450 and 6,350 for the group "50 to 99", "100 to 199", and "200 to 9999", respectively).

Source: * Yearly Industrial Statistical Book, issued in 2008

4.2.6.2 Plastics in primary forms

This subsector consists of one PP manufacturer and one PET manufacturer⁹. Each employs more than 100 workers.

Oman Polypropylene, a PP manufacturer, produces homo-polymer for making sheets and films by using raw propylene supplied by refineries. Most products are exported to India, the Middle East and Asia under long-term contract, and only small portions are consumed locally to make plastic shopping bags.

The company does not make PP co-polymer used for household containers and pipes and imports all it needs. As raw propylene supply capacity of refineries is limited, the company needs to find a new supply source if production is to be expanded.

OCTAL another company, has been manufacturing PE within the Salalah Free Zone since 2008 and currently produces 300,000 tons per year of PET resin and sheet together (APET). Principal materials, PTA and ethylene glycol, are imported. Most products are exported under long-term contracts, while small portions are used for local production of PET bottles.

At present, construction of a PTA plant is planned in Sohar. Also, in Duqum, ethylene and EG plants are being planned. When these plants are completed, the upper stream for local PET production will be established.

4.2.6.3 Plastic molded products

Main applications of plastic molded products in Oman include: (1) construction materials; (2) plastic shopping bags and packaging materials; and (3) kitchen goods and household goods.

Companies in the subsector purchase plastic resins (pellets) or sheets and process them by injection or molding. It is a capital-intensive industry relying heavily on machinery and equipment and is strongly influenced by raw material prices that fluctuate with crude oil prices. In particular, large manufacturers operate by relying on economies of scale, whereas small ones are specialized in production of high value added, competitive products targeted for a specific market.

⁹ According to Yearly Industrial Statistical Book, there are four companies, but detailed information on two companies is not known.

(1) Construction materials

Plastic materials for construction purpose include bars, pipes, joints, sheets, films, and bath tubs. 14 companies are classified in this subsector. Major portions of their business come from public projects to which they supply products via construction companies. Thus, they need marketing activities targeting contractors, consulting firms, and owners.

Eight companies manufacture plastic pipes. Four of them employ more than 100 workers, and the remaining four 30-100 employees. In the country, low-cost PVC pipes were initially used to replace steel ones. Then, as it became known that PVC pipes were brittle at low and high temperature and could generate chlorine, PE and PP pipes are increasingly used for waterworks and food industries. Maximum diameter for commercial production is limited to around 300mm for PVC pipes, 1,000mm for PE pipes, and 100mm for PP pipes. For replacement of large diameter steel pipes, reinforced plastic pipes, such as GRP¹⁰ and GRE¹¹, are expanding market channels.

PVC/PE/PP pipes are made by using an extruder. They are generally manufactured according to ISO and other specifications designated by customers. While PVC pipes are made by using proprietary technology, PE/PP pipes use technology licensed by West European companies. Thus, these pipes achieve quality that can compete with those of imported products and enjoy a higher profit margin on account of cost advantage in terms of transportation. The local manufacturers are fairly large and maintain market share by offering low prices achieved by economies of scale.

In particular, PVC pipes are subject to price competition due to the lack of a differentiating factor and thus constitute a market advantageous to manufacturers with large capacity. On the other hand, PE pipes have wider applications and allow manufacturers to gain a higher profit margin, although large enterprises are currently enjoying cost advantage based on production capacity.

PP pipes are made by three manufacturers having 30–50 employees each. They expand share in applications that are not suitable for PVC and PE pipes, such as water supply systems and food industries that handle high temperature water (50–95°C).

Reinforced plastic pipes are increasingly used to replace steel pipes in applications where plastic pipes were previously unacceptable. There are two manufacturers, one of which is a multinational employing 200 workers. Detailed information on other company is not known.

¹⁰ GRP: Grass-Fiber Reinforced Plastic

¹¹ GRE: Grass-Fiber Reinforced Epoxy

GRP pipes are used by PDO for its oil and gas pipelines, totaling 150km in length. They are also used in seawater intakes at refineries, a fertilizer plant in Sur, a methanol plant in Salalah, etc. GRE pipes are mainly used for waste water handling, for which large diameter pipes are difficult to make. They have price competitiveness against steel pipes. Demand is expected to grow further, although efforts should be made to change the industry's traditional practice to use steel pipes for oil and gas applications.

Three companies make bath tubs and other products using fiberglass. One company employs around 160 persons, and the other two companies have 30 employees each. The former manufactures bath tubs, shower trays and other products by vacuum forming an acrylic resin sheet according to a mold, followed by manual application of fiber glass to the rear side. The company also makes whirl pool bath tubs to substitute imports and sells them to distributors. On the other hand, the smaller companies make bath tubs and water tanks by manual application of fiber glass and mainly serve as subcontractor for construction companies.

Wall and roof insulation materials are made by a company with 50 employees. It produces EPS by using purchased PS as well as LPG and processes it into plate or other shapes by means of injection molding. Demand for insulation materials is growing steadily because their use is required for roof and walls of government buildings and walls of other buildings. Import of insulation materials is limited because of bulkiness. On the other hand, the market for locally made products is confined to Oman only.

(2) Plastic shopping bags and packaging materials

Packaging materials, plastic shopping bags for supermarkets, other bags, and industrial bags are included. According to statistics, there are 20 companies under this category.

Packaging materials are mainly used for foodstuffs, detergents, soaps, and cosmetics. They are single-layer or laminated films made of BOPP, OPA, PET, PVC, aluminum foil or LLDPE, on which a label and other information are printed. In the country, there are two companies making these products. One employs 135 persons and the other 70 persons. They use specially-designed large printing machines. Product quality is governed by printing clearness. They make products that can compete with those made in industrialized countries in terms of quality and competitiveness. Their products are shipped to both domestic and export markets.

As much as 15 companies seem to manufacture plastic shopping bags, other bags, and industrial bags. Their workforce ranges between 30 and 250 persons. Shopping bags are made from PE or PP, which is formed into films by an extruder, followed by printing. The industry

has a relatively long history (around 30 years) and old extruders are widely used. While quality of printing is a critical factor to determine competitiveness, the market is also characterized by price competition.

Industrial bags are positioned between packaging materials and shopping bags. They are made by weaving long and narrow PP fibers. The manufacturer of these bags employs more than 100 workers. Industrial bags are used for a variety of products, including chemicals, carbon black, PET chips, and construction materials. PP made in the country is processed by the extruder to make long fibers, which are machine woven to a sheet. Some products are laminated by using special equipment to keep a product that requires special protection. As all the products are made according to applicable international standards, their quality is guaranteed and can compete with foreign products. While printing quality is an important factor for competition, required quality levels are not as high as those for packaging materials. The critical success factor is to meet customer needs, while improving price competitiveness by lowering costs through volume production.

This subsector also includes one manufacturer specialized in PET bottle production, which is relatively small with 14 employees. Products are made from PET pellets made in Oman by the blowing method using latest equipment. Their market is limited within the country because of bulkiness of bottles. In Oman, PET bottles for water and soft drinks are mostly made in-house by food manufacturers. However, as the company grows, food manufacturers are increasingly outsourcing the manufacture of bottles in order to save their own personnel, equipment, and technology.

(3) Kitchen goods and household goods

In this subsector, there are 11 companies that make a variety of goods including tableware, kitchen goods, cosmetics, household goods, office supplies, and school supplies. Most of them employ 30-70 persons each. The market is flooded with low-priced imports from China and other countries. The local companies are divided into several high-volume product manufacturers that compete with imported goods and those making niche products by focusing on a specific product and emphasizing quality.

The mass product makers typically use old injection molding machines by carrying out careful maintenance and repair. As they cannot expand to industrial parts because of low quality, they focus on high-volume products, such as plastic buckets, for which quality is not considered to be important. While they have to keep price competitiveness against low-priced imports, they cannot survive by relying on this strategy alone. Instead, some companies try to survive as a specialized processor (costing company) that makes products for a foreign customer, who supplies raw resins, pays the processing cost, and buys 70% of products. Their continued

operation is supported by low raw material costs and industrial estates that provide various benefits.

On the other hand, a niche product manufacturer focuses on PP-made kitchen goods such as containers, which are distinctively designed, including colors, and are made by latest injection molding machines. As a result, it has successfully gained firm share in the domestic market and exports significant portions of products. The company is planning to develop insulating food containers, which are customized to the local market needs¹².

4.2.6.4 Retreated tire products

There are three companies engaged in recycling of tires. They mainly retread lorry tires because of the high value added. They employ 10 – 30 workers and serve the local market. The tire market in the country is dominated by new tires (70%). Demand for retreated tires remains flat at present, but competition is expected to intensify as two companies plan to enter the market by 2010 in anticipation of lorry demand growth triggered by the increase in construction projects.

4.2.7 Non-metal Mineral Products Sector

4.2.7.1 Overview

This sector is roughly divided into subsectors based on nonmetal mineral resources produced locally, such as cement, crushed stone, blocks and tiles, and marble, and those relying on low-cost gas, including glass and sanitary ware.

Table 4.2-22 shows the production (in shipment value) by subsector. The largest size of production is seen in cement subsector, followed by construction/ building materials subsector.

¹² A PP-made color container's inner side is lined by a stainless steel sheet and urethane is packed in between. A label is printed on the outer container (decal).

**Table 4.2-22 Yearly Shipment by Manufacturing Sector by Commodity
(Non-metallic Mineral Products Subsector)**

| SITC | Commodity | Shipment | | | | | | Average Annual Growth Rate (%) | | |
|--|---|-----------|------------|-----------|------------|-----------|------------|--------------------------------|-----------|-----------|
| | | 2002 | | 2005 | | 2007 | | 2002-2005 | 2002-2007 | 2005-2007 |
| | | (T.R.O.) | % of total | (T.R.O.) | % of total | (T.R.O.) | % of total | | | |
| 2610 | Glass & glass fiber products | 14,309 | 1.0 | 23,865 | 0.9 | 32,037 | 0.8 | 18.6 | 17.5 | 15.9 |
| 2691 | Ceramic kitchen & sanitary ware | 452 | 0.0 | 1,325 | 0.1 | 2,321 | 0.1 | 43.1 | 38.7 | 32.4 |
| 2692, 2693, 2694 excl. 2694-40, 2695, 2699 | Non-metallic mineral construction/building materials (excl. cement) | 64,699 | 4.6 | 71,857 | 2.8 | 84,296 | 2.1 | 3.6 | 5.4 | 8.3 |
| 2694-40 | Cement | 13,454 | 1.0 | 71,974 | 2.8 | 112,925 | 2.7 | 74.9 | 53.0 | 25.3 |
| 2696 | Marble | 10,029 | 0.7 | 24,390 | 1.0 | 34,937 | 0.8 | 34.5 | 28.4 | 19.7 |
| 26 | Non-metallic mineral products | 102,943 | 7.4 | 193,411 | 7.7 | 266,516 | 6.5 | 23.4 | 21.0 | 17.4 |
| Manufacturing Sector Total | | 1,391,504 | 100 | 2,526,661 | 100 | 4,111,166 | 100 | 22.0 | 24.2 | 27.6 |

Source: MOCI, "Yearly Industrial Statistical Book" (Data: 2002, 2005 & 2007)

Table 4.2-23 Number of Enterprises by Number of Employees

| Size in number of enterprises | Number of enterprises |
|-------------------------------|-----------------------|
| 200 or more | 9 |
| 100-199 | 12 |
| 30-99 | 52 |
| 10-29 | 34 |
| Less than 10 | 77 |
| Total | 184 |

Table 4.2-23 shows the number of enterprises in the entire sector, by size of employment, and the breakdown by subsector is shown below. A total of 111 enterprises, representing 60% of the total, have less than 30 employees. Slightly over 40% of the small enterprises (totaling 77) employ less than 10 persons and are mainly seen in the subsector making concrete and cement products (including concrete blocks and tiles) (59 companies) and in the subsector making "other products" such as crushed stone (11).

| ISIC | Products | Number of enterprises | (Of which, those with less than 10 employees) |
|-------|---|-----------------------|---|
| 2610 | Glass and glass products, including fiber glass products | 14 | 4 |
| 2691 | Ceramic products for kitchen ware and sanitary ware | 1 | |
| 2692 | Fireproof ceramics (bricks and blocks, etc.) | 2 | 1 |
| 2694 | Cement, lime stone and gypsum | 7 | |
| 2695 | Concrete and cement products (Concrete block tiles, etc.) | 91 | 59 |
| 2696 | Processed stones including marble and marble tile | 18 | 2 |
| 2699 | Others including aggregates | 51 | 11 |
| Total | | 184 | 77 |

The value of production of nonmetal mineral products, and their exports and imports in recent years are shown in Table 4.2-24.

Table 4.2-24 Production, Export and Import of Non-metal Mineral Products

Unit: R.O.million

| Year | Import (A) | Production (B) | Export (C) | (A+B-C) |
|------|------------|----------------|------------|---------|
| 2003 | 45 | 127 | 14 | 158 |
| 2004 | 47 | 156 | 24 | 179 |
| 2005 | 48 | 197 | 34 | 211 |
| 2006 | 60 | 235 | 35 | 260 |
| 2007 | 94 | 276 | 42 | 328 |

Major portions of exports are destined to the GCC countries, and mainly consist of construction materials and crushed stone. Major export items and their values by destination are shown in Table 4.2-25

Table 4.2-25 Major Export Products of Non-metal Minerals

(in 2007; Unit: R.O.million)

| Product | GCC Countries | Other destinations | Total |
|--|---------------|--------------------|-------|
| Building materials made of stone and marbles | 13 | 2 | 15 |
| Ceramic tiles, etc. | 12 | 6 | 18 |

The value of production in the sector expanded by 150% between 1991 and 2007, and the value exports by 230% during the same period. Demand for nonmetal mineral products is closely associated with construction activities such as infrastructure, housing, commercial development, and industrial plants, and the sector's firm growth is fueled by the thriving development projects in Oman and the UAE. Given the recent subduing of the construction boom in Dubai, however, major export items are shifting from construction materials to glass bottles and industrial lime.

While most companies in the sector use locally available raw materials, the material cost as share of the total production cost varies greatly between large enterprises (200 or more employees) and small enterprises (10 or less). It is relatively low (33%) for cement manufacturers using large-scale facilities and equipment, whereas very high (80%) for small stone pit operators and concrete block manufacturers. Valued added by small enterprises with a low rate of mechanization is limited to 38% because their operation depends on manual labor. On the other hand, that by large enterprises reaches as high as 75% on strength of good productivity derived from large equipment.

The sector is, by nature, characterized by large energy consumption. Some medium-sized enterprises strive to increase value added by achieving cost reducing through investment in energy-saving machinery and equipment for ceramics, blocks and ready-mixed concrete.

The following analyzes the potential areas of non-metal minerals:

(1) Construction materials

As construction activities are expected to reemerge with the end of the ongoing recession triggered by the financial crisis, the sector has high potential to go back to expansion with growth of demand for construction materials in Oman and other GCC countries.

Nevertheless, mass produced materials, which are not bulky or heavy, have to face fierce competition with imports. Seemingly, the nonmetal mineral products industry is required to pursue the following strategies.

1. Adaptation to diversified demand for construction materials (e.g., introduction of new technology and the improvement of durability and functionality)
2. Exploration of new materials by taking into account energy saving and other emerging needs

In this connection, it is important to collect information on world technology trends in the field of construction materials and to take appropriate and timely action.

Primary examples of new materials to meet emerging needs are gypsum boards that have excellent performance in terms of fire resistance, insulation, and soundproofing, and rock wools that are superb insulation and inflammable materials. At present, several companies import these products, which are used for ceilings and partition walls of buildings. Construction methods using these materials are increasingly adopted for office buildings and industrial plants. Also, the country has high quality silica sand resources that are used for local production of calcined lime, and commercial development of lime/silicate-based materials is expected.

(2) High-end construction and interior finish materials

A primary example of these materials available in Oman is marble. In addition to export of marble stone, some companies manufacture and market marble products having higher value added in terms of design and functionality, and which are increasingly accepted in the international market. Also, uses of marble can expand to encompass many housing-related products, for interior decoration and furniture and even as exterior finish.

4.2.7.2 Glass and fiberglass products

There are 14 establishments manufacturing glass and fiberglass products, of which 10 are engaged in the manufacture of fiberglass processed (GRP) products, while others make glass containers and decorative glass products. There is no manufacturer of plate glass due to the small demand.

One company makes glass containers by using locally produced materials, i.e., limestone, silica and natural gas. It has the largest production capacity in the Middle East and exports 85% of products to other GCC countries. The product line ranges from small bottles (for perfume, pharmaceuticals, and seasonings) to large beverage bottles. As demand for carbonated drinks is expected to grow in the region, the company will likely expand its business. As for decorative glass making, one company produces decorative materials for construction by coloring imported plate glass with resin. However, there is not sufficient demand to allow reliance on a single product and the company handles other construction materials while making customized

production.

Commercial production of GRP products in the country started in the 1980s, covering a wide variety of applications ranging from fishing boats to furniture and household sanitary fixtures. However, demand for boats became saturated and furniture and bathtubs were increasingly made of plastics or ceramics, so that GRP's applications were concentrated in construction materials because of its advantages in terms of lightweight, durability, and reparability. In particular, new applications of GRP pipes for oil and gas transport were developed and a company started commercial production using proprietary technology. Other FRP manufacturers are specialized in custom-made production of tanks and manholes with small demand, but they still rely on manual work due to difficulty in mechanization. It is possible to diversify into production of insulation materials using short fiber glass, but it takes marketing capability and financial resources for investment.

4.2.7.3 Cement

Cement production is made by two companies that are located in the southern and northern parts of the country and use limestone and gypsum that are widely available in the country. With the rise of crude oil prices after 2000, a number of construction projects have been launched to spur cement demand in general. In the recent few years, however, actual supply and demand conditions have been fairly unstable with significant price fluctuations. Most recently, the domestic market prices are on the declining trend due to the inflow of products from the UAE caused by the recession in Dubai.

4.2.7.4 Lime, gypsum and plaster

In this subsector, local applications have emerged to meet domestic demand, i.e., production of hydroxide lime and calcium carbonate from extracted limestone for chemical treatment purposes (oil drilling mud and sewage treatment). As the transportation accounts for the major portion of costs of these products, there is no strong competitor and production is limited to domestic demand. As the lime business is closely related to the mining of limestone, it is now operated by the mining company. In the future, however, as the new applications expand in market size, they accompany new customers. Accordingly, new business opportunities are expected to emerge. Also, bulk transport and application-related R&D are becoming critical.

4.2.7.5 Ready-mixed concrete

The ready-mixed concrete business is required to supply a product according to the customer's order, in specified quantity and at a specified time. To meet the requirements, strict quality control and transportation management are required. Also, substantial investment is required prohibiting easy entry by small enterprises. Meanwhile, ready-mixed concrete, by nature, cannot be kept in stock, so sales are limited in terms of production capacity as well as a geographical range of delivery. As a result, the plant location are restrained. Major customers are construction companies but sales activity targeting project owners and design offices (consulting engineers) plays a critical role.

4.2.7.6 Concrete block and cement tile production

This subsector is essentially a resource-based industry to make constructional materials by using local resources. As advanced technology or substantial investment is not required to make concrete blocks and cement tiles, many companies have entered the business. At present, there are 59 small enterprises and 32 large enterprises active.

Current production of cement and concrete products for construction purpose is targeting the domestic market. In addition, the range of supply is limited to a certain area around production facilities, as determined by transportation cost. For this reason, there is a large number of small manufacturers that target the local market, intensifying competition.

Cement production, by nature, serves the domestic market but a company is operating near the international border with the UAE in order to benefit from geographical advantage. In this case, cement is imported from the UAE and 70% of products are targeted to the nearby market in Abu Dhabi. The company maintains export competitiveness by installing latest production equipment including the drying process using waste heat.

4.2.7.7 Crushed stone

The stone crushing industry (crushers) is founded on resources abundant in the country. There are a large number of establishments, totaling 53, for two reasons. First of all, quarries are located throughout the country, mainly wadi and rock mountains. Business registration is required for each quarry, resulting in the large number. Secondly, cement and concrete block manufacturers using crushed stone register their crushing divisions as separate companies. Also, marble manufacturers use other establishments to handle crushed stone produced at their quarries or tile production facilities. As this business requires significant investment, such as a large work site and machinery, the industry is dominated by large corporations. Crushers have expanded business to the downstream sector, such as production of concrete blocks and curbstone, using

crushed stone. Successful companies have even entered the ready-mixed concrete business. Note, however, that the market is segmented geographically, such as Muscat and Sohar, because concrete products are heavy and ready-mixed concrete is subject to geographical restraint.

4.2.7.8 Marble

Manufacturers of marble and other stones are founded on local resources. Marble is essentially a domain of large enterprises with international competitiveness because marketing constitutes a key success factor. Marble in Oman has a long history of commercial exploitation and originally served domestic demand. Then, exports have expanded steadily and majority of output is now supplied to the export market.

In the world market, marble produced in Oman is ranked much higher than that made in China and India. While it is ranked next to the premier class in Italy and Spain, it competes with products from Greece and Turkey.

Marble is traditionally used for interior finishing. Recently, it is increasingly used as interior decorative materials although the amount of consumption for this purpose is small. As a result, a supply chain to meet the market trend is needed. Oman's marble has a strong competitive advantage in the ability to maintain brand power by diversifying product offerings, partly because its marble resources are greatly varied in color and tone and partly because the country prohibits block stone export. A major challenge is to mechanize quarry operation that is currently dependent upon hard labor of foreign workers.

4.2.7.9 Kitchen ware, sanitary ware, and ceramic tiles

Production of sanitary ware consumes a large amount of energy, similar to glass bottle making, and is based on availability of gas supply in the Sohar district. It emerged with the export market as a primary target, taking advantage of mineral resources, such as limestone, and local gas fuel. Furthermore, it focuses on the middle class market where there is no competition with European products, particularly in emerging markets with high growth potential, such as India, Southeast Asia, and Africa.

Manufacturers of glass bottles and sanitary ware in the country have the primary strength in that their business concept clearly targets the overseas market and they are capable of achieving quality and price levels as planned. Maintaining such market-oriented operation and management is essential in ensuring competitiveness, but boosting production capacity is also an important source of competitiveness. In this connection, a major challenge is to secure a stable gas supply.

4.2.8 Basic Metals and Metal Products Sector

4.2.8.1 Overview

The industry is divided into basic metals as the upstream and metal products as the downstream. At present, there is little linkage between the two subsectors.

The basic metals subsector mainly consists of iron and steel making and aluminum smelting. Previously, copper smelting played a principal role. Today, it has lost presence due to the depletion of local resources. On the other hand, there are several rare metal resources in the country.

On the other hand, the metal products industry mainly manufactures construction materials for buildings and plants including oil drilling facilities, together with small products for housing (such as gates and doors). All of their principal materials, steel and aluminum, is imported. The situation is similar to the machinery industry (see 4.2.9), which imports most of the metallic materials and intermediate products needed for machining, thus having little linkage to the upstream basic metals sector.

Table 4.2-26 shows the production (in shipment value) by subsector.

**Table 4.2-26 Yearly Shipment by Manufacturing Sector by Commodity
(Basic Metal & Metal Products Subsector)**

| SITC | Commodity | Shipment | | | | | | Average Annual Growth Rate (%) | | |
|--------------------------------|--|---------------|------------|----------------|------------|----------------|------------|--------------------------------|-------------|-------------|
| | | 2002 | | 2005 | | 2007 | | 2002-2005 | 2002-2007 | 2005-2007 |
| | | (T.R.O.) | % of total | (T.R.O.) | % of total | (T.R.O.) | % of total | | | |
| 2710 | Iron & steel | 35,067 | 2.5 | 100,810 | 4.0 | 163,499 | 4.0 | 42.2 | 36.1 | 27.4 |
| 2720 | Non-iron/steel | 13,240 | 1.0 | 24,000 | 0.9 | 39,983 | 1.0 | 21.9 | 24.7 | 29.1 |
| 2731 & 2732 | Cast iron/steel | 607 | 0.0 | 748 | 0.0 | 970 | 0.0 | 7.2 | 9.8 | 13.9 |
| 27 | Basic metals | 48,914 | 3.5 | 125,558 | 5.0 | 204,452 | 5.0 | 36.9 | 33.1 | 27.6 |
| 28 excl. 2811-42&44 | Metal products (excl. aluminum products) | 11,919 | 0.9 | 27,753 | 1.1 | 63,350 | 1.5 | 32.5 | 39.7 | 51.1 |
| 2811-42&44 | Aluminum products | 8,076 | 0.6 | 1,099 | 0.0 | 2,806 | 0.1 | -48.6 | -19.1 | 59.8 |
| 3610 | Metal furniture | 20,554 | 1.5 | 26,180 | 1.0 | 44,334 | 1.1 | 8.4 | 16.6 | 30.1 |
| 28, 36101x & 36102x | Metal products | 40,549 | 2.9 | 55,032 | 2.2 | 110,490 | 2.7 | 10.7 | 22.2 | 41.7 |
| Manufacturing Sector Total | | 1,391,504 | 100 | 2,526,661 | 100 | 4,111,166 | 100 | 22.0 | 24.2 | 27.6 |

Source: MOCI, "Yearly Industrial Statistical Book" (Data: 2002, 2005 & 2007)

At present, plans are being made to form inter-industrial linkages between the aluminum smelting (which started commercial operation in 2008) and the downstream sector to manufacture aluminum products, and between an integrated steel plant (currently under construction) and iron and steel product manufacturers.

4.2.8.2 Basic Metals Subsector

As of 2007, the subsector consisted of 17 companies, which distribution by employment size is shown in Table 4.2-27.

Table 4.2-27 Number of Enterprises by Employment Size in Basic Metal Subsector

| Size in number of employees | Number of enterprises |
|-----------------------------|-----------------------|
| 200 and more | 4 |
| 100-199 | 2 |
| 30-99 | 3 |
| 10-29 | 2 |
| Less than 10 | 6 |
| Total | 17 |

Table 4.2-28 shows the distribution of enterprises by product group.

Table 4.2-28 Number of Enterprises by Product Group in Basic Metal Subsector

| ISIC and Product | Number of enterprises | (Of which, less than 10 employees) |
|--|-----------------------|------------------------------------|
| 2710 Iron and steel | 9 | 3 |
| 2720 Precious metal/ non-iron metal | 6 | 3 |
| 2731 Cast iron/steel | 1 | |
| 2732 Cast metal other than iron | 1 | |
| Total | 17 | 6 |

Note that the above figures were collected in 2007, when large projects did not start yet, including Sohar Aluminum (an aluminum smelter that started commercial operation in 2008), a pig

iron pellet manufacturing plant (currently in the planning or construction stage), and an integrated steel plant.

(1) Iron and steel

Companies in the iron and steel industry are divided into manufacturers of iron and steel products from imported scrap and iron ore, and foundries that process imported scrap castings. The former consists of nine companies, of which three companies have less than ten employees and one operates a large rolling mill in Sohar.

Raw materials are imported from Turkey, China, Ukraine, the U.S., and Europe. Previously, India was a principal import source, but rapid growth of demand in the country necessitates sourcing from a variety of countries.

Products made in Oman are largely supplied to local metal products manufacturers, while some portions are exported.

In Sohar, large iron and steel making projects are in the planning or construction stage. One of them will be operated by a large company based in Brazil and will process imported iron ores into pellets.

The other will make iron and steel products at an integrated steel plant (including a large blast furnace) by using imported iron ores (or pellets produced at the above mill once it has started commercial operation). However, the plan may be changed in the future due to the change in ownership during plant construction.

Both projects are quite large in scale and have been incepted by taking advantage of large land, good port facilities and low-cost gas supply.

(2) Aluminum

There is only one aluminum maker, Sohar Aluminum, which started operation in 2008. As seen in the case of the iron and steel subsector, this project is very large and tries to take advantage of large land, good port facilities, and cheap gas supply. The company is currently producing liquid aluminum and aluminum ingots only and exports all products. At the same time, as the company is obliged to consume around 60% of total production locally according to an agreement with the Omani government, it imports aluminum products and supplies them to local manufacturers of aluminum products. In the future, it intends to diversify products to meet demand from downstream subsectors in the country.

At present, there is no company manufacturing aluminum ingots through the recycling of used aluminum products.

4.2.8.3 Metal Products Subsector

The subsector's composition by employment size is shown below.

| Size in number of employees | Number of enterprises |
|-----------------------------|-----------------------|
| 200 and more | 7 |
| 100-199 | 8 |
| 30-99 | 19 |
| 10-29 | 19 |
| Less than 10 | 49 |
| Total | 102 |

The composition by industry type is shown below.

| ISIC and Product | Number of enterprises | (Of which, less than 10 employees) |
|------------------------------|-----------------------|------------------------------------|
| 2811 Metal structure | 62 | 28 |
| 2812 Tanks and reservoirs | 2 | 1 |
| 2892 Metal surface treatment | 8 | |
| 2893 Kitchen ware | 8 | 8 |
| 2899 Other metal products | 22 | 12 |
| Total | 102 | 49 |

As seen in above Table, ironworks account for the largest share. Many of them make structures relating to oil drilling operation, tanks and containers. They mainly used imported iron and steel products for production and have little linkage to the local steel industry. Manufacturers point out quality problems relating to local products.

On the other hand, three companies (each employing around 100 workers) are specialized in maintenance and repairing of machine parts and metal molds used by the oil drilling industry. They are also engaged in maintenance and repairing of dies and molds for food processing and other manufacturers. Overall, they constitute company groups that make the above structures.

In addition, there are a large number of small metalworking companies (less than 10 employees) that provide contract job shop service, although accurate data are not known. Their operations include grinding and finishing of automotive parts and the assembly of metallic doors for housing by welding.

On the other hand, there are many companies engaged in processing of aluminum products. Large companies import aluminum billets and make large construction materials of various types, including powder-coated, extruded products and contour machined products. Again, they do not make purchase from the local aluminum smeltery and use imported materials, because the local smeltery does not produce billets.

On the other hand, the subsector is dominated by small manufacturers that make aluminum doors, window frames and other products upon customer's order by using locally produced or imported materials.

4.2.9 Machinery Sector

4.2.9.1 Overview

The major “Metal and Machinery Industry” Sector in Oman consists of; (1) the machinery sector (ISIC Code 29), (2) the electric machinery sector (ISIC-31) and (3) the automotive components manufacturing sector (ISIC-34).

The electrical machinery sector includes manufacturers of insulated cables and wires and automotive batteries. The automotive components manufacturing sector is currently dominated by manufacturers of automotive oil filters, rather than machine parts.

Table 4.2-29 shows the production (in shipment value) by subsector. The dominantly largest size of production is seen in cable and wire subsector. As for the automotive parts components, the table includes batteries only.

**Table 4.2-29 Yearly Shipment by Manufacturing Sector by Commodity
(Machineries Subsector)**

| SITC | Commodity | Shipment | | | | | | Average Annual Growth Rate (%) | | |
|----------------------------|---|-----------|------------|-----------|------------|-----------|------------|--------------------------------|-----------|-----------|
| | | 2002 | | 2005 | | 2007 | | 2002-2005 | 2002-2007 | 2005-2007 |
| | | (T.R.O.) | % of total | (T.R.O.) | % of total | (T.R.O.) | % of total | | | |
| 291x & 292x | General purpose machinery | 5,929 | 0.4 | 12,973 | 0.5 | 20,736 | 0.5 | 29.8 | 28.5 | 26.4 |
| 2930 | Household apparatus | 1,738 | 0.1 | 2,750 | 0.1 | 4,261 | 0.1 | 16.5 | 19.6 | 24.5 |
| 3120 | Electrical machinery for power transmission | 5,713 | 0.4 | 11,076 | 0.4 | 24,991 | 0.6 | 24.7 | 34.3 | 50.2 |
| 3130 | Insulated wire and cable | 20,803 | 1.5 | 60,577 | 2.4 | 217,445 | 5.3 | 42.8 | 59.9 | 89.5 |
| 3140 | Batteries | 5,516 | 0.4 | 10,236 | 0.4 | 19,809 | 0.5 | 22.9 | 29.1 | 39.1 |
| 3150 | Lamps | 632 | 0.0 | 372 | 0.0 | 571 | 0.0 | -16.2 | -2.0 | 23.9 |
| 29 & 31 | Machineries | 40,331 | 2.9 | 97,984 | 3.9 | 287,813 | 7.0 | 34.4 | 48.1 | 71.4 |
| Manufacturing Sector Total | | 1,391,504 | 100 | 2,526,661 | 100 | 4,111,166 | 100 | 22.0 | 24.2 | 27.6 |

Source: MOCI, "Yearly Industrial Statistical Book" (Data: 2002, 2005 & 2007)

The basic metal sector (ISIC-27), the metal furniture, the metal structural products and the metal products sector (ISIC-28) will be described separately, as the “Basic Metal and Metal Fabricated Products” Sector.

**Table 4.2-30 Import, Export, Production and Estimated Domestic Consumption
Machinery Industry Sector
(1991, 2006, 2007)**

(Unit: R.O. '000)

| 2007 | | | 2006 | | | 1991 | | |
|--------------------|----------------------|---|--------------------|----------------------|---|--------------------|----------------------|---|
| Total import (A) | Re-export (B) | Import for domestic (A-B) consumption | Total import (A) | Re-export (B) | Import for domestic (A-B) consumption | Total import (A) | Re-export (B) | Import for domestic (A-B) consumption |
| Production (C) | Export (D) | Production for domestic (C-D) consumption | Production (C) | Export (D) | Production for domestic (C-D) consumption | Production (C) | Export (D) | Production for domestic (C-D) consumption |
| Total supply (A+C) | Total export (B)+(D) | Total domestic consumption (A-B)+(C-D) | Total supply (A+C) | Total export (B)+(D) | Total domestic consumption (A-B)+(C-D) | Total supply (A+C) | Total export (B)+(D) | Total domestic consumption (A-B)+(C-D) |
| 3,246,200 | 888,393 | 2,357,807 | 985,900 | 71,934 | 913,966 | 541,100 | 123,476 | 417,624 |
| 302,676 | 179,717 | 122,959 | 171,818 | 89,511 | 82,307 | 31,386 | 763 | 30,623 |
| 3,548,876 | 1,068,110 | 2,480,766 | 1,157,718 | 161,445 | 996,273 | 572,486 | 124,239 | 448,247 |

The estimate scale of the domestic demand for the machinery and electric machinery sector was R.O. 2.4 billion and R.O. 80 million (in 2007); increased to approximately 5.5 times of the demand in 1991 (R.O. 450 million). However, it should be noted that among the total demand, only approx. 5% of R.O. 120 million were met by the domestic supply, whereas the net import had increased by 163% to that of the previous year (2006). In other words, the domestic machinery and electric machinery sectors, can supply only limited categories of machinery, compared to the diversified nature of demand for machinery.

Table 4.2-31 shows the positioning of major export items of the machinery sector in non petroleum product exports. Note that machinery exports are dominated by coaxial cables (86.6% of machinery exports in 2007). The second largest item is automotive batteries (8.3%). These two products account for a combined share of around 95%. However, they are not really machinery, electrical machinery or their parts but are classified into the sectors for convenience and other reasons, indicating real machinery exports from the country are very limited.

Electrical machinery exports include heaters and air conditioners, which are not very large in amount (R.O. 2 million and R.O. 700,000 in 2008, respectively). As these products compete in the domestic market with imports from China and India, local manufacturers focus on the high-end market, which represents around 25% of domestic demand (in the case of electric heaters). Thus, development of the export market is essential in maintaining an adequate operating rate. Here, upgrading of specifications and development capability are key sectors.

Table 4.2-31 Export of Major Products of Machinery Sector

(Unit: R.O. million)

| HS Code | Products | 2005 | % of total | | 2007 | % of total | |
|----------------------------------|--|-------|------------|----------|---------|------------|----------|
| | | | % of (A) | % of (B) | | % of (A) | % of (B) |
| 8544 | Insulated cables | 35.0 | 77.8 | 6.3 | 155.5 | 86.6 | 12.0 |
| 8507 | Storage batteries | 5.7 | 12.7 | 1.0 | 15.0 | 8.3 | 1.2 |
| | Sub-total | 40.7 | 90.5 | 7.3 | 170.5 | 94.9 | 13.2 |
| 84 | Total of machinery and their parts | 1.3 | 2.9 | 0.2 | 1.4 | 0.8 | 0.1 |
| 85 | Total of electrical machinery and equipments | 43.7 | 97.1 | 7.9 | 178.2 | 99.2 | 13.8 |
| Total machinery export (A) | | 45.0 | 100.0 | 8.1 | 179.6 | 100.0 | 13.9 |
| Total non-oil product export (B) | | 555.3 | | 100.0 | 1,290.7 | | 100.0 |

The domestic demand for automotive components has been increasing, while the domestic production is negligibly small compared to the size of the demand, so the domestic requirement has been met mostly by imported parts. Further, the major parts manufactured locally are electric accumulators and oil filters, which are included in the above Table 4.2.9-2 classified under HS Code 85 84 respectively, and not machine parts.

4.2.9.2 Machinery subsector

In the machinery sector there are 13 companies. They manufacture different types of machinery respectively, except for some duplication in certain lines, which include oil excavators, pumps, grinding wheels, refrigerators, electric water heaters, air conditioning equipment or fans and spare parts, etc. Apart from a company manufacturing electric water heaters, all others have less than 100 employees. Among them, two companies are small with less than 10 employees, manufacturing fans and spare parts respectively.

Table 4.2-32 shows the distribution of enterprises in the machinery subsector by size of employees.

Table 4.2-32 Number of Enterprises by Employment Size in Machinery Subsector

| Size in number of employees | Number of enterprises |
|-----------------------------|-----------------------|
| 200 and more | 0 |
| 100-199 | 1 |
| 30-99 | 9 |
| 10-29 | 1 |
| Less than 10 | 2 |
| Total | 13 |

All the companies but one company hire less than 100 employees. Of these, 3 companies employ less than 30 workers and 2 companies less than 10. In addition to companies included in the above statistics, there are machining workshop-type microenterprises with a few employees, details of which are not known.

Those enterprises of small and medium scale with less than 100 employees, import components specially designed for their products, and raw materials for general purpose, and carry out processing of the raw materials by machining, sheet metal processing, assembling, painting, and other work at their factory. The technologies utilized there include that developed in-house, or transferred together with the machineries from abroad. Outsourcing of a part of the process, or procurement of parts, is not practiced except for procurement of minor standardized parts. In general, use of machinery is advanced in their processes, and the ratios of labor costs among the manufacturing costs are not so high as 14% (Table 4.2-33). Compared with this, the raw material costs are as high as 85% on the average, reflecting the fact that most of the raw materials are

imported.

Table 4.2-33 Manufacturing Costs Structure of Enterprises in the Machinery Subsector by Size of Employees

Code: 29, Industry: Machinery/ Equipment nec.

| Establishment Scale | (1) Manpower % | (2) Utility % | (3) Raw Material % | (4) Value Added % |
|---------------------|----------------|---------------|--------------------|-------------------|
| 10 to 19 | 8% | 1% | 85% | 25% |
| 20 to 29 | | | | |
| 30 to 49 | 14% | 12% | 74% | 26% |
| 50 to 99 | 13% | 0% | 83% | 57% |
| 100 to 199 | 18% | 1% | 80% | 49% |
| 200 to 9999 | - | - | - | - |
| Average | 14% | 1% | 85% | 53% |

Note: The data for enterprises with 20-29 employees were excluded due to their low reliability.
There is no enterprises in the class of enterprises with more than 200 employees.

It is a noteworthy fact that there is a company with scale of 180 employees, which imports sheet steel coils, as one of major raw materials for this company, cuts in size with an in-house facility, and sells it to other users of sheet steel. This is a good example of extending their businesses to the relevant field of their own business.

Only one or two companies belong to the same machinery manufacturing respectively (Table 4.2-34). Most of them are focusing on middle to high end demands, in order to avoid competition with cheap priced Chinese products. As a result, they are successful in maintaining the high rates of market share in the domestic market (for example, in the case of a company manufacturing electric water heaters their market share is almost 75%).

Table 4.2-34 Distribution of Enterprises by Product Group

| ISIC | Product group | Number of enterprise | (Of which, those with less than 10 employees) |
|-------|--|----------------------|---|
| 2911 | Engines / turbines | 1 | |
| 2812 | Pumps, compressors, taps / valves | 2 | |
| 2919 | Other general purpose machinery | 4 | 1 |
| 2922 | Machine tools | 1 | |
| 2924 | Machinery for mine, quarrying / construction | 2 | 1 |
| 2927 | Weapons /ammunition | 1 | |
| 2930 | Domestic appliances | 2 | |
| Total | | 13 | 2 |

4.2.9.3 Electric machinery/ Equipment subsector

In the electric machinery and equipment sector (equivalent to ISIC 31), 13 companies are recognized, with major ones being eight companies manufacturing distribution panels and switchgears and two companies manufacturing electric wires and cables. Others include one manufacturing automotive batteries, one for electric lighting equipment and one for solar systems (there are reports that there are a couple of companies manufacturing electric lighting equipment other than those listed in the above).

The manufacturing of distribution panels, switchgears and electric wires and cables are all related to the infrastructure projects or plant construction projects in Oman and the GCCs. Although they suffered from the influences of the recent recession caused by the global monetary crisis to some extent, their businesses are still in good condition. Many of these companies, except one small company less than 10 employees (details unconfirmed) are large in scale including those with 2 enterprises with more than 200 employees and 2 with more than 100, and many of them belong to major industrial groups. Table 4.2-35 shows the distribution of enterprises in the electrical machinery subsector by size of employees.

Table 4.2-35 Number of Enterprises by Employment Size in Electrical Machinery and Equipment Subsector

| Size in number of employees | Number of enterprises |
|-----------------------------|-----------------------|
| 200 and more | 2 |
| 100-199 | 2 |
| 30-99 | 5 |
| 10-29 | 3 |
| Less than 10 | 1 |
| Total | 13 |

Each of their raw materials are imported, and the raw material costs are high in their manufacturing costs. For manufacturing of distribution panels it is 90.4% on the average, while for manufacturing of electric wires and cables it is even up to 98.7%. Manufacturing are taken place all in-house, and no outsourcing of work is practiced. Also, they have to keep raw material stocks at hand, since they depend entirely on imported materials, and have to keep production lead times short, resulting in cost increases.

Table 4.2-36 Manufacturing Costs Structure of Enterprises in the Electrical Machinery and Apparatus Subsector by Size of Employees

Code: 31, Industry: Electrical Machinery/ Apparatus nec.

| Establishment Scale | (1) Manpower % | (2) Utility % | (3) Raw Material % | (4) Value Added % |
|---------------------|----------------|---------------|--------------------|-------------------|
| 10 to 19 | 5% | 0% | 93% | 18% |
| 20 to 29 | 8% | 0% | 90% | 33% |
| 30 to 49 | 17% | 1% | 75% | 45% |
| 50 to 99 | 10% | 1% | 88% | 19% |
| 100 to 199 | 8% | 0% | 92% | 41% |
| 200 to 9999 | 1% | 0% | 97% | 16% |
| Average | 2% | 0% | 96% | 18% |

As for the labor cost as percentage of the production cost, companies with 50-99 employees shows a relatively high percentage (10-17%), whereas other companies remain at a low range of 1-8%.

Their base markets are local markets and nearby GCC markets, centering on Dubai. Since the products are all heavy in weight, transportation costs to distant locations are costly, which benefits the domestic companies in terms of competition. They are trying to keep competitiveness, meeting customers request on delivery time, using high quality raw materials of third party certified, and providing fine-tuned after service, etc. They are seeking for niche markets by focusing on their own grounds.

A manufacturer of automotive batteries is a large sized operation with 450 employees, and belongs to a major industrial group. At the initial stage of operation, they received a technical assistance from a global enterprise in this field, but it was terminated and currently they rely on in-house technology. All the raw materials are imported, and thus raw material costs account for as high as 90.1% the total manufacturing costs.

Its sales to the domestic market account for 10-15% of total production, while remaining sales are destined to overseas markets of 48 countries, centering on GCC countries. They are targeting the products of high quality and small lot but diversified product mix to fulfill the customer satisfaction, to avoid competition with low-priced imported batteries from China and Indonesia.

The manufacturer of solar systems has 49 employees. It imports solar panels made in Germany and Japan and assembles them according to the Middle East specifications by modifying parameters. Its products compete with those made by European and American manufacturers, but domestic share of imported products is limited to 5%. It tries to differentiate by designing its own battery housings. It exports products to the GCC countries including the UAE, Qatar and Kuwait, together with some African countries.

As described above, most of the companies are oriented towards high quality products in their own territory, to avoid competition with imported mass-produced and low-priced products. They use costly raw materials and have acquired machinery incorporating new technology. However, since they still lack their own capability for technology development, they need to make investment continuously, by importing renewed machinery and equipment, to maintain their competitiveness. It will be the big challenge of Oman, where the extension and deepening of industrial structure is not yet advanced.

5 Investment/Business Environment for Industrial Development

5 Investment/Business Environment for Industrial Development

5.1 Industrialization in the GCC Countries and Investment/Business Environment in Oman

In this section, industrialization policies in the GCC countries and the current rate of progress are outlined, and industrial development policy and business environment in Oman are reviewed in the context of regional industrialization.

5.1.1 Industrialization in the GCC Countries

(1) Overview

1) Economic activities and industrial sectors in the region

Table 5.1-1 compares economic activities in the GCC countries.

Table 5.1-1 Economic & Trade Indicators of GCC Countries (2007)

| | Bahrain | Kuwait | Oman | Qatar | Saudi Arabia | UAE | Total |
|--|---------|---------|--------|--------|--------------|---------|---------|
| GDP at Current Price (US\$ million) | 18,447 | 111,686 | 40,344 | 71,041 | 381,989 | 198,702 | 822,208 |
| GDP Growth Rate (%) | 16.4 | 10.0 | 12.9 | 25.1 | 7.1 | 16.8 | 11.6 |
| GDP in Mining, Quarrying & Fuel (US\$ million) | 4,629 | 61,023 | 18,380 | 40,240 | 192,914 | 71,636 | 388,822 |
| Contribution of Mining, Quarrying & Fuel Sector to GDP (%) | 25.1 | 54.6 | 45.6 | 56.6 | 50.5 | 36.1 | 47.3 |
| (as of 1997) | (18.7) | (39.4) | (40.4) | (42.3) | (32.9) | (30.0) | (33.6) |
| GDP in Manufacturing (US\$ million) | 2,827 | 5,573 | 4,052 | 5,269 | 36,378 | 25,726 | 79,824 |
| Contribution of Manuf. Sector to GDP % as of 2008 | 15.3 | 2.7 | 10.0 | 7.4 | 9.5 | 12.9 | 9.4 |
| (as of 1997) | (14.7) | (13.2) | (4.0) | (8.3) | (10.1) | (12.2) | (10.5) |
| Industrial Labor Productivity (US\$ '000) | 51 | 108 | 86 | 158 | 83 | 100 | 90 |
| Exports FOB (US\$ million) | 13,634 | 62,185 | 24,692 | 42,019 | 233,485 | 189,897 | 556,913 |
| Exports FOB Growth Rate (%) | 10 | 12 | 14 | 23 | 10 | 24 | 16 |
| Petroleum Exp./Tot. Export (%) | 81 | 95 | 81 | 90 | 88 | 40 | 73 |
| Non-oil Exports (US\$ million) | 2,637 | 3,159 | 4,791 | 4,358 | 27,575 | 108,377 | 150,897 |
| Imports CIF (US\$ million) | 11,488 | 23,588 | 15,977 | 22,005 | 90,277 | 132,494 | 295,828 |
| Imports CIF Growth Rate (%) | 2 | 48 | 47 | 34 | 29 | 32 | 32 |
| Balance of Trade (US\$ million) | 2,146 | 38,598 | 8,715 | 20,015 | 143,208 | 48,403 | 261,085 |

Note: UAE Exports include Re-exports

Source: GOIC

In most countries, the mining sector including crude oil represents over 50% of GDP. In the UAE and Bahrain, the share is lower, at 36% and 21%, respectively. Furthermore, dependency on the mining sector has risen by 15 or more percentage points between 1997 and 2008, in all the countries except for Oman, Bahrain, and the UEA.

On the other hand, the manufacturing sector's GDP share increased by 6% in Oman during the same period, whereas other GCC countries showed slight changes with the range of $\pm 1\%$.

Table 5.1-2 shows the number of companies by industrial subsector in the GCC countries.

Table 5.1-2 No. of Operational Industrial Firms in GCC Countries by Industrial Activity (2007)

| | Bahrain | Kuwait | Oman | Qatar | Saudi Arabia | UAE | Total |
|--|---------|--------|-------|-------|--------------|-------|--------|
| Food, Beverages & Tobacco | 118 | 76 | 211 | 59 | 657 | 384 | 1,505 |
| Textile, Wearing, Apparel & Leather | 49 | 26 | 58 | 34 | 204 | 351 | 722 |
| Wood, Wood Products & Furniture | 53 | 72 | 71 | 52 | 192 | 447 | 887 |
| Paper, Paper Products & Publishing | 37 | 58 | 61 | 30 | 235 | 321 | 742 |
| Chemical, Petroleum, Coal & Plastic Products | 115 | 118 | 148 | 95 | 992 | 931 | 2,399 |
| Non Metallic Mineral Products except Petrol Products | 94 | 147 | 247 | 146 | 758 | 405 | 1,797 |
| Basic Metal Industries | 16 | 5 | 10 | 6 | 47 | 58 | 142 |
| Fabricated Metal Products, Machinery & Equipments | 278 | 272 | 194 | 119 | 1,199 | 1,044 | 3,106 |
| Other Manufacturing Industries | 14 | 17 | 21 | 12 | 92 | 121 | 277 |
| Total | 774 | 791 | 1,021 | 553 | 4,376 | 4,062 | 11,577 |

Note: Operational Industrial Firms do not include Small Firms & Workshops

Source: Industrial Information Management, GOIC

2) International trade pattern

Table 5.1-3 shows trade patterns of the GCC countries.

As for export, crude oil and petroleum and gas products account for large portions among top ten export items (HS four-digit code) in all the countries¹. Among them, the UAE shows the highest value of non-petroleum exports (including re-exports), totaling US\$150.9 billion. On the other hand, the country's crude oil export ratio is 40%, much lower than other GCC countries (80 -90%).

¹ Based on export and import statistics in UN Comtrade Yearbook 2008.

Table 5.1-3 Overview of External Trade in GCC Countries

| | | Bahrain | Kuwait | Oman | Qatar | Saudi Arabia | UAE |
|-----------------------------------|-------------------------|--|---|--|---|--|--|
| Gross Trade Amount (US\$ million) | Export | 19,170 | 87,000 | 24,756 | 41,490 | 234,000 | 142,500 |
| | Import | 15,640 | 24,900 | 16,021 | 22,005 | 90,100 | 86,100 |
| Major Trading Items | Main Export Items | Oil, Aluminum Products, Petrochemical Products, Garment Products | Oil, Oil Products | Oil, LNG, Lime, Flour, Dates | Oil, Natural Gas, Petrochemical Products | Oil, Oil Products, LPG | Oil, Natural Gas, Oil Products, Aluminum, Re-exporting items (Electrical Appliances, etc.) |
| | Main Import Items | Oil (for Refinery), Electric Products, Machinery/Transporting Machinery, Alumina | Vehicles, Electric Machinery, Machinery | Machine/Equipment, Food Products | Machinery, Iron & Steel, Transportation Machinery | Transportation Machinery, Machine/Equipment, Food Products, Construction Material, Textile Product | Transportation Machinery, Machinery, Electrical Appliances |
| Major Trading Partners | Main Export Destination | Arab States 41%, Asia 33%, USA 12% | Japan, S.Korea, Taiwan, Singapore, USA (2006) | China, Thailand, Japan, S.Korea, Thailand | Japan, S.Korea, Singapore (2007) | Japan, USA, S.Korea, China (2006) | Japan, S.Korea, Thailand, India, Iran (2006) |
| | Main Partners of Import | Asia 23%, Europe 31%, Arab States 18%, USA 9%, Oceania 8% | USA, Japan, Germany, Saudi Arabia (2006) | UAE, Japan, India, USA, S.Korea, China, UK | USA, Italy, Japan (2007) | USA, China, Germany, Japan (2006) | USA, China, India, Germany, Japan (2006) |

Note: Gross Trade Amount: Bahrain (Govt. Announcement, 2008 Est.) Kuwait (Min. of Planning, 2008) Oman (Min. of National Economy, 2007) Qatar (Statistics Agency, based on FOB, 2007) Saudi Arabia (Monetary Agency, 2007) UAE (Central Bank, 2006)
Source: Based upon General Situation of Countries, compiled by Japanese Min. of Foreign Affairs, 2009

Among the GCC countries², Oman ranked third in the value of non-petroleum exports in 2007, totaling around US\$4.8 billion, next to the UAE and Saudi Arabia. In terms of subsector, wires and cables (HS 8544) accounted to around US\$0.4 billion, boasting the highest share of 16.5% of the total exports. On the other hand, the country's chemical exports remain at the lowest level of US\$250 million in the region, although they expanded by more than five times between 1997 and 2007 on strength of petrochemical-led heavy industry development in Sohar. Machinery and transportation equipment exports are relatively large, US\$1,430 million, next to the UAE and Saudi Arabia. So are food and beverage (US\$530 million).

Bahrain's export pattern reflects its formulation of aluminum-related industries, and five items are seen in the top five rankings.

As for the UAE, four export items relating to precious metal are seen in the top ten. Also, notable are telecommunications equipment (HS 8525) and automobiles (HS 8703). (However,

² Based on GCC export and import statistics in Industrial Information Management, GOIC – annual Statistical Abstracts.

both categories are top import items to reflect the UAE's position as a major physical distribution center.)

Nitrogen fertilizer (HS 3102) is one of the leading export items for Oman (US\$300 million), as well as Saudi Arabia (US\$1.1 billion), Qatar (US\$900 million), Bahrain (US\$300 million), and Kuwait (US\$100 million).

As for imports, automobiles and parts account for major portions in all the GCC countries. In addition, Oman's top import items are producer goods and raw materials, notably machine parts (HS 8431) and intermediate iron products (tubes, pipes, etc.) (HS 7408). Construction equipment ranked ninth.

3) External economic relations

All the GCC countries are WTO members (Saudi Arabia was last to join at the end of 2005). Meanwhile, they formed a customs union on January 1, 2003 under the unified economic agreement (signed on November 11, 1981, and entirely amended on December 31, 2001). While they impose the 5% common tariff (some exceptions) on imports from outside the region, they have still to unify the regional market, e.g., the customs are kept at cross-border points between the countries after the lapse of the transition period (extended until the end of 2007).

Meanwhile, member companies of GAFTA (consisting of 17 countries of the Arab Federation) exempt tariff on intra-regional trade since January 2005.

The GCC itself signed free trade agreement with Singapore in December 2008 and with EFTA in June 2009. Also, negotiation is underway with Japan, China, and South Korea, while it has been agreed to start negotiation with the U.S. On the other hand, FTA negotiation with the EU had continued for around 20 years but was suspended in December 2008 for various reasons.

Bahrain effectuated FTA with the U.S. in August 2006, under which 96% of Bahrain products in the financial, industrial, service and agricultural fields are exempted from import tariffs in the U.S.

The UAE has signed bilateral economic agreements with Syria, Jordan, Lebanon, Morocco, and Iraq. It is also negotiating FTA with Japan, China, Korea, Turkey, India, Pakistan, Mercosur, Australia, and New Zealand.

Saudi Arabia was the last country in the GCC to join the WTO because it was required to conclude bilateral trade agreements with 37 countries as prerequisite to membership. The agreement with the EU was signed in August 2003, China in July 2004, and finally the U.S. in September 2005.

4) Industrial diversification

The GCC countries are characterized by a unique economic and industrial structure relying on crude oil and natural gas. In terms of industrial policy, however, they are divided into two groups; Qatar and Saudi Arabia, which continue to position the oil and gas sector as the central element of economy, and the rest of countries that pursue economic development with less dependence on oil. In any case, industrial diversification is considered to be a critical factor for the future economy in each country.

Industrial diversification in the GCC countries shows the following patterns.

1. Increase in value added from the downstream energy sector, such as petrochemicals and material: Saudi Arabia and Abu Dhabi
2. Development of non-petroleum and natural gas manufacturing industries: Saudi Arabia
3. Development of knowledge-intensive and R&D-related industries: Abu Dhabi, Saudi Arabia, and Qatar

While their industrial diversification strategies aim at shifting the economic base from the oil and natural gas sector, industries that have so far secured competitiveness are those using crude oil and natural gas as raw material or energy source, such as petrochemical, aluminum smelting and steel making all of which consume substantial quantities of energy.

Secondly, the GCC countries have been actively promoting foreign investment by offering the following advantages.

1. Market opportunities (domestic demand for Saudi Arabia, and regional demand for other GCC countries by using their countries as sales and distribution centers), including geographical advantage
2. Availability of free trade zones (or favorable investment climate and business environment) that allow companies to target other markets
3. Incentives relating to utilities and land costs
4. A business hub function in regional finance and distribution (and infrastructure and resources to support it)

Thirdly, development of knowledge-intensive and R&D-related industries is being promoted by providing an activity base for foreign companies to operate freely, including a free zone, thereby to encourage agglomeration of related industries and establishment of a hub in a specific field. Ongoing plans or projects include the accommodation of the head office of the International Renewable Energy Agency (IREA), construction of a zero carbon dioxide

emission city (Masdar City), and King Abdulla Science and Engineering University.

(2) UAE³

The manufacturing sector in the UAE represents 12.9% of the country's GDP (US\$25.7 billion). According to the MOEF's statistics in 2005, there are 3,294 companies in the manufacturing sector, an 8.5% increase over the previous year. The metalworking and machine subsector accounts for the highest share of 26.0%, or 858 companies, which are mainly located in Sharjah, a known light industry area. Then, the chemicals, plastics, and petroleum products subsector holds 17.9% share, followed by the non-metal mineral products industry 13.5%.

Major industrial products are cement, construction materials, aluminum, fertilizer, foodstuff, apparel, furniture, plastics, fiberglass, metalworking products, and paper and cartons. The MOEF believes that the free zones contribute greatly to development of these industries.

Industrial areas led by light industries are Dubai, Abu Dhabi, Ras al-Khaimah, as well as Sharjah. In addition, many apparel factories are located in Ajman, cement factories in Ras al-Khaimah, and fertilizer plants in Abu Dhabi and Jebel Free Zone in suburbs of Dubai.

In the UAE, economic formulation and implementation is mostly left to each emirate. As a result, Dubai has been pursuing the diversification strategy by investing on infrastructure because its oil reserves are smaller than other emirates. In particular, its free zones serve as core of industrial development and take advantage of ports and related facilities. By ensuring free activities of foreign companies, the free zones have successfully attracted a number of foreign investment projects. Today, they form a major sales and distribution center covering the Middle East and Africa. Most recently, Dubai increasingly accommodates development projects that use it as a showcase for the Middle East market.

The first free zone (JAFZA: Jebel Ali Free Zone) was constructed in 1985, followed by Dubai Airport Free Zone in 1996. After 2000, free zones specialized in specific fields have been established, including Dubai Internet City, Dubai Media City, and Dubai International Financial Center.

Thus, Dubai's economic development policy centers on the attraction of foreign investment into the free zones as well as industrial diversification driven by foreign corporations.

Sharjah and Ras al-Khaimah follow suit and have opened their own free zones. Notably they are promoting industrial development by using Dubai as the business hub.

Sharjah's free zone is located adjacent to the airport and accommodates over 850 companies

³ Based on UAE Industrial Affairs on the Web site of the UAE Ministry of Economy and Finance.

in light industries. On the other hand, Ras al-Khaimah's free zone is said to have more than 5,800 tenant companies, mainly SMEs from Iran, India and other neighboring countries.

Similarly, Abu Dhabi promotes diversification of the economic base by inducing foreign investment in order to make a shift from the traditional oil and energy (power generation and water desalination) sectors. Priority industries are industries using oil and other energy sources or alternative energy, such as petrochemical and material, tourism, and media and content industries. Notably, Abu Dhabi uses industrial estates to accommodate traditional, capital intensive plants, rather than free zones. Also, one stop service is established to facilitate foreign investment. With these efforts, the total amount of investment (including local companies) reached around US\$9 billion by the end of 2008.

At the same time, free zones are used to house alternative energy related industries as well as media and content ones.

(3) Saudi Arabia

Saudi Arabia's manufacturing industry accounts for 9.5% of GDP (US\$36.4 billion). Major subsectors are petrochemical (plastics and fertilizer), iron and steel, construction materials, food processing, engineering, chemicals, and metalworking.

The country sets forth policy to promote industrial diversification, while continuing to position the oil and natural gas sector as a key economic sector. A primary initiative is Saudi Cluster Program that was started in 2006. Under the leadership of National Industrial Cluster Development Program (NICDP) Agency, priority industries – such as automobiles and parts, metalworking, construction materials, packaging materials, and consumer products – are selected and receive incentives to develop clusters. The program represents specific efforts to materialize the diversification policy and its objective.

For automobiles and parts, the program aims for automobile assembly and automotive parts manufacturing in the country by using materials that can be produced using abundant and low-cost energy sources, e.g., plastics, iron and steel materials, aluminum, and glass. In particular, drive system components (engine and transmission), trim parts (bumpers, IP control, door panels, sheet assembly), and tires are considered to be prospective items.

As for the metalworking industry, automobiles, consumer products, aluminum foils and other packaging materials, heat rolled products and castings such as construction materials are selected as promising, as an alumina smelter is operated in the country.

With regard to cement and other construction materials, prospective products are glass, silica, brick, ceramics, and chemical products.

In the field of consumer goods, products suitable for import substitution - such as household appliances and computer peripherals - are envisaged. In particular, the manufacture of plastic and metal parts (including metal press parts, armored plastics, injection molded parts, plastic molded parts, printed circuit boards, switches, current carrying wires, and electronic motor units) is expected.

Key drivers for actual promotion are industrial estates and inducement of foreign investment. Saudi Arabia still has various restraints for foreign investors, but it has various advantages such as a large local market and cheap utilities costs.

(4) Bahrain⁴

The manufacturing sector in the country accounts for 15.3% of GDP (US\$2.8 billion). Key subsectors are aluminum smelting, petrochemical, shipbuilding, food processing, pharmaceuticals, and handicraft. In particular, the government views the aluminum smelting industry as a major driver for economic diversification. The industry extends to intermediate materials and downstream products, including aluminum powder and pellets, ingots (for automotive parts, paints and coatings, and steel making), alloys, calendaring slabs, extruding billets, extruded aluminum products, lead wires, wires, rolled aluminum coils, sheets, and wheels (automobiles).

The shipbuilding industry is primarily engaged in repairing of ships and waterborne vessels used by the oil industry in Saudi Arabia and by the natural gas industry in Qatar.

Petrochemical products include chemicals, medical/industrial gas, plastics, synthetic sponge, detergents, paints and coatings, fiberglass, and insulating materials. The food processing industry makes confectionery, pickles, marine products, and juice. The pharmaceutical industry produces both traditional and Western medicines. Finally, the craft center, established 60 years ago, has 27 workshops and carries out 12 craftwork projects.

Bahrain is recently working on economic diversification. Key instruments to promote it are construction of a new port and a free zone to attract foreign investment. The new port is designed to become a physical distribution center in the northern part, which can compete with Dubai. The free zone is specialized in value added activities relating to reexport and physical

⁴ Based on the information obtained from Web site of the Ministry of Commerce and Industry of Bahrain, and others.

distribution. It consists of the following five zones: (1) service and knowledge-intensive industries; (2) high-tech manufacturing and assembly industries; (3) light industries; (4) aluminum and plastics processing industries; and (5) export-oriented local SMEs.

Generally, Bahrain's strategic position (accessible to Saudi Arabia by bridge) and favorable business environment are expected to attract foreign investment.

(5) Qatar

The country's manufacturing sector represents 7.4% of GDP, totaling US\$5.3 billion. Major subsectors are based on or closely associated with oil and natural gas, including petroleum refining, chemical, fertilizer, and steel. Also included are wheat, cement, concrete, plastics, textile, footwear, household goods, and paints and coatings⁵.

Qatar exports around 8.5 million tons of petrochemical products annually to the Middle East market. The government plans to raise annual production capacity to 28 million tons by 2012 by attracting local and foreign investment totaling US\$12 billion. Iron and steel products are billets, reinforcement bars, ingot steel, sponge iron, and direct reduction iron (DRI)⁶.

Qatar, endowed with rich oil and natural gas reserves, is also pursuing strategy to depart from overdependence on these resources. Qatar National Vision 2030, announced in July 2008, aims to develop the country to a hub in the Gulf area for knowledge-intensive and high value added industries. Again, the free zone is positioned as a major instrument, with particular focus on attraction of R&D departments of leading corporations. Also, the government intends to reinforce education that helps develop human resources demanded by knowledge-intensive industries.

(6) Kuwait

Kuwait's manufacturing industries contribute to only 2.7% of GDP with total output of US\$5.8 billion. Major subsectors are petroleum production and refining, natural gas, and petrochemical. In addition, there are as much as 4,000 SMEs (mainly those having 15 or less employees) that manufacture processed food, construction materials, furniture, wood products, metal products, and certain types of machinery⁷.

⁵ Qatar Economic Review, Oct. 2008, QNB Group

⁶ Country Profile 2009 –Qatar-, The Economic Intelligence Unit Limited

⁷ Country Profile 2009 –Kuwait-, The Economic Intelligence Unit Limited

5.1.2 Business Environment in the GCC Countries

(1) Business smoothness and economic freedom

Table 5.1-4 compares the GCC countries by business smoothness and economic freedom.

Table 5.1-4 Comparison of Business Environment among GCC Countries

| | Bahrain | Kuwait | Oman | Qatar | Saudi Arabia | UAE |
|---|---------|--------|------|-------|--------------|-----|
| Easiness of Business (World Rank) | 18 | 52 | 57 | 37 | 16 | 46 |
| Establishment of Business | 49 | 134 | 76 | 57 | 28 | 113 |
| Construction Approval | 14 | 82 | 133 | 27 | 50 | 41 |
| Recruitment of Employees | 26 | 43 | 24 | 88 | 45 | 47 |
| Asset Registry | 18 | 83 | 19 | 54 | 1 | 11 |
| Procurement of Fund | 84 | 84 | 123 | 131 | 59 | 68 |
| Protection of Investment | 53 | 24 | 88 | 88 | 24 | 113 |
| Taxation | 15 | 9 | 8 | 8 | 7 | 4 |
| External Trade | 21 | 104 | 119 | 119 | 16 | 14 |
| Mandatory Execution due to Contract Violation | 113 | 94 | 105 | 105 | 137 | 145 |
| Easiness of Liquidation | 25 | 66 | 83 | 63 | 57 | 141 |
| Economic Openness (High point: Positive) | 75 | 66 | 67 | 37 | 64 | 65 |
| Openness to Business | 80 | 67 | 63 | 57 | 80 | 57 |
| Trade Openness | 80 | 81 | 84 | 82 | 82 | 81 |
| Free from Taxation | 100 | 100 | 99 | 88 | 100 | 100 |
| Economic Domination by Govt. Sector | 79 | 64 | 61 | 54 | 73 | 86 |
| Flexibility of Pricing | 74 | 72 | 71 | 131 | 68 | 70 |
| Protection of Investment | 60 | 50 | 60 | 88 | 40 | 30 |
| Monetary Flexibility | 80 | 50 | 60 | 2 | 50 | 50 |
| Protection of Property Right | 60 | 50 | 50 | 36 | 40 | 40 |
| Free from Corruption | 50 | 43 | 47 | 98 | 34 | 57 |
| Flexibility of Employment | 85 | 79 | 75 | 31 | 76 | 76 |

Source: "Easiness of Business" according to World Bank's "Doing Business in Oman 2009"; "Economic Openness" according to the US Heritage Foundation's "2009 Index of Economic Freedom"

Business smoothness is based on "Doing Business in Oman 2009" published by the World Bank. Here, Oman ranked 57th in "ease of business" and lowest among the GCC countries.

Attributable to this low ranking are the following evaluation items Qatar ranked below 100th place in the world.

- Construction permits
- Financing

- External trade
- Compulsory execution upon default

Obtaining a construction permit takes an average of 242 days, which is much longer than in other countries, and the cost to obtain the permit, as a percentage of per capita income, is 721.4%, more than 10 times that in Saudi Arabia (ranked 4th). For instance, it takes six weeks to obtain a preliminary approval from the Ministry of the Environment and Climate Issues, four weeks to obtain permits from local government, the Ministry of Water Resources, public utilities, as well as a permit for land acquisition, four weeks to install power and telephone lines and waterworks, and two weeks to obtain an approval for fire prevention equipment. The total cost is estimated at around R.O. 30,000. To improve the situation, the use of digital application for investment projects, privatization of public utilities, and improvement of customer service are required⁸.

As for “external trade,” obtaining export and import licenses are considered to be more cumbersome (requiring submission of 10 documents vs. four to six in other GCC countries) and time consuming. The cost relating to export and imports is higher than other GCC countries, except for Kuwait. Improvement is expected as customs are in the process of introducing an e-customs system⁹.

In the field of “financing,” legal rights index, credit information index, and public bureau coverage (% adults) remain at 4, 2 and 0.0, respectively, unchanged from the previous survey results. Registry coverage improved significantly to 23.4% from 12.4% in 2008. Notably, the country’s credit information index declines relatively in the past three years as it remained unchanged while the average index for the Middle East and North Africa continued to improve during the same period. A major factor for unsatisfactory evaluation seems to be poor dissemination of credit information.

With regard to “compulsory execution on default,” the number of days required for execution (598 days) and the cost (13.5% of the claim) are better than the average figures for the Middle East and North Africa. A negative factor is many steps required for procedures (51 vs. 45 on average).

While “ease of employment” receives a relatively high rating, the highest among the GCC countries (24th overall), actual opinions of companies indicate that they face problems relating to

⁸ Based on “Oman Investment and Business Environment Survey Report in FY2008 (preliminary),” JETRO Dubai Office, March 2009, with partial quotations.

⁹ Same as above

employment of both local and foreign workers. Thus, the favorable evaluation should be seen in comparison to other GCC countries.

In the field of “business startup,” the country ranked 4th in the region but there are many items necessary to be improved. For example, the minimum capital required for operation is very high (as percentage of per capita GNI: 461.2%). Required procedures for business startup is seven steps, which is same as Saudi Arabia, but one step less compared with that of the UAE (eight steps). The number of days required for business start-up is 14, shorter than the UAE (17 days) but longer than Saudi Arabia (12 days). Note that these indicators including the cost improve in the three consecutive years.

Evaluation on economic freedom is based on “2009 Index of Economic Freedom” published by The Heritage Foundation of the U.S. One of the components that contribute negatively to Oman’s ranking is government size, i.e., the government sector accounts for a relatively high percentage of national economy. In this regards, some improvements are expected as he government intends to open the electricity, water and telecommunications sectors to private investment.

Compared to Oman, Saudi Arabia rose in the World Bank’s ease of business rankings from 24th in 2007 to 16th in 2008, suggesting significant improvement of its business environment. Major reasons for improvement are “the shortening of the number of days required for business startup,” “continued reduction of items exempted from the common 5% tariff, from 180 to 92, in 2008,” “workforce localization policy = “Saudization” deregulation (details to be discussed later), and “the reinforcement of the Saudi Arabia General Investment Agency (SAGIA) to allow formulation of investment-related policies in consistent manner”¹⁰.

¹⁰ Same as above

(2) Workforce localization policy

Table 5.1-5 Population and Labor Forces in GCC Countries

(Unit: '000)

| | Bahrain | Kuwait | Oman | Qatar | Saudi Arabia | UAE | Total |
|----------------------------------|-----------|-----------|-----------|----------|--------------|----------|----------|
| Population | 1,039.3 | 3,399.6 | 2,743.0 | 1,226.2 | 24,243.0 | 4,488.0 | 37,139.1 |
| National Population | 716.4 | 1,054.6 | 1,923.0 | 336.0 | 17,692.0 | N.A. | 21,722.0 |
| Labor Force (*) | 440.0 | 2,100.0 | 440.0 | 1,100.0 | 6,600.0 | 3,070.0 | 13,750.0 |
| Nationals in Labor Force (%) (*) | 20 (1) | 27 (1) | 20 (1) | 9 (2) | 10 (1) | 2 (1) | N.A. |
| Labor in Manufacturing | 55.2 | 51.6 | 47.2 | 33.3 | 439.0 | 257.3 | 883.6 |

Notes: (1) Private sector, (2) Manufacturing sector

* Source: Country Profile 2008 (statistics data of 2007), The Economic Intelligence Unit Limited

Source: Selected Economic & Social Indicators for GCC Countries, 2007, GOIC

In the region, Kuwait, Oman and Bahrain have relatively high percentages of local people in the workforce, 27%, 20% and 20%, respectively, in comparison to less than 10% in other GCC countries. The GCC countries generally pursue workforce localization policy as part of efforts to cope with the unemployment problem among young people due to the increase in population. However, this often leads to regulation that would hinder industrial development, and some countries have started to ease such regulation.

For instance, Saudi Arabia has, until recently, required foreign companies to achieve the local workforce ratio of 75%. In 2008, however, the ratio was lowered to 20% for labor-intensive manufacturing industries (e.g., food, apparel, footwear and furniture). Then, a responsible minister has announced policy to lower the ratio for other industries to 10 – 30% by June 2010. In Bahrain, the ratio for the financial sector is kept at 50%, whereas that for other sectors is set at 20% (for enterprises with 10 or more employees). Also, the localization requirement is generally eased in free zones and industrial estates. In the UAE, for instance, the localization requirement is exempted in Jebel Ali Free Zone (Dubai). In the Bahrain International Investment Park (BIIP), tenant companies are exempted from the requirement during the initial five years.

On the other hand, Oman continues to maintain the requirement at relatively high levels (see Table 5.1-6 for details). Also, it imposes the “vocational training allocation tax” of R.O. 100 per year per foreign worker.

Table 5.1-6 Minimum Omanization Requirement

| Sector | Type of Occupation | 2006 | 2007 | 2008 | 2009 | 2010 |
|----------------------|--|------|------|------|------|------|
| IT | Management Level | 100 | 100 | 100 | 100 | 100 |
| | Engineer | 11 | 12 | 13 | 14 | 15 |
| Communication | General rate | 52 | 60 | 62 | 64 | 68 |
| Tourism, Travel | Airline | 81 | 84 | 86 | 88 | 90 |
| | Travel Agency | 55 | 65 | 75 | 85 | 95 |
| | Hotel (3 Star or above) | 65 | 70 | 75 | 80 | 85 |
| | Rent a Car | 65 | 75 | 80 | 85 | 90 |
| Oil & Gas | Production & Operation | 82 | 85 | 87 | 90 | 90 |
| | Direct Service | 70 | 75 | 77 | 80 | 82 |
| | Local Company | 75 | 75 | 77 | 80 | 82 |
| Technical Consultant | Engineer | 20 | 25 | 25 | 25 | 25 |
| Service | Drawing | 60 | 70 | 70 | 70 | 70 |
| | Raw Material Management | 40 | 45 | 45 | 45 | 45 |
| | Calibration | 70 | 80 | 80 | 80 | 80 |
| | Accounting | 50 | 80 | 60 | 60 | 60 |
| | Office work | 80 | 90 | 90 | 90 | 90 |
| Construction | Second Category or above | 28 | 30 | 30 | 30 | 30 |
| | Continuing Project | 70 | 80 | 80 | 80 | 80 |
| Power & Water | Power Plant (1) | | | | | |
| | Engineer | 78 | 78 | 78 | 78 | 78 |
| | Semi-Engineer | 100 | 100 | 100 | 100 | 100 |
| | Technician | 76 | 76 | 76 | 76 | 76 |
| | Skilled Labor | 100 | 100 | 100 | 100 | 100 |
| | Power Plant (2) | | | | | |
| | Engineer | 43 | 43 | 43 | 43 | 43 |
| | Semi-Engineer | 45 | 45 | 45 | 45 | 45 |
| | Technician | 51 | 51 | 51 | 51 | 51 |
| | Skilled Labor | 50 | 50 | 50 | 50 | 50 |
| Automotive | | 45 | 50 | 52 | 55 | 58 |
| Sales & Distribution | | 45 | 50 | 55 | 60 | 65 |
| Carrier, Navigation | Sea Port | 70 | 74 | 78 | 78 | 78 |
| | Navigation, Minesweeping | 67 | 71 | 77 | 77 | 77 |
| | Marine Transport | 90 | 90 | 95 | 95 | 95 |
| | Shipping Company | 64 | 74 | 84 | 84 | 84 |
| Accounting | Manager | 15 | 20 | 23 | 26 | 29 |
| | Advanced Expert | 30 | 40 | 45 | 50 | 55 |
| | Expert | 40 | 50 | 55 | 60 | 66 |
| | Office work | 75 | 100 | 100 | 100 | 100 |
| Private School | Elementary & Secondary Education Institution | | | | | |
| | Teacher | 9 | 10 | 11 | 12 | 15 |
| | Non-Teacher | 50 | 50 | 54 | 56 | 58 |
| | Technical Collage, University | | | | | |
| | Tutor | 8 | 10 | 12 | 14 | 16 |
| Non-Tutor | 62 | 65 | 68 | 71 | 74 | |
| Manufacturing | | | | 35 | | |
| Tailor | | | | 25 | | |
| Banks | | | | 90 | | |

Notes: Power Plant (1) Gubra, Rusayl, Wadi Al Jizi, Musandam, Dahira

Power Plant (2) Manaha, Al Khamir, Barkha, Salalah

Sources: Ministry of Manpower

Oman Investment & Business Environment Study Report (Tentative Ver.) FY2008

Dubai Office, JETRO, Published in March 2009

(3) Investment cost (Table 5.1-7)

1) Wage level

As shown in the table, wage levels in Oman are generally lower than those in the UAE, Saudi Arabia, and Qatar. Another survey in 2007¹¹ indicates that, when the average wage level in Saudi Arabia (for all industries) is set at 100, that in the UAE is 94, Kuwait 91, Qatar 81, Oman 77, and Bahrain 76.

2) Rent for industrial land

Here, Oman shows a relatively favorable figure, i.e., the average rent in the initial five years is US\$0.05 per square meter per month (according to the Industrial Estate Corporation) and is at the lowest level in the region, excepting US\$0.02 for the Modon Industrial Estate in Saudi Arabia.

3) Electricity charge for industrial use

According to Mascot Electricity Supply Corporation (MEDC), the electricity charge (per kWh) for industrial use in Mascot varies according to the seasons (with no basic charge), US\$0.03 per kWh between September and April and US\$0.06 between May and August, during which time electricity consumption increases. The latter rate is higher than in other GCC countries.

On the other hand, the monthly basic charge of US\$2.7-8.0 (regardless of actual consumption) is required in Saudi Arabia (Riyadh), plus the specific charge of US\$0.03 per kWh (source: the Ministry of Hydropower), resulting in the highest level among the GCC countries. According to GOIC's public utility charge data in 2008, the highest electricity charge is found in the UAE, where a uniform rate of US\$0.09 per kWh is charged for all industrial estates.

4) Water charge for industrial use

Oman has the second highest water charge next to the UAE. For instance, the unit rate per cubic meter in Manama, Bahrain, is US\$0.79 for the initial 450m³ and US\$1.05 thereafter. In Oman, Rusayl Industrial Estate charges US\$1.72 per m³.

5) Gas charge for industrial use

According to PEIE, the gas charge for industrial use in Oman is uniformly US\$0.05 per m³.

¹¹ Gulf Business Magazine "Salary Survey 2007"

6) Corporate income tax

In Oman, progressive tax rates for foreign corporations are set lower than those in Qatar. On the other hand, foreign companies are exempted from income tax in the UAE and Bahrain.

7) Taxation on transfer of royalty

In the region, only Oman imposes 10% withdrawal tax.

(4) Investment promotion and incentive

1) Foreign direct investment

Table 5.1-7 shows the recent foreign direct investment trend in the GCC countries.

Table 5.1-7 FDI Flows in GCC Countries, 2003-2008

(Unit: US\$ million)

| | | 1990-2000 Average | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|--------------|----------|----------------------|--------|--------|--------|---------|----------|----------|
| Bahrain | In-flow | 458 | 517 | 865 | 1,049 | 2,915 | 1,756 | 1,794 |
| | Out-flow | 96 | 741 | 1,036 | 1,123 | 980 | 1,669 | 1,620 |
| Kuwait | In-flow | 58 | -67 | 24 | 250 | 110 | 123 | 56 |
| | Out-flow | -445 | -4,960 | 2,526 | 5,142 | 8,240 | 10,156 | 8,521 |
| Oman | In-flow | 84 | 494 | 229 | 900 | 952 | 3,125 | 2,928 |
| | Out-flow | 2 | 153 | 250 | 114 | 275 | 243 | 329 |
| Qatar | In-flow | 169 | 625 | 1,199 | 1,152 | 3,500 * | 4,700 * | 6,700 * |
| | Out-flow | 11 | 88 | 192 | 352 | 127 * | 5,263 * | 2,400 * |
| Saudi Arabia | In-flow | 245 | 778 | 1,942 | 12,097 | 18,293 | 24,318 | 38,223 |
| | Out-flow | 11 | 88 | 192 | 352 | 1,257 * | 13,139 * | 1,080 * |
| UAE | In-flow | 18 | 4,256 | 10,004 | 10,900 | 12,806 | 14,187 | 13,700 * |
| | Out-flow | 170 | 991 | 2,208 | 3,750 | 10,892 | 14,568 | 15,800 * |
| Total | In-flow | 1,032 | 6,603 | 14,348 | 26,348 | 38,576 | 48,209 | 63,401 |
| | Out-flow | -94 | -2,619 | 6,921 | 11,664 | 21,771 | 45,038 | 29,750 |

Note: * Estimate

Source: World Investment Report -2009, UNCTAD

Direct investment in the GCC countries, both domestic and foreign, remained relatively low between 1990 and 2000, with the total average inflow of US\$1,032 million, and Bahrain account for nearly one half (44.4%). Then, as intra-regional tariffs were lowered with the progress of the economic integration, a development boom emerged in the GCC countries against the backdrop of thriving economic activities - resource development, expansion of physical distribution functions, real estate investment, urban development, and tax reduction. As a result, direct investment grew rapidly. Between 2003 and 2008, direct investment in the GCC region as a whole expanded nearly tenfold from US\$6.6 billion in 2003 to US\$63.4

billion in 2008. In terms of FDI, Saudi Arabia received the largest amount, followed by the UAE, Qatar, Oman, Bahrain, and Kuwait. In 2008, however, capital inflow halted and decreased in some countries due to the subprime loan problem in the U.S., especially the Lehman shock. Kuwait recorded a substantial decrease of 56.0%, Oman 3.6%, and the UAE 3.4%.

As of 2007, the UK was the largest investor in Oman (24% of total), followed by the UAE (18%) and the U.S. (18%), then India (5%), the GCC countries (Qatar and Bahrain), the Netherlands, and France.

Table 5.1-8 Total Investment in Industrial Firms by Activity – 2008

(Unit: US\$ million)

| | Bahrain | Kuwait | Oman | Qatar | Saudi Arabia | UAE | Total |
|--|--------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Food Beverage & Tobacco | 208 | 724 | 842 | 210 | 7,794 | 1,532 | 11,310 |
| Textile, Wearing Apparel & Leather | 148 | 63 | 94 | 45 | 1,467 | 343 | 2,161 |
| Wood, Wood Products & Furniture | 154 | 77 | 65 | 33 | 697 | 193 | 1,219 |
| Paper products & Publishing | 39 | 301 | 116 | 85 | 2,405 | 446 | 3,391 |
| Chemical, Petroleum, Coal & Plastic | 3,172 | 6,787 | 4,901 | 10,873 | 49,736 | 6,499 | 81,969 |
| Non-Metallic Mineral Products except Petrol Products | 261 | 1,115 | 1,002 | 663 | 12,886 | 2,804 | 18,730 |
| Basic Metal Industries | 3,744 | 131 | 2,708 | 906 | 7,247 | 2,348 | 17,084 |
| Fabricated Metal Products, Machinery & Equipments | 976 | 943 | 583 | 303 | 9,171 | 1,543 | 13,519 |
| Other Manufacturing Industries | 12 | 25 | 20 | 7 | 561 | 72 | 697 |
| Total | 8,715 | 10,168 | 10,330 | 13,124 | 91,962 | 15,781 | 150,080 |

Source: Industrial Market Intelligence, GOIC

2) Investment trend by industry sector

Table 5.1-8 shows the breakdown of investment in the GCC countries, by industry sector, in 2008. Generally, Saudi Arabia and the UAE account for major portions of investment in all the sectors, 61% and 11% of total, respectively. Oman is next but holds less than 7% share. Investment in the chemical, oil, coal and plastics sectors represents slightly less than 50% of total, followed by the basic metal sector. The former accounts for only 6% of the region's total investment in the sector, and the latter 16%.

3) Establishment of priority investment areas

Saudi Arabia and Bahrain designate specific sectors as priority investment areas. In Saudi Arabia, the Economy Offset Board selects them under the NICDP (2006 – 2011) (see 5.1.1 “Industry in the GCC Countries”). In Bahrain, the Economic Development Board (BEDB) designates priority investment areas including high value added manufacturing industries, industrial services, and the automobile industry. However, neither country provides specific incentives for the priority areas.

On the other hand, Oman identifies specific areas for strategic development as part of “Future Industrial Strategy” but does not establish any investment incentive for them.

Generally, the GCC countries offer tax incentives to encourage investment, such as exemption of corporate and personal income taxes and import duties on machinery and equipment, but they do not target a specific industry.

For instance, the following tax incentives are provided in the UAE to promote investment.

1. Income tax exemption: Corporate and personal income taxes are exempted not only in free zones but elsewhere
2. Investment incentive for manufacturing industries: Import duties on raw materials, semi-finished products, manufacturing equipment, and parts are exempted. Furthermore, for a company with local capital of more than 51%, which manufactures a product with value added ratio of over 40% and has obtained a national industrial license issued by the Ministry of Finance and Industry, import duties on its products exported to the GCC countries are exempted. In addition, the 10% price privilege is granted in the case of government procurement.

In the UAE, incentives in free zones are used as a major instrument to attract investment, as follows.

1. Corporate ownership under 100% foreign investment
2. Corporate and personal income tax exemption for 50 years (renewable)
3. Exemption of the obligation to appoint a local sponsor (service agent)
4. Free remittance of capital and profits
5. No currency regulation
6. No restriction on employment of foreign workers
7. Bonded area
8. Long-term land lease

4) Resident status of foreign companies

Companies wholly owned by foreign capital are accepted in Saudi Arabia and Bahrain, whereas the UAE permits their establishment in free zones only. Oman accepts majority investment by foreign investors (up to 70%) but not 100% investment.

5.2 Industrial Infrastructure

5.2.1 Overview

This section discusses major infrastructure facilities for Oman's manufacturing sector, namely utilities (electricity, water and fuel (LPG)) and physical distribution facilities (ports and harbors, roads, and airports).

As electricity and water demand grows, the government builds power plants and desalination plants (IWPP). Power supply conditions have been steadily improved, although a power outage occurs occasionally. Water supply seems to be stable, as no complaint is heard from companies.

LPG is used as fuel for heating and drying processes. It is supplied from oil refineries and is filled into cylinders for distribution and delivery.

Major ports handling cargo are located in Sultan Qaboos, Salalah, and Sohar. Many companies use them for import of raw materials and export of products. As for port service, many complaints and requests are heard about the improvement of container handling capability at the port of Sultan Qaboos, the streamlining of export and import procedures, and the lowering of port handling fees and charges.

Land transportation in the country depends entirely on road (lorry) transport. The total length of paved roads is 23,349km as of 2008. Traffic congestion in Muscat, the shortage of large trailers, and other problems are pointed out.

Finally, air transport is mainly used for transportation of fresh fish and mushrooms. As refrigeration and cold storage facilities at Seeb International Airport are limited, some companies use nearby airports (including Dubai).

5.2.2 Utilities

(1) Electricity

Oman's power supply system consists of the following two grids: 1) MIS region; and 2) Salalah region.

The MIS region contains major cities including Muscat¹². Electricity demand in the region is estimated at 3,030MW in 2008 and is expected to reach 5,300MW in 2015 (see 3.2). To address the expected supply shortage, the government plans to build three power plants: i) Barka/Sohar IPPs (1,300MW); Al-Ghubrah IWPP (500MW); and iii) Ad Duqm (coal-fired thermal - 500MW).

Electricity demand in the Salalah region is expected to increase from 260MW in 2008 to 550MW in 2015. To meet increasing demand, a new power plant (Salalah IWPP) is being planned.

Power outage occurs occasionally in the MIS region, but the situation is improved steadily.

(2) Water

Industrial water consumed in urban areas generally uses water produced at seawater desalination plants. Desalinated water demand in the MIS is expected to increase from 100 million cubic meters (MMm³) (476Km³/day) in 2008, to 230MMm³ (710Km³/day) in 2015. Within the region, demand grows rapidly in Muscat and Sohar zones, and if no IWPP is constructed, the shortages of 71,000m³/day and 72,000m³/day, respectively, are anticipated in 2015 (Table 5.2-1). To fill the gaps, construction of new plants (such as Al-Ghubrah IWPP) is planned.

Table 5.2-1 Supply and Demand of Water in Muscat and Sohar Zones

(Unit: Km³/Day)

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|----------------------|------|------|------|------|------|------|------|------|
| "Muscat" Zone | | | | | | | | |
| Production (A) | 273 | 393 | 393 | 393 | 393 | 349 | 349 | 349 |
| Peak Demand (B) | 352 | 399 | 410 | 404 | 405 | 404 | 412 | 420 |
| Surplus (A) - (B) | -79 | -6 | -17 | -11 | -12 | -55 | -63 | -71 |
| "Sohar" Zone | | | | | | | | |
| Production (C) | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| Peak Demand (D) | 109 | 142 | 163 | 178 | 186 | 202 | 212 | 222 |
| Surplus (C) - (D) | 41 | 8 | -13 | -28 | -36 | -52 | -62 | -72 |

Source: p24 to 25, OPWP's 7 Year Statement (Issue 3)

Complaint from industry in relation to water supply is insignificant.

¹² Main Interconnected System: The MIS covers the Governorate of Muscat, the Governorate of Buraimi and most of the South Baitinah, Dakhliyah, Sharqia, North Batinah and Dhahirah regions, serving around 500,000 electricity customers.

(3) Fuel

Industries, such as chemical and food, are using LPG for heating and drying purposes. In 2008, the MFR refinery¹³ shipped 76,080 MTPA (230 tons per day)¹⁴ of LPG, which is filled to cylinders for distribution and consumption in the domestic market. On the other hand, LPG produced from the SRC refinery¹⁵ is exclusively used for production of PP.

As production of crude oil, which is used as raw material for LPG, is expected to remain at the current level, domestic LPG demand, if increased, will be satisfied by diverting currently exported LPG (282,000 MTPA, or 847 tons per day).

Complaint from industry on LPG supply is insignificant.

5.2.3 Physical Distribution Facilities

(1) Ports and harbors

Cargo unloading and loading data for the country's major ports, Sultan Qaboos (Muscat) and Salalah, are shown in Table 5.2-2¹⁶. Sultan Qaboos Port mainly handles imported cargos, while Salalah Port exported cargos.

In 2008, unloaded and loaded cargo tonnages at Sultan Qaboos Port increased rapidly by 132% and 134% to 5.21 million tons and 1.07 million tons, respectively. In 2009, they declined significantly due to the global recession.

Table 5.2-2 Loading and Export Shipping of Cargo at Sultan Qaboos Port and Salalah Port

(Unit in 1,000 tons)

| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|--------------------------|-------|-------|-------|-------|-------|-------|
| Port Sultan Qaboos | | | | | | |
| Unloaded Cargo | 2,010 | 2,154 | 2,296 | 2,673 | 3,946 | 5,211 |
| Loaded Cargo (Exports) | 462 | 465 | 525 | 552 | 796 | 1,069 |
| Port Salalah | | | | | | |
| Unloaded Cargo | 380 | 464 | 603 | 617 | 608 | 709 |
| Loaded Cargo (Exports) | NA | NA | 1,185 | 1,691 | 2,174 | 2,759 |

Source: Ministry of National Economy

The Port of Sultan Qaboos is strategically located at a gateway to Muscat, 250km south of the Strait of Holms, and serves as a major way port to not only the Arabian Gulf, but also Indian and

¹³ Mina Al-Fahal Refinery (MFR)

¹⁴ Data from ORPC

¹⁵ Sohar Refinery (SRC)

¹⁶ Transfer cargo between Sultan Qaboos Port and Salalah Port is not included in Table 5.2-2.

African continents. It has nine berths including container berths (Table 5.2-3).

Table 5.2-3 Berth at Sultan Qaboos Port

| Berth No. | Type | Length | | Draft | |
|-----------|--------------------|--------|--------|-------|--------|
| | | Feet | Meters | Feet | Meters |
| 1,2 | Multi-Purpose | 1540' | 470m | 43' | 13m |
| 3 | Bulk & General | 750' | 228m | 36' | 11m |
| 4,5 | Container Terminal | 1200' | 366m | 35.7' | 10.9m |
| 6 | Bulk & General | 650' | 198m | 31.5' | 9.6m |
| 7,8 | Bulk & General | 1200' | 366m | 31.5' | 9.6m |
| 9 | | 400' | 122m | 13' | 4m |

Source: Port Sultan Qaboos: <http://www.pscoman.com/about1.htm>

As discussed earlier, the volume of cargo handled at the port increased appreciably in 2008, resulting in increased demurrage of container ships. As a result, many companies wanted the port's container handling capability to speed up. Also, some pointed out that the port's insufficient capacity required many cargo ships from Africa to make detour via Salalah and Dubai, causing considerable loss in terms of time and cost.

The Port of Salalah is a new port built in the site of the former Raysute Port as a container terminal. It has the world class handling capacity of over 3 million TEU per year (Table 5.2-4). However, as it was constructed as a container port, it cannot handle general cargos efficiently, as confirmed from complaints by many companies located in Salalah. Also, its handling charges are thought to be expensive.

Table 5.2-4 Berth at Salalah Port

| Berth No | Length (m) | MPD* | Explanation |
|------------|------------|------|---|
| 1, 2, 3, 4 | 307 | 15.5 | Container berths in line; therefore, larger vessels can occupy part of a second berth if necessary. |
| 5, 6 | 488 | 17.5 | |
| 21, 22, 23 | 173 | 9 | General Cargo berths in line and larger vessels can occupy part of second berth if necessary. |
| 24 | 200 | 6.8 | General Cargo berth. |
| 25 | 115 | 4.3 | Berths for small general cargo vessels, Dhows, and fishing Launches. |
| 26, 27, 28 | 115 | 4.1 | |
| 29 | 260 | 2.6 | |
| 30, 31 | 300 | 15 | Main deep draft multi-user berths |
| Oil Jetty | 130 | 10 | Capable of accommodating vessels up to 35,000 DWT and Tankers with a 10m maximum arrival draught. |
| Ramp Lct | 45 | 2.5 | A ramp for landing craft with a 1:8 gradient, 45m in length, 20m width at 3.0m depth is available. |

Note: * MPD: Maximum Permissible Draught

Source: Port Salalah: <http://www.salalahport.com/>

In addition, there is a large industrial port in Sohar. It was constructed to serve an adjacent industrial area, which accommodates power and desalination plants, a sewage treatment plant, an oil refinery, an aluminum smeltery, a fertilizer plant, a methanol plant, and other heavy and chemical industries using natural gas. The port's berth and terminal facilities are summarized in Table 5.2-5.

Table 5.2-5 Berth at Sohar Port

| Birth | Quay wall Length | Max. Draft | Note |
|-------------------------------------|------------------|------------|---|
| General cargo and dry bulk terminal | 700 m | 16 m | two mobile shore cranes with a capacity of 74 and 80 tons |
| Container terminal | 520 m | 16 m | with 4 post-Panamax gantry cranes |
| Liquid bulk terminal | NA | 15.5 m | 6 liquid berths |

Source: Sohar Industrial Port Company : http://www.portofsohar.com/competitive_adv.asp

Oman's industrial sector heavily uses ports for import of raw materials and export of products. Consequently, many companies express expectations for possible improvement of port service.

As for exports and imports of chemical products, the government regulates substances detrimental to public health and the environment by law¹⁷, requiring the "environmental permission" for exports, imports, transportation, storage, and distribution¹⁸. Some chemical companies complain about the procedures to obtain the permission, which are considered to be complicated and time consuming, especially when importing a new chemical material.

Table 5.2-6 shows time typical durations required for general import and export procedures, totaling 26 days and 22 days, respectively. Many companies expect them to be reduced further.

Table 5.2-6 Required Time for Import and Export Procedures

| Procedure Classification by Nature | Duration (days) | |
|---|-----------------|-----------|
| | Importing | Exporting |
| Documents preparation | 14 | 14 |
| Customs clearance and technical control | 1 | 3 |
| Ports and terminal handling | 4 | 3 |
| Inland transportation and handling | 7 | 2 |
| Total | 26 | 22 |

Source: Trading Across Borders in Oman

¹⁷ The Law Regulating the Circulation and Use of Chemicals (Royal Decree No. 46/95), 1995

¹⁸ Environmental Law, Curtis Oman

(2) Roads

In Oman where no rail service is operated, roads play a critical role in economic and social development as well as a principal means of transport. There were few paved roads until 1970, when the government started to construct road networks extending to major areas in the country and neighboring countries. In 2008, the total road length reached 53,556km, of which 44% (23,349km) were asphalt paved¹⁹. Road projects are carried out on a continuous basis, including new road construction and upgrading of existing roads, for the purpose of extending both expressways and other road networks throughout the country.

Nevertheless, there are still bottlenecks in and around Muscat, which increase time for transportation of goods and for which improvement is demanded by many companies.

Land transport service is mainly provided by lorries. Diesel oil is produced by two refineries (MFR and SRC)²⁰ and is sold by three distributors in the country²¹. Domestic demand for diesel oil has been growing steadily and is expected to reach the current combined production capacity of the two refineries (51,000 barrels per day) in 2013²².

There is the shortage of trailers because of high purchase price, which sets off the fuel cost advantage.

(3) Airports

Oman has two international airports, Seeb (30km west of Muscat) and Salalah. In particular, the volume of air cargo handled at Seeb Airport reached 58,486 tons in 2008 to reflect the growing national economy, progress of large projects including industrial development, and growth of Oman Air.

Seeb Airport, inaugurated in 1973, has undergone the series of upgrading and expansion projects and has a 3,585m runway, passenger terminals capable of handling 3,000 passengers per hour, a duty-free shop mall, and other modern facilities.

Air cargo service is mainly used by food companies, including fresh marine products (e.g., tuna and lobster). On the other hand, fresh mushrooms produced in the country are transported by lorry to Dubai for export, because Seeb Airport's refrigeration and cold storage capacity is limited.

¹⁹ Ministry of National Economy

²⁰ Mina Al-Fahal Refinery (MFR), Sohar Refinery (SRC)

²¹ Al Maha Petroleum Products Marketing Company, Shell Oman Marketing Company, Oman Oil Marketing Company

²² Data from ORPC

6 Review and Recommendation on Industrial Development Plan and Strategies

6 Review and Recommendation on Industrial Development Plan and Strategies

6.1 Prospective Areas for Industrial Development, and Implication for Development Strategy

6.1.1 General

(1) Prospective Area and Priority Area for Development

This chapter discusses the possible industrial areas that may be designated as the prospective and priority industry areas in Oman.

It is a debatable to define the prospective and priority areas of industrial development at the level of individual products. Particularly in the case of Oman, because the market for industrial products is small in scale, even if a specific product is promoted as being a priority or prospective, in a few years domestic production would satisfy the entire demand. As a result, defining a specific product as the priority or prospective product will not necessarily indicate the desirable direction for industrial development in the country.

Further, industries (or products) which generally are weakly attractive to investors can be considered to be viable in certain cases. In fact, there are many cases in Oman, where companies successfully meet specific niche needs. If many companies follow suit, however, the niche advantage will be lost. This means, there is little sense of designating such prospective area or product.

The objective of defining the prospective areas and the priority areas for industrial development is to provide policy support to promote development in the areas as required, and encourage investment in those areas.

Instead, the priority and prospective areas should be defined as industrial subsectors or sub-subsectors, where certain required conditions are met. The current study uses this as the basis for examining the appropriate policies for industrial development.

(2) Selection of prospective areas for industrial development

Based on the review of the existing industries in Oman (in Chapter 4), the prospective industrial areas for industrial development were selected as follows:

- 1) The industrial areas which are considered competitive on the basis of the analysis of the existing industries

In Chapter 4, the existing industrial areas were reviewed and their competitive edges were analyzed. According to the result of the analysis, the major industrial areas developed in Oman can be categorized one of the following:

1. Industrial areas which are based on the considerable size of the existing demand in the local and neighboring countries' markets
2. Industrial areas leveraging the resources which is available locally with significant advantage

These industrial areas are expected to be prospective in the future too, though there will be needs to challenge to solve the constraints for future development which are found in these areas.

The “industrial areas which are based on the considerable size of the existing demand in the local and neighboring countries' markets” can be found in two areas. One is the areas of food industries, and industries of goods of daily necessity character. However, it should be noted that the Omani products in these industrial areas are found only in the market segments of quality goods, specialty goods which are sold with close interaction with the customers, since the Omani products are hard to compete with the mass-produced imported goods due to their small size of production. Actually, in these market segments, the competition with the mass-produced imported goods is less.

Another area is the industrial areas of construction and building materials and machineries, which include materials industries of non-metallic minerals, and machinery industries related to infrastructure construction and plant construction.

Nevertheless, infrastructure and plant construction projects in Oman are carried out on a continuous basis even after the international financial crisis. When construction projects in Dubai, currently suspended or slowed down, are revived, they will create strong demand for a number of industrial products in the prospective areas. In particular, demand expansion in the high-end and upper-middle consumer groups is noticeable, with a good prospect for further growth.

The “industrial areas leveraging the resources which is available locally with significant advantage” are the industries based on oil and natural gas. Oil and natural gas have used as the raw materials for petrochemical industries, and as the energy source of high-energy consuming industries. As a result, many oil and gas based chemical industries and basic metal industries (or metal smelting industries) have been established in Oman of global sizes.

However, the country's natural gas resources are losing surplus capacity that has previously attracted large-scale industrial projects, forming the largest constraint for future industrial development.

Therefore, the future development should be focused on the industries which leverage the industrial basis thus established, or in other words, the downstream areas of these petrochemical industries and smelting industries.

Besides the oil and natural gas, the resources of lime stone, aggregates, gypsum, and marble, etc., which are abundantly endowed in Oman, have also been used as the sources of construction and building materials, and these industries are also expected to be prospective.

- 2) The industrial areas, which are still minor areas but prospective for the future development with some potential advantage according to the current development experience

This potential may be found in the following three areas:

- a) ICT related area:

Oman has so far successful in attracting global enterprises in ICT area to Oman, expecting to develop Oman as the hub for ICT industries. Here, the focus is placed on dissemination of use of ICT among the enterprises in the manufacturing industries, in view of upgrading of the manufacturing industries themselves. However, at the same time, it intends to create the synergistic effects to ICT industry, promoting ICT culture in the Omani economy, nurturing the ICT manpower, and contributing to development of ICT industry.

- b) Industrial areas of energy alternatives to oil and natural gas

Not only because of the fact that Oman cannot depend on oil and natural gas alone as the future energy sources, but also because of the fact that Oman has environmental potential to use solar and wind power for power generation, the manufacturing sector is necessary to be involved in the development of the energy alternatives in a proactive manner. On the other hand, considering the fact that the oil and natural gas resource is the most decisive competitive edge for industrial development in Oman, development of the alternative energy sources will enable Oman to use the oil and energy resource to other valuable purposes, such as development of middle-level energy consuming industries.

- c) Industrial areas leveraging the Country's geographical advantages

The country's geographical advantage is utilized only in a limited extent so far. Investment focusing on the geographical advantage is also focusing on the advantage of cheap and abundant supply of oil or gas, generally. In this connection, the limited utilization of the

geographical advantage may be attributable to the unforeseeable future supply and balance of natural gas. However, as seen in the case of investment of automotive parts manufacturer in Salalah FZ, which is focusing on the proximity to Europe, with Salalah port as the calling port of the world major container line, the geographical advantage will still have the high potential to attract investments.

3) Industrial areas need for development in view of overcoming the weakness and strengthening the advantageous position of the industries in Oman

This areas of industries are not advantageous in Oman, instead lacking critically at present. However, at the same time, these areas have potentials for development considering the industrial concentration observed currently in Oman. Further, development is advised to be started as early as possible regardless of feared difficulties to be faced.

These are the industrial areas of:

- a) Metal working and machining works
- b) Plant engineering
- c) Packaging materials

As a result of the first-step selection, the following manufacturing industries were identified as the prospective areas for development in Oman:

- (1) Manufacturing industries to meet the increasing demand in the domestic markets and GCC markets
 - 1) Construction related
 - 2) Processed food
 - 3) Goods of daily necessity character
 - 4) Tourism related
- (2) Manufacturing industries leveraging an existing industrial base, or prospective resources available in Oman
 - 1) Downstream areas of heavy and chemical industries now existing or being planned or under construction
 - 2) Industrial areas leveraging non-metal mineral resources
- (3) New or emerging manufacturing industries of strategic focus
 - 1) ICT related
 - 2) Energy alternatives to oil and gas
 - 3) Industrial areas leveraging the advantageous location of Oman
- (4) Industrial areas of priority in view of stable and sustainable industrial development
 - 1) Metal working and machining work

- 2) Plant engineering
- 3) Packaging materials

The next section analyzes the country's advantages in these areas and possible constraints relating to their development, and formulates development strategies.

6.1.2 Industrial Areas to Meet the Increasing Demand in the Domestic Markets and GCC's Markets

One of the significant features of industrial development in Oman is that it started as import substitution of products important in view of domestic consumption, and products that can be manufactured by medium size manufacturing operations, by the enterprises including state owned ones. Output exceeding domestic demand was exported. Active investment by the private sector followed the initial stage of development, with introduction of mature industrial technologies through import of production processes and skilled laborers.

The industries based on the domestic and GCC demand will continue to be the basis of industrial development in this country.

These industrial areas are expected to expand in accordance with future demand growth and diversification, including expansion of existing sectors and deployment to related ones. Many companies in these areas maintain viability by targeting niche markets so as to avoid competition with imports that are mass produced and aggressively priced. While these markets are supported by firm domestic demand, with good prospects for future growth, their size is fairly small in the beginning and is further fragmented as a result of adoption of niche strategy. As competing products will likely offer improve quality, producers in these markets need to seek new opportunities other than domestic and neighboring markets.

6.1.2.1 Construction related industries

(1) Current Situation

The major areas of industrial development in Oman have been those which fulfill the demand created by infrastructure development and plant construction, besides the Mega Projects seen in the recent years. The machinery industries related to power transmission and distribution, which include cable production, and those manufacturing construction or building materials, are the major ones among them. If one considers the existing plan of infrastructure development in Oman, the demand for these industries can continue to be expected. Further, if construction work in Dubai, which is currently depressed, resumes in the future, then significant demand will be created for these sectors.

The representative industries under this category are:

- Machinery industries, including manufacturing of cables for power transmission and distribution
- Industries manufacturing construction and building materials
- Finishing work of interiors of houses, offices, hotels, etc.

(2) Advantages and Constraints for Development

Power transmission and distribution equipment and cables can compete with imported products because of the weight advantage (see 4.2.9 “Machinery Industry” for the industry’s general trend). Manufacturers also maintain differentiation by meeting specific specifications required by environmental conditions in Oman and other relevant countries. Furthermore, these products are basically made-to-order (customized), thereby providing a competitive edge for manufacturers in terms of production being near the market. On the other hand, local manufactures cannot compete in products that do not require special specifications or do not require a high transportation cost (e.g., special vehicles) due to being heavy in weight, so that they have not entered these segments. Finally, the products are mainly used for construction projects, which demand product delivery according to the actual progress of work. This requires manufacturers to work with short lead times. Meanwhile, as they import most of raw materials, they have to maintain sufficient inventory levels, which leads to an additional cost.

Another major segment is construction materials that use nonmetal mineral products, which are largely obtained from local sources (see 4.2.7 “Non-metal Mineral Products” for the industry’s general trend). Again, the weight factor (heavy weight as well as low value per unit weight) for construction materials provides a competitive advantage. Also, Oman enjoys a competitive advantage in that neighboring countries are not endowed with these resources. As for individual manufacturers, those introducing new technology (products) maintain competitiveness. On the other hand, local manufacturers steer clear of the market for construction materials that are light in weight and can be mass produced because of competitive pressure from low-priced imports.

Furniture and interior decoration materials for offices, houses and hotels are also an area where further demand growth can be expected (see 4.2.3 “Woodworking and Wood Products and Furniture” for the industry’s general trend). The products are divided into two market segments, i.e., a segment covering high-grade furniture and interior decoration, such work being done on a contract basis, and one covering general housing demand. In both markets, a major competitive edge is the ability to customize products. Nevertheless, the ready-made furniture market is dominated by factory products made in Indonesia and Malaysia.

(3) Implication for Development Strategy

Ironically, the competitive advantage in terms of customization prevents manufacturers from meeting demand in neighboring countries, and especially remote areas there. Another advantage (heavy weight and low value per unit weight relative to imports) may be lost if lighter products are developed in the future and become available in the region. Research and development, marketing, and market exploration are required to meet the changing market needs, but Oman industries do not have resources to make such efforts. Instead, they have to import new technologies and products by means of investment. This is therefore a major challenge from the standpoint of sustainable industrial development.

6.1.2.2 Food processing industries and daily necessities industries

(1) Current Situation

Steady demand can be expected in the areas of processed food and daily necessities. Further, the major part of the supply of these products has been through imports (For further detail, see 4.2.1.). The related industries in Oman have targeted the demand in the high-end and upper-middle markets. The demand for this segment of processed food and daily necessities will have significant potential considering the influence of improvement of the standard of living, and tendency of the people in Oman and GCCs to prefer high-end products.

However, in the processed food and beverage subsector, substantial portions of domestic demand are met by imports and these are roughly divided into two product types. One is products which have a competitive advantage from the location of production being near a source of raw material and which raw materials are not available in Oman. The other is mass produced, low priced products.

However, most of the manufacturing facilities acquired at the initial stage of industrial development were not necessarily competitive. Rather, with increased inflow of mass-produced products from China and India, many of them have been shaken out of the markets. Although some selected enterprises were successful in their efforts to find new, niche markets at the middle and high-end, in providing high quality products, and in upgrading their machinery and equipment, many other enterprises, which are mostly small in scale, have been forced to go out of the business without attaining the renovation of management. The successful enterprises are mostly those which are supported by enterprise groups for funding upgrades.

(2) Advantages and Constraints for Development

The processed food and beverage industry is divided into primary grain products (flour milling and processed products), primary edible oil products, and feed grain products, which are characterized by imports of large amounts of raw materials and factory production, as well as there being a product area where there is customization to suit consumers' taste and needs. The latter includes in particular secondary products of the above products, where SMEs and even local microenterprises can have strength, not to mention large corporations.

In Oman, grain is imported and stored in large quantities, so that primary and downstream products can compete equally with internationally marketed products in terms of material supply.

On the other hand, imports of feed grain and edible oil are rather limited, failing to offer economies of scale needed to compete with large distributors in Dubai.

Global scale operations cannot be expected in Oman in these industrial areas, except for the above-mentioned mass-import grain-based processing, and they have to target niche areas as experience in the past has indicated.

On the other hand, household products are dominated by mass produced imports. As for plastic products, local production of plastic materials is expected to start in the near future, but downstream production will be limited to mass produced products unless differentiating technology is obtained. Thus, it is safe to assume that downstream products, if any, will have to aim for mass export marketing (see 6.1.3 "Downstream Development for Heavy and Chemical Industries").

The products, which match the specific demand of people in the Middle East, including that of expatriates working in the region, may have potential to compete against the imported mass-production products in this particular segment of the market.

This situation is similar in plastics products, paper products, high-volume printing, and textile products. However, type of printing that requires the ability to meet diverse customer needs enjoys a competitive advantage in terms of proximity to market.

(3) Implication for Development Strategy

To maintain a niche position in a specific area, manufacturers are required to have the abilities to understand the changing needs of customers and to offer new products and services to consumers and customers. In particular, in the areas of processed food and beverages, and household goods, many products made in industrialized countries are mass produced, while being oriented toward niche markets. As a result, quality improvement of low-priced imports

and development of diverse products based on consumer preferences will be made in due course.

Thus, success in these industrial areas significantly depends on continuous product development efforts while establishment of the system and infrastructure to support such efforts will be indispensable factors for it.

6.1.2.3 Industrial areas created by tourism Development

(1) Current Situation

While visitors from European countries, which represent around one-fourth the total number of tourists visiting the country, are recently on the decline due to the recession, the country's tourism has grown steadily over the long term. Notably, local people account for one-fourth the total number of hotel guests, and visitors from other GCC countries (seeing an environment with greenery and water) represent around 10% of the total.

(2) Advantages and Constraints for Development

The government has assigned priority to tourism development. In addition to generating demand for construction materials used for tourist attractions, hotels and resort facilities, tourism is expected to create demand for a variety of products from the manufacturing sector, including: (1) goods consumed at hotels and resort facilities; (2) souvenirs and specialty products targeting tourists; (3) products derived from development of transport systems and services relating to tourism; and (4) promotional publications and printing.

(3) Implication for Development Strategy

Previous discussion has covered demand relating to construction materials, as well as those in (1), (2) and (3). As for souvenirs and specialty products, there are various instances where conventional handicrafts and similar products are redesigned to improve consumer appeals. To support such efforts, it is important to provide an environment that facilitates prototype production or improvement of packaging, together with human resource development.

6.1.3 Industrial Development Leveraging Promising Resources and Existing Industrial Basis

The resources available in Oman which can be utilized as the basis for industrial development include oil and gas as the sources of energy, and natural resources in the form of non-metallic minerals, etc.

However, as analyzed in 3.1 and 3.2 in this report, It is obvious that oil and gas resources will not be abundantly available to provide the energy and raw materials for another Mega Project.

Rather, the value added by the output of the existing Mega Projects should be taken as the important challenges for maximizing the use of available resources. Further, use of sunlight and wind power should be another challenge for Oman an alternative sources of energy.

6.1.3.1 Industrial areas of existing, planned or under-construction heavy and chemical industries

(1) Current Situation

Several Mega Projects have been placed in operation in the past few years in the areas of petrochemical industries, gas-based industries, and energy-based industries. These projects leverage the most advanced technologies, while benefiting from the preferential conditions provided by energy costs and well developed infrastructure. They are quite competitive currently in terms of scale of production, efficiency, productivity, cost of inputs, and available infrastructure.

With the development of these projects, Oman has big potential for development of industries in the area of downstream products.

Figure 6.1-1 lists downstream products that can be made from petrochemical, steelmaking, and aluminum smelting projects, which are currently operated, planned or constructed in Oman.

(2) Advantages and Constraints for Development

However, most of the Mega Projects do not supply the intermediate materials which can be consumed by the existing downstream industries, and there is a need to develop the industries that supply the intermediate materials to link the Mega Projects and the existing downstream industries.

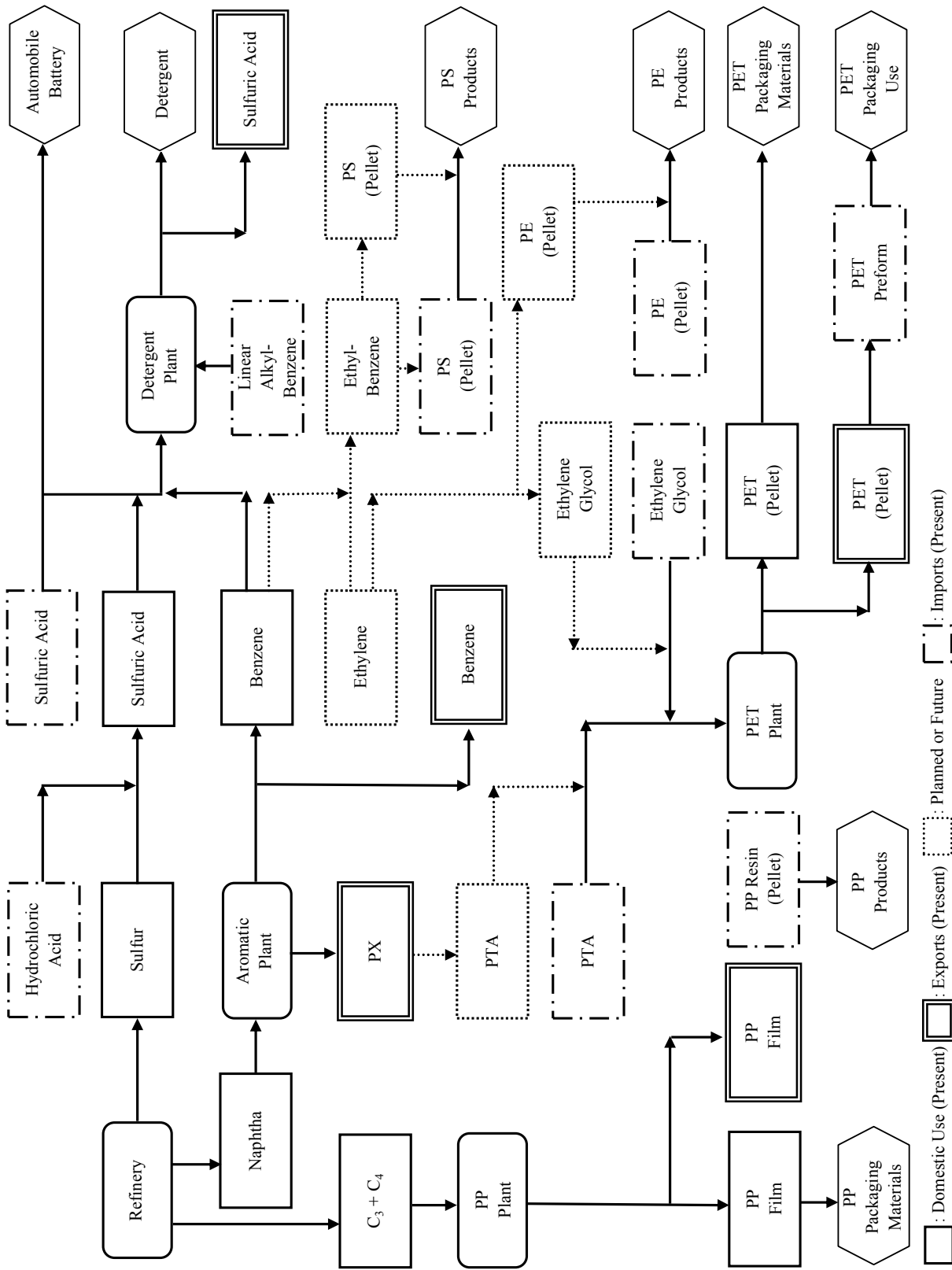


Figure 6.1-1 (1) Refinery-originated Chemical Flow

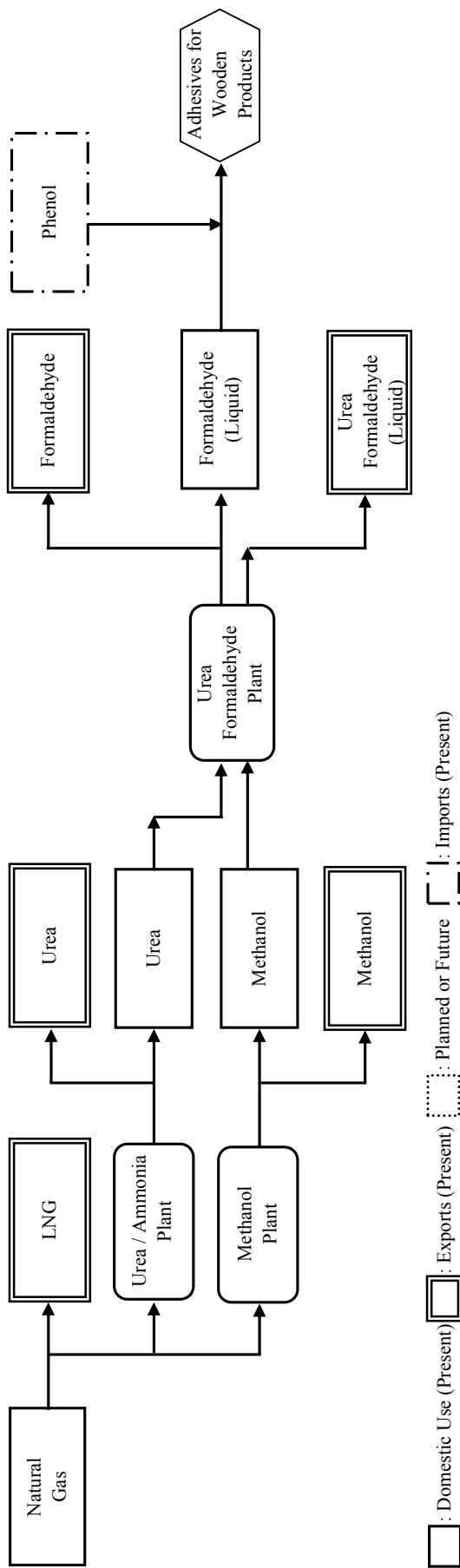


Figure 6.1-1 (2) Gas-originated Chemical Flow

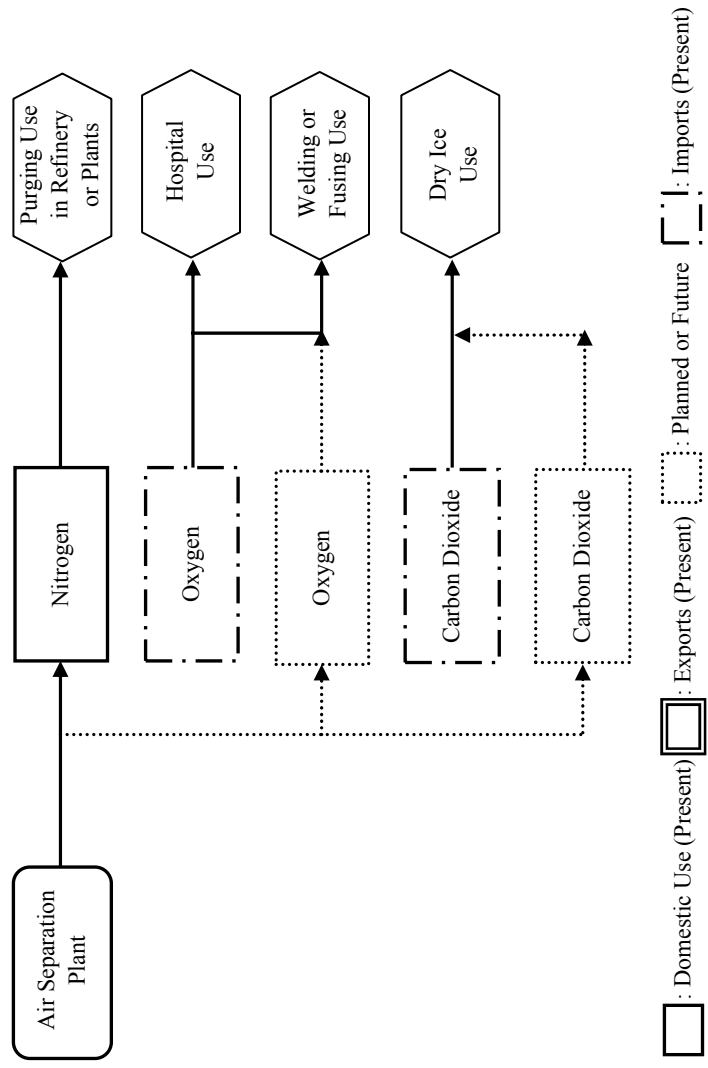


Figure 6.1-1 (4) Air-originated Chemical Flow

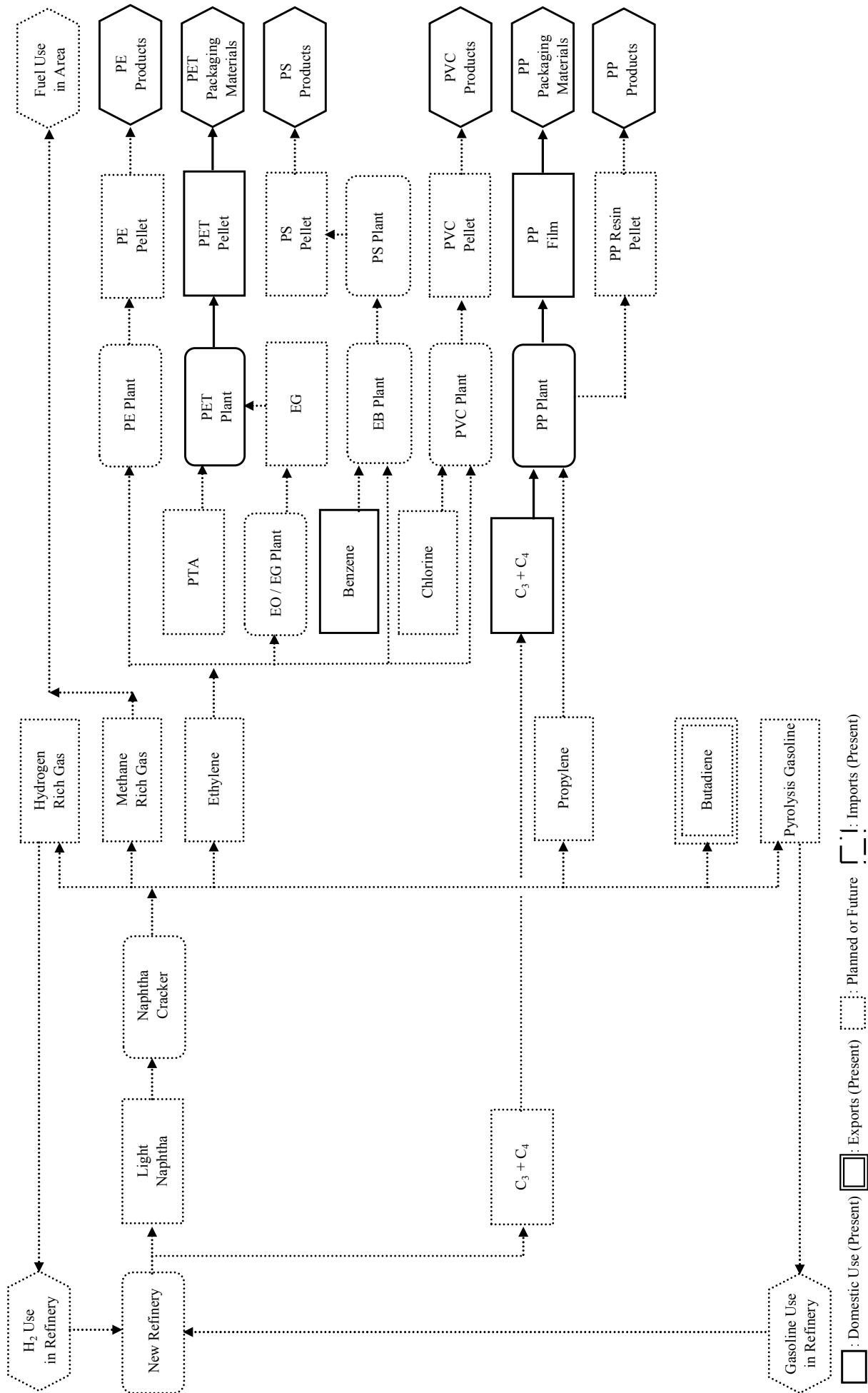


Figure 6.1-1 (5) Ethylene-originated Chemical Flow

(3) Implication for Development Strategy

Scale of production is a critical factor for downstream production. If production is limited to the domestic and neighboring markets only, the scale of production will be limited, making competition with mass produced imports difficult. Thus, a choice has to be made between mass production targeting the global market or small-scale production using special technology (such as meeting strict precision requirements) or targeting a niche market.

6.1.3.2 Development of the industries leveraging the non-metallic mineral resources

(1) Current Situation

Oman is reported to be endowed with variety of mineral resources that have high potential for commercial exploitation. However, the status of actual reserves has not been fully studied. Here, an attempt is made to seek ways to encourage new commercial applications of resources. These minerals, which have been verified to be commercially exploitable, include limestone, gypsum and aggregates. Marbles have high potential of development also.

(2) Advantages and Constraints for Development

The first prospective application is construction materials. In addition to various applications that have already been commercialized, the following strategies can be pursued.

1. Adaptation to diversified demand for construction materials (e.g., introduction of new technology and the improvement of durability and functionality)
2. Exploration of new materials by taking into account energy saving and other emerging needs

Primary examples of new use of construction materials, including energy-saving features, are gypsum board that has excellent performance in terms of fire resistance, insulation, and soundproofing, and rock wool that is superb insulation and is an inflammable material. At present, several companies import these products and use them for ceilings and partition walls of buildings. Use of these materials for office buildings and industrial plants is increasing. Also, the country has high quality silica sand resources that are used for local production of calcined lime, and commercial development of lime- and silicate-based materials is expected.

Also, development of construction materials as a high value added interior decoration product is under way. Marble is the primary example. In addition to export of marble stone, some companies manufacture and market higher value added products in terms of design and functionality, which are increasingly accepted in the international market. Also, the product's housing application can be expanded from interior decoration, counter tops and furniture to exterior finish.

There is a need to examine the possible use of the non-metallic mineral products available in

Oman, particularly, applications of use of those products, which are popular in Europe and U.S. but not common in the Middle East, and those made of the non-metallic mineral resources available in Oman.

(3) Implication for Development Strategy

In this connection, it is important to collect information on world technology trends in the field of construction materials and to take appropriate and timely action.

6.1.4 New Industrial Areas of Strategic Focus

The previous sections have discussed development of industrial areas that are already recognized in the country, and those that can be developed from basic industry and that have prospective resources and competitiveness.

The following areas are considered to have suitable development potential.

6.1.4.1 ICT and related industries

(1) Current Situation

The ICT industry is the process of development and its structure is dynamically evolving. Generally, it consists of the following subsectors.

(1) Information service

1) IT service

a) Consulting

b) Outsourcing

- Business process outsourcing (BPO)
- Call center
- Back office service and contract analysis
- Content development
- Transcription
- Creation of animations
- Software development

2) Software service

a) Contract software service (SI)

b) Software products

- Application
- Middleware
- Operating system, etc.

3) Electronic commerce service

- Internet auction, etc.

4) ISP

(2) Information service and communication

(3) Hardware manufacturing

1) Communication equipment

2) Computers

3) Electronics parts and devices

(4) Broadcasting service

The ICT industry is in the process of becoming established in Oman. At this time, major activities are concentrated in the BPO subsector, especially call center service. This can be categorized as a new type of labor-intensive industry. Several foreign companies are operating in the software development industry, as a result of investment promotion, and they mainly target overseas markets.

(2) Advantages and Constraints for Development

The country's ITC industrial development strategy aims to attract global ICT companies to form a regional base or hub and to use this as an advantage for further agglomeration of related industries. In fact, this is the same strategy as pursued by other GCC countries. Oman, however, should look for additional ways to use ICT for productive purposes.

While the development of the ICT industry and related job creation is an important objective, the primary purpose should be the broad-based use of ICT in the country's society, economy and industry, thereby to make them dynamic and strong. Once ICT takes root in the country, the industry will enter a sustainable growth path.

The government's ICT development efforts are represented by eOman Initiatives, one of which is the development of the ICT industry through the eGovernment project. The project also includes the following objectives, suggesting that it aims to disseminate ICT in society and industry by applying a comprehensive approach that goes beyond the government sector.

- Streamlining government services to citizens and business
- Creating and nurturing knowledge-based industries
- Developing a local ICT sector
- Supporting a better competitive environment
- Providing employment for Omani youth
- Enabling better healthcare
- Improving educational opportunities
- Supporting tourism sector
- Enhancing social development using IT
- Making Oman a more attractive destination for foreign investment and conducive for business

In reality, however, actual efforts tend to focus on the government and education sectors, while public campaigns are undertaken. As a large number of ICT workers are required to make ICT the foundation of society, economy and industry, it is imperative to start their education and training at the earliest possible time.

(3) Implication for Development Strategy

It is important to bridge the ICT industry and the industrialization process by promoting use of ICT in industry. As pointed out earlier, the country's industrialization potential does not have much room for the development of mass-production industries. In particular, the decrease in crude oil and natural gas supply capacity discourages construction of large-scale production facilities using a traditional competitive advantage based on abundant energy resources.

At the same time, Oman's industrial sector is required to shift its market strategy from being domestic oriented to being export oriented. However, its general strength – focusing on niche markets – appears to be limited to the domestic and neighboring markets and cannot be used for exploration of export markets (where domestic industries are already established on strength of accessibility to the domestic markets). Here, wide use of ICT is considered to be useful for export marketing, and at the same time, it will allow the ICT industry to gain experience and improve competitiveness. In the process, the industry can evolve from being labor intensive (call centers) to being technology/knowledge intensive (software development and consulting).

To promote use of ICT and the ICT industry, the government needs to take the following measures.

1. Development of ICT infrastructure (physical) that can be easily used by industry
2. Institutional development relating to use of ICT (development of the legal system, such as the e-commerce law and the law to regulate illegal use)
3. Incentives for industry to adopt and implement ICT

6.1.4.2 Alternative energy development

(1) Current Situation

As discussed in 3.1 and 3.2, The country's crude oil and natural gas supply capacities are nearing their limits and reduced supply can become the largest constraint on future industrial development. Naturally, the government is taking various measures to meet this challenge, such as concluding an agreement to supplement electricity supply through connecting to the grid of other GCC countries and the installation of natural gas pipelines to receive supply from Qatar.

From the viewpoint of securing stable energy supply, however, it is imperative to start commercial development of renewable energy resources.

Also as discussed in 3.3, alternative energy development efforts are being undertaken in the areas of solar and wind power generation, for which pilot plants are in operation in the suburbs of Salalah. Also, small-scale commercial plants are being operated in off-grid areas such as oil drilling sites.

Nevertheless, the alternative energies are in the R&D stage and are far from being recognized as major energy sources.

(2) Advantages and Constraints for Development

The most feasible alternative energy sources in Oman appear to be solar and wind power. Geothermal power is very difficult to commercialize because of insufficient temperature to produce steam. Wave power is not feasible due to much lower energy density than solar and wind power. Finally, biomass power generation using wastes and dung are considered to be impractical partly because these resources are already used to make organic fertilizer within the country and partly because a large amount of such raw materials needs to be collected for commercial power generation, resulting in a high cost.

Generally, the country enjoys fairly high energy density of sunlight, especially in desert areas, making it suitable for solar power generation. In coastal areas, however, energy density is relatively low due to short hours of sunlight as a result of rainfall in summer (Salalah) and foggy weather in Sur.

The results of pilot plant operation indicate that efficiency of power generation decreases by 10% in comparison to installation in non-desert areas, partly due to a high atmospheric temperature at the installation and partly due to contamination of the module surface by sand.¹ More importantly, it is pointed out that a high production cost is a major issue.²

Meanwhile, small-scale commercial systems are being used in remote areas, such as oil drilling sites. Also, as Oman is currently relying on diesel power generation in rural areas that are not grid connected, small solar power installations (off-grid applications) can be used to reduce diesel oil consumption. Thus, there are many opportunities for pilot operation prior to the full-fledged commercial stage.

As for wind power, DGCAM³ collects data at 21 points throughout the country. The results suggest that coastal areas in the south and mountainous areas in the north of Salalah are suitable for wind power generation. In these areas, data indicate wind velocities similar to those recorded in the interior of Europe where many wind farms are operated. Furthermore, the

¹ Authority for Electricity Regulation, Oman, "Study on Renewable Energy Resources, Oman," May 2008, p74.

² The cost at CSP (Solar Thermal Plant) is R.O.80/MWh (US\$207/MWh), while PV with a large scale grid connection costs R.O.96/MWh (US\$250/MWh). These are significantly high compared to that of the existing power generation by gas, which is R.O.12/MWh (US\$31/MWh) ("Study on Renewable Energy Resources, Oman.",

³ Directorate General of Civil Aviation & Meteorology.

highest wind velocity is recorded in summer, which is the country's peak season for electricity demand. On the other hand, it is also reported that the wind power generation cost in Oman would be more than twice that for conventional gas-fired power generation.⁴

(3) Implication for Development Strategy

As increasing interest in utilizing alternative energy sources is steadily becoming a global trend, and while Oman is facing restraint on use of crude oil and natural gas resources that have a wide range of applications other than use as primary energy resources, it is imperative to accelerate technological development efforts, but by taking into account local conditions peculiar to the country.

Prior to the buildup of a full-fledged commercial system, it is desirable to start pilot operation in off-grid and other areas where the power generation cost is high, so as to speed up the commercialization of adequate technology for the country. It is thus expected to serve as a springboard for development of new industries based on alternative energy sources.

6.1.4.3 Industrial areas leveraging the country's geographical advantage

(1) Current Situation

The idea of using the country's geographical advantage has a long history and has been seen in early commercial activities that took place in and around the country. Today, the country, together with the UAE, still maintains its traditional function as a center of entrepôt trade with Middle East and African countries, notably via ports such as Salalah and Dubai.

Recently, there are a number of instances of industrial development, at various levels and of various sizes, using the country's strategic location connecting the Middle East, Southeast Asia, and Africa (east coast). Nevertheless, they are far from the large-scale development seen in Dubai.

The country's traditional functions can be divided into the following:

1. Collection, transshipment, stockpiling, and distribution
2. Processing and manufacturing
3. Quality adjustment and repackaging

In Oman, a typical operation is to import consumer goods (especially food) in bulk, repackage them (after quality adjustment) according to the needs of specific markets and consumer groups, and ship them mostly to the domestic and GCC markets. Although some exports are made to

⁴ Authority for Electricity Regulation, Oman, "Study on Renewable Energy Resources, Oman" (May 2008). The gas price is assumed US\$1.50/MMBTU.

other Middle East countries and African countries (east and north), such exports do not constitute a core business of companies that are engaged in repackaging business. On the other hand, collection, transshipment and stockpiling functions are dominated by Dubai with its facilities, and Oman's presence is very small.

The processing and manufacturing function (to process imported raw materials to final products) is not seen, except for one company that does plastic processing on a contract basis. However, this case seems to take advantage of low gas prices and industrial infrastructure, rather than geographical advantage.

The country's geographical advantage has further improved as a result of development of the port of Salalah to an international container port (and a port of transit for international container lines) as well as an adjacent free zone, which provides proximity to Europe, the U.S., and Southeast Asia.

For companies operating in Southwest Asia (particularly India) and targeting the European market, the country's proximity to Europe can become a major advantage. In fact, automotive parts manufacturers targeting the European market are operating in the Salalah FZ.

Finally, the Mazuyunah FTZ has been established near the border with Yemen and accommodates companies that export to Yemen as well as Saudi Arabia or North Africa via Yemen.

These industries were originally located in industrial estates. Then, construction of FZs should improve their competitive advantage further. At present, however, FZs mainly accommodate large-scale (global) heavy and chemical industries, which enjoy a variety of benefits, including special energy prices and well-developed infrastructure.

(2) Advantages and Constraints for Development

Oman's geographical advantages include its strategic location as a point attracting investment from GCC and Southwest Asian countries, in addition to supply of raw materials and good market access. In particular, investors in the GCC countries find Oman to be a good place for business operations in terms of political stability and public security. There is increasing interest in Oman among investors in Southwest Asia (particularly India), and more recently, Southeast Asia and the U.S. As pointed out earlier, the geographical advantage is further reinforced by the proximity to Europe.

On the other hand, Oman has not established a priority position in the mind of many investors interested in the business relating to the Middle East, because the country has not achieved high levels of industrial concentration. Instead, the majority of investors pay attention to Dubai that

has successfully attracted and built up large-scale industrial functions. Most recently, Abu Dhabi has received much attention as a result of the subsided construction boom in Dubai after the international financial crisis.

Industrial development strategy using the free zone approach and its ability to attract industrial functions has already been adopted by all the GCC countries. In Oman, large projects using an FZ are mainly in the construction stage and it will take some more time to benefit from their effect.

Furthermore, the country's declining energy supply capacity is becoming a major obstacle to full exploitation of its geographical advantage. It is uncertain if investment projects attracted to the FZs will be implemented as planned.

As for countries in the east coast of Africa (a region to which Oman offers geographical advantage), Oman industries do not see them as a prospective trade partner because of high risk.

(3) Implication for development strategy

In recognition that Oman's energy supply capacity is increasingly limited, the prospective industrial areas using the country's geographical advantage, excluding energy consuming industries, are as follows.

1. Those performing the traditional quality adjustment and repackaging functions
2. Those performing the collection, transshipment, stockpiling and distribution functions, combined with the processing and manufacturing function

Each of the industry types is categorized into export-oriented industries operating in an FZ and those mainly serving the domestic and neighboring markets, with some exports to outside the region.

FZ-based, export-oriented companies do not have a major problem relating to the FZ and its business environment. The local employment requirement (10% of the workforce must be Oman people) is not considered as a major restraint to investment decisions. Rather, energy supply is viewed as a constraint, suggesting the need for policy measures to secure alternative or imported energy supply sources. Also, further study is required as to the balance between the economic benefits obtained from investment in the FZ and the country's burdens of ensuring energy and water supply at favorable conditions.

On the other hand, the enhancement of support functions and the ease in securing local employee requirements (or improvement of supply capability of competent human resources) are important for companies operating outside the FZ and mainly serving the domestic and neighboring countries. More detailed discussion is made in 6.2.

Another important consideration is to avoid creating an obstacle to companies outside the FZ by overemphasizing the FZ-based development strategy. Such obstacle includes:

1. When development of a container port results in deterioration of general cargo handling capacity, delay in procedures, and the rise in warehousing and handling costs.
2. When priority supply of energy and water to the FZ creates a supply shortage for companies outside the FZ.

Finally, streamlining and integration of procedures relating to the importation of raw materials and export of products, as well as the provision of a bonded area, are important factors for promotion of investment in these industries.

6.1.5 Priority Areas in View of Stable and Sustainable Development of Industries

The important consideration concerning industrial development in Oman is to develop the industries at stable and sustainable level by investing funds obtained from oil and gas, which are the important financial sources for the national economy and public finance, so that the industries will be able to support the economy even after the resources of oil and gas become limited in the future.

In this context, the industrial development of Oman should be sustainable through reinvestment of the outcome of industrialization to the industries. The profit at one point is not sufficient. Further, it is necessary that the profit benefits the nation and the people directly or indirectly.

Having an understanding of the advantages and constraining factors of the existing industries is indispensable in establishing a stable and sustainable industrial sector.

One of the significant features of the industrial sector in Oman is the fact that the industrial subsectors have been established without linkage with other subsectors. Most manufacturers produce end-use products and sell them in the consumer markets or export markets, using local or imported materials and imported semi-finished products, and imported machines and equipment. There is no linkage with other industrial subsectors during their processes of manufacturing.

This is due to the fact that industries in Oman have started their business with the objective of import substitution, instead of going through the traditional industrial development process from agricultural production, small scale processing, factory production and aggregation to big-scale operation. The target products for production have been selected in view of having promise of return on investment. There were very few cases of selection of products with linkage with their current product lines.

In the initial stage of industrial development, industries often start without any linkages with other industries. However, development of supporting industries is essential for these industries to be stable and competitive. Enhancement of industrial clusters is one approach based on this concept.

In the case of Oman, the linkages are very limited. Most manufacturing industries use imported semi-processed products as the starting material, procuring or importing general-purpose materials and standardized parts, and process them into end-use products. As a result, the industrial structure is not deep. Manufacturing know-how has not been built up to the level of engineers and the managers involved. This may be one of the reasons for difficulty in developing industries based on the needs of existing industries.

As a result, no relevant industries develop, and the industries have to continue their manufacturing without change, while continuing to rely on imported semi-processed products. As for the machinery and equipment, they have to use the manufacturing lines specialized for the products, since they have no capacity to develop lines by themselves. Further, their manufacturing capacity is not large enough to make them competitive in terms of the scale of economy, because of the limited size of the local markets.

In order to overcome this weakness of Oman industry, activities to support development of other industrial areas are essential. Among these functions, the following should be given particular attention in view of supporting the existing industries and prospective and priority industrial areas.

6.1.5.1 Machining work subsector

(1) Current Situation

Currently, there is no machining workshop in Oman having advanced technology and skills. Most medium-size enterprises, which use molds and dies, have to rely on maintenance service abroad, but would prefer to see the emergence of machining workshops having advanced technology and skills in the country. Once this type of business is established, it can expect the demand for services not only from the local firms, but also from those in the UAE.

On the other hand, the major enterprises in Oman had made the efforts of keeping the niche markets, avoiding the tough competition with low-end mass-produced imported products, by producing quality products, introducing new technology and meeting the customer's requirements by fine-tuned responses. They have continuously introduced new production facilities for this purpose, but they lack the capacity to develop and improve their production processes by

themselves.

The competitors will upgrade their level of competitiveness to that of Omani firms sooner or later. In other words, Omani firms have to invest continuously in their facilities to keep their competitive positions. R&D capacity is indispensable in this regard from now on. Development of the metal working subsector, which has the function of supporting industry, will be quite useful in support for R&D in various industrial subsectors.

(2) Advantages and Constraints for Development

As discussed above, there is no company capable of performing machining work, but there is need for such service. Also, additional needs are expected from the growth of companies engaged in collection, transshipment, stockpiling and distribution (to leverage the country's geographical advantage), business expansion of existing companies into assembly operation, and the move toward local procurement of parts.

Nevertheless, if an enterprise specialized in machining is established newly in Oman, the demand for machining will not be significant at the outset, because of the fact that most of the existing firms perform processing themselves.

Finally, there is a strong need to build the "soft" base to support the machining sector, such as by accumulation of relevant experience and know-how, and development of human resources.

(3) Implication for Development Strategy

In view of importance of this support function not only for current industrial development, but also as future strategy, and also in view of the importance of encouraging R&D by the enterprises, the support function should be established and operated partly under government auspices. This is, justified on the basis of its importance for the establishment of industries, need to satisfy requirements of machine working industries, importance of die maintenance and improvement, etc. The establishment of such an enterprise or institution will be useful also for supporting the R&D and improvement of machinery and equipment, and contribute to development of core Omani personnel in charge of machining fields.

If this function is to be provided on a commercial basis, training of Oman engineers and technicians may be the most difficult part.

Further, existence of an car assembly factory in Oman would definitely trigger the development of these subsectors.

6.1.5.2 Plant engineering subsector

(1) Current situation

In Oman, a variety of large-scale plants have been constructed since 2000, including oil refineries, chemical plants (e.g., methanol, fertilizer), petrochemical plants (aromatics, PP and PTA), aluminum smelters, and power plants such as IWPP. The plant engineering subsector supports smooth construction of these plants.

To ensure sustainable development of heavy and chemical industries in the country, the plant engineering function plays a critical role.

Table 6.1-1 Plant Construction Projects in Oman

| Plant Classification | Company Names |
|--|--|
| Petroleum & Gas Production | |
| Water Injection | Petroleum Development Oman |
| Steam Generation | Petroleum Development Oman, Occidental |
| Other Facilities for EOR | Petroleum Development Oman |
| Gas and Condensate Separating | Petroleum Development Oman, PTTEP |
| Pipeline Laying | Petroleum Development Oman |
| Refinery | |
| Refinery | Oman Refineries and Petrochemicals Company LLC |
| Petrochemicals (Crude-originated Chemicals) | |
| Aromatics Production | Aromatics Oman LLC |
| PP Production | Oman Polypropylene LLC |
| PET Production | Octal Petrochemicals LLC |
| Gas-originated Chemicals | |
| LNG Production | Oman LNG, Qalhat LNG |
| Methanol Production | Oman Methanol Company LLC, Sohar Methanol Company LLC, Salalah Methanol Company LLC |
| Ammonia / Urea Production | Oman India Fertilizer Company SAOC, Sohar International Urea & Chemical Industries |
| Formaldehyde Production | Oman Formaldehyde Chemical Company |
| Steel | |
| Steel Rolling Mill | Sharq Sohar Steel Rolling Mills |
| Aluminum | |
| Aluminum Smelting | Sohar Aluminum Company |
| Power Generation | |
| Power Generation | Electric Companies (many), Oman Refineries and Petrochemicals Company LLC, Petroleum Development Oman, Sohar Aluminum Company |
| Independent Water & Power Projects (IWPP) | Electric Companies (many) |
| Water | |
| Wastewater Treatment | Haya Water, etc. |
| Reverse Osmosis | Petroleum Development Oman |

Source: Prepared by the Study Team

The plant engineering industry consists of three elements, i.e., engineering, procurement, and construction. In Oman, there are three plant engineering firms, each of which employs over 1,000 workers. They are engaged in some of the above projects. However, none of them is capable of handling all three elements.

In the field of construction, the local plant engineering firms are said to have sufficient capacity to build a large-scale plant. However, they do not have experience in serving as contractor for a large plant construction project, and mainly work as a subcontractor.

On the other hand, their capability in the engineering field is very limited. They can only handle engineering work for plants with a limited number of modules and have no experience with complex modules.

Finally, the engineering firms' capability in the field of procurement is governed by its engineering capability, so their experience is limited to procurement work relating to piping and instrumentation for plants with a small number of modules.

(2) Advantages and Constraints for Development

For engineering firms in Oman, the current demand for construction of industrial plants and facilities provides a good opportunity to learn process-based basic and scale-up technologies. Also, such experience and expertise can be applied to light industries, such as food processing.

To earn such an opportunity, they need to gain experience and improve practical skills by forming joint ventures with overseas engineering firms. However, many foreign firms are interested in Saudi Arabia and other countries where business opportunities are abundant, while they are not enthusiastically looking for partnership with Oman companies.

(3) Implication for Development Strategy

To ensure sustainable industrialization in Oman, the fostering of companies engaged in plant engineering service is very important. This can be accomplished by gaining experience in plant construction projects that are carried out in the country and by accumulating relevant data and know-how.

In Oman, Petroleum Development Oman (PDO) has experience in plant engineering service and has its own engineering department. It is therefore recommended to obtain cooperation of PDO for accumulation of experience and expertise.

Also, almost all engineers and technicians who are responsible for field construction activities are foreigners. To ensure the development of the knowledge-intensive industry such as plant engineering, long-term strategy for training of local engineers and technicians is indispensable.

6.1.5.3 Packaging materials (particularly plastics materials) manufacturing subsector

(1) Current Situation

At present, Oman has manufacturers of corrugated packaging materials and plastic packaging materials (with limited technology level), but no manufacturers having advanced technology and R&D functions. On the other hand, many Oman companies try to maintain competitiveness and achieve product differentiation by targeting a high-end, niche market. Meanwhile, no companies are specialized in repackaging operations which leverage the country's geographical advantage; to do this it is necessary to develop new packaging designs and materials according to taste and lifestyle of consumers in the target market.

As for plastic packaging materials (especially soft materials), differentiation efforts by local companies are often dependent on foreign packaging material manufacturers in the form of cooperation.

(2) Advantages and Constraints for Development

As consumers in the GCC countries generally prefer high-end products, there is potential demand for development of diverse packaging materials. Also, if companies engaged in repackaging operations grow and obtain export-competitiveness, demand will surely expand beyond the domestic market.

However, if companies serve the domestic market only, they will unlikely be able to have their own R&D department.

(3) Implication for Development Strategy

This industry requires not only manufacturing technology, but also an R&D function to meet the needs of customers, and printing technology. In this context, this industry may be regarded as a knowledge-based industry.

To promote full-fledged development in this field, the establishment of a public organization having R&D and consulting functions may be recommendable.

6.1.6 Prospective Areas of Industrial Development in Oman, and Its Strategy for Development (Conclusion)

(1) Advantages and Constraints of Prospective Industrial Areas for Development (Summary)

In 6.1.2 through 6.1.5, the advantages and constraints of the selected prospective areas for industrial development were analyzed.

As a result, the following factors have been found to be relevant to the development of the prospective areas.

First of all, infrastructure and plant construction projects in Oman are being carried out on a continuous basis even after the international financial crisis. When construction projects in Dubai, currently suspended or slowed down, are revived, they will create strong demand for a number of industrial products in the prospective areas. In particular, demand expansion in the high-end and upper-middle consumer groups is noticeable, with a good prospect for further growth.

On the other hand, many industries in Oman do not appear to have breadth and depth, i.e., they make final products by assembling imported intermediate products, rather than raw materials, and they are operated without forming close linkages or a value chain. The country's industrial structure is vulnerable and fragmented. As the domestic market is small in size and does not support mass production, local industries generally maintain viability by focusing on niche demand, while avoiding competition with low-priced imports. Nevertheless, they are far from achieving a high level of differentiation and need to make efforts if they want to avert competition with imported products.

Furthermore, Oman is now building heavy and chemical industries, some of which have production capacity on a global scale. However, these emerging industries are not effectively linked to traditional industries that serve the domestic and neighboring markets, due to the lack of industrial activities that could bridge them to form an integrated supply chain. As a result, basic chemicals and metals produced by new industries are or are planned to be exported without local processing.

The potential for development of local industries in relation to the heavy and chemical industries does not seem to be very large because the downstream area lacks large scale industries that have adopted an export-oriented strategy, while traditional industries that meet domestic and regional demands are devoting their efforts to conversion of material supply sources.

Furthermore, depletion of the country's natural gas resources is reducing surplus capacity that has previously attracted large-scale industrial projects. This is the largest restraint for future industrial development.

As another major factor for impeding industrial development – such as the improvement of factory management, the discovery of business seeds, development of new products, and development of the downstream sector – is the slow pace of development of local human resources, especially middle managers in the areas of technology and marketing as well as entrepreneurs, who are expected to play a key role in accumulation of experience and expertise.

Finally, although many industries have been created so far, they fail to create employment or business opportunities for Oman people. Moreover, the slow pace of human resource development is working against the country's efforts to create job opportunities for local people by means of legal regulation and has an adverse effect on efficiency of industrial sectors.

(2) Implications for Industrial Development Strategy

In consideration of the above factors, the following should be taken into consideration in devising strategy for development of these industrial areas,:

- 1) As for the target areas of new industry development, the industries which rely solely on oil and gas resources will not be feasible any more. Rather, the focus should be shifted to the following categories of industries.
 - Industries featuring low energy consumption or generation of alternative energy
 - In the case of high energy consuming industries, the industries having an optimum balance between the economic effect of development and energy consumption
- 2) As the domestic and neighboring markets are limited in size, development of mass producing industries will likely be difficult for years to come. Instead, it is important to further enhance the traditional strategy of exploring niche markets with creativity. In particular, such strategic direction can be justified by high growth potential of the high-end and upper middle segments within the country and the region.
- 3) However, this does not necessarily mean that industries should remain domestic-oriented. On the contrary, if they do so, they will lose competitiveness in the longer term. They should pursue growth by exporting, by diverting the creativity for market development to the export markets as well. Such creativity should be driven by R&D, together with efforts for market development and creation.
- 4) At the same time, it is imperative to accelerate efforts to develop local human resources that can serve as middle managers in the fields of technology and marketing, or industrialist entrepreneurs, thereby to accumulate experience and know-how that are conducive to the improvement of factory management, identification of business seeds, development of new products, and development of the downstream businesses.
- 5) On the other hand, more focus should be placed on creation of employment and business opportunities *for Omani nationals* in the industrial development process, and provide the basis for the above-mentioned human resource development.

6-1-Annex Biotechnology Industry

1 Background

The Future Industrial Strategy regards the biotechnology related industries as one of the strategic priority areas for development. However, the current study concluded that this area of industrial development is still to be the strategic priority area.

Following shows the present stage of development of the biotechnology in the Sultanate.

The biotechnology (bio-tech) industry refers to industries engaged in industrial production of useful substances by applying biotechnology, which enables the efficient use of advanced functions and working of living organisms to support or help human activities, such as genetic engineering, cell fusion, and tissue culture. Primary examples of biotechnology-enabled manufacturing activities, which are carried out on a commercial basis, include: (1) production of pharmaceutical products using genetic engineering technology and of genetically modified food; (2) production of pharmaceutical products using cell fusion technology; and (3) production of tissue cultured seeds, seedlings, and similar products using cell culture technology. If related activities are added, such as production of other bio products (e.g., sweetener), manufacture of related research equipment and reagents, and related services, the bio-tech market undergoes rapid growth.

Biotechnology is related to a wide range of fields, ranging from food to chemistry, medicine, pharmaceutical, agriculture, forestry, and fishery. Many established industries - typically pharmaceutical - can revolutionize their technological base with the help of biotechnology. Also, biotechnology is expected to create new industries and new employment opportunities. In particular, it has potential to solve problems that cannot be dealt with by conventional industries and technologies and to initiate great transformation in basic science and engineering fields relating to human activities. This means, among other things, longevity based on healthy life, upgrading of quality of life, and an optimal use of medical resources. In the food sector, biotechnology can serve as a powerful impetus for cost reduction, development of high-grade and high performance products, and quality improvement in terms of taste or palatability, while contributing to the improvement of food self-sufficiency. In the environment and energy areas, commercial development of bioprocess and biomass technologies can lead to the emergence of production technology with much reduced environmental loads and the securing of energy sources.

2 Current State of Biotechnology and Development Plans in Oman

(1) Overview

As biotechnology has been introduced to Oman very recently, its applications are still limited and remain at research and development stages.

In the field of crude oil production, joint research on a new oil recovery method (Microbial Enhanced Oil Recovery, MEOR) is conducted by Petroleum Development Oman (PDO) and Sultan Qaboos University (SQU). It is scheduled to complete laboratory experiments in 2010, followed by a pilot project and field application at oil wells.

In the agricultural area, research facilities of the MOA and SQU conduct tissue culture and cultivation of seedlings of various plants, including date palm, banana, and potato. Other research activities include genetic mapping of date palms and DNA analysis of lime to find disease prevention measures.

In the area of marine product processing, UNESCO and SQU carry out a joint research project to find substances in seaweeds and other marine products that have a good health effect.

(2) Application relating to oil and gas production

As Oman has small oil reserves and its crude oil production is on the decline, efforts are being made to maintain production capacity by using the EOR method. Similarly, natural gas is produced from wells that require high levels of technology, which are currently applied to production expansion efforts.

As the increase in oil and gas production capacity is a critical issue for the country, research on use of biotechnology is undertaken seriously. A primary example is research and development on the MEOR method to boost efficiency of crude oil recovery by using bacteria and other microorganisms.

In the country, a R&D project in this area focuses on systemization of a substance that acts like a surface active agent in an oil bearing layer by action of microorganisms injected into the layer. The project is carried out since 2006 under the funding of PDO and as joint research by PDO and SQU. The first phase was conducted to examine effectiveness of the MEOR technology under participation of foreign researchers invited from India⁵, the U.S.⁶, and Japan⁷.

⁵ TATA Energy Research Institute (TERI)

⁶ Mississippi State University, Hughes Eastern Corporation and University of Texas at Austin, University of Texas at Austin, University of Oklahoma

⁷ Technology and Research Center (TRC), Japan Oil, Gas and Metals Corporation (JOGMEC), Teikoku Oil Co. Ltd., Chugai Techno Corp., and Kyushu University

In 2007, laboratory experiment at SQU was started. At present, research to identify and characterize microorganisms that can work well for the EOR process in the country's oil wells is underway. It is slated for completion in 2010. Then, pilot study and field application will be carried out on site⁸.

According to PDO, initial 5 - 20% of oil reserves are recovered by internal pressure, followed by secondary recovery that is done by water flooding or immiscible gas injection to recover 30 - 40%. The MEOR method is positioned as the tertiary recovery process. It is less costly than other methods, with a less adverse effect on oil wells, and is considered to be environmentally friendly⁹.

(3) Application to agriculture¹⁰

Efforts to apply biotechnology to agriculture were started in the 1990s. Today, Oman has the following research facilities.

1. Tissue Culture Laboratory under the MOA, located within Jemah Research Station
2. Rumais Research Center (Jemah Research Station)
3. Plant Biotechnology Research at Sultan Qaboos University

Major objectives of these research facilities are as follows.

- Tissue culture required for propagation of plants and molecular level analysis, and implementation of molecular level technology
- Mass propagation of local and imported date palms by the cell culture method
- Diversification of plant seeds suitable for various local projects
- Genetic mapping of date palms
- Characterization of dates and alfalfa (the country's major agricultural products) at molecular level
- Discovery and analysis of pathogens

⁸ Sultan Qaboos University, August 2008

⁹ Symposium on "The Technique of Using Bacteria for Oil Production", UAE, July 2008

¹⁰ This description is based on "The Current Status of Agricultural Biotechnology in Sultanate of Oman, 2008, Ministry of Agriculture."

Major projects and activities currently conducted at the above research facilities are summarized as follows.

1) Projects and activities relating to tissue culture

- Development of the effective tissue culture methods for 46 species cultivated
- Cultivation of over 30,000 date palm seedlings per year and distribution to over 160,000 farmers
- Propagation of 60,000 banana seedlings from varied species
- Propagation of 8,000 potato seedlings per year
- Propagation of pineapples and strawberries

2) Projects and activities relating to biotechnology

- Genetic mapping of date palms and establishment of two date populations for improvement of quality of dates
- Molecular level DNA analysis of phytoplasma relating to the witches' broom disease that damages Oman lime
- DNA fingerprinting of 15 alfalfa species produced in Oman
- Molecular analysis of factors relating to the decrease in yield of mango

Several research activities are expected to produce concrete results. At the same time, the following issues are recognized.

- Lack of information exchange between research facilities within the country
- High operating costs for research facilities
- The shortage of trained and qualified workers
- Lack of data used for characterization of Oman date palms
- Limited funds for research and facility management

To solve these issues, researchers relating to the MOA propose the establishment of an agriculture biotechnology network for the following purposes.

- Exchange of experience and information accumulated in the field of agriculture technology
- Reinforcement of cooperation between research organizations in the GCC countries
- Exchange of experts specialized in the field
- Support for capacity building
- Provision of training opportunities for researchers to improve skills

(4) Application to marine product processing¹¹

At present a research project entitled “Value-Added Marine Raw Materials and Health” is conducted jointly by UNESCO and Sultan Qaboos University since 2005. It aims to find substances in seaweeds and other marine products that have a good health effect. Experiments are carried out by a traditional method to use rats, and high resolution, latest MRS/MRI equipment is used to measure the results.

In connection with the project, the establishment of the Center of Excellent in Marine Biotechnology was approved in May 2005. The center has the primary purpose of promoting capacity building for optimal use of marine resources. To accomplish the purpose, the center sets the following goals and strategies.

- To promote development of science and technology in the area of marine biotechnology
- To promote interdisciplinary research activities to bridge a gap between basic and application researches
- To establish a formal collaboration system between universities, government organizations, and research facilities in and out of the country
- To improve competitiveness in the field, create new businesses, and induce investment
- To create sustainable development
- To help develop the marine industry
- To provide information for industry and public

¹¹ This description is based on “Oman (532) UNITWIN/UNESCO chairs Programme Progress Report - Period of Activity: September 2004 – May 2007.”

6.2 Recommendations on the Industrial Development Plan and the Strategy

In 2.2.4 and 2.2.5, “Seventh Five-year Plan” (also referred to below as “the Plan”) and “Future Strategy for Industrial Development” (“the Strategy”) are discussed to review their substance and goals set in them. Also, quantitative goals described in the “Seventh Five-year Plan” are analyzed in terms of the current state of progress and achievement. Chapter 4 reviews the current state of existing industrial sectors. Then, 6.1 identifies prospective industrial areas and their advantages and constraints in relation to industrial development, and development strategies for prospective industrial areas.

This section sets forth proposals and recommendations based on the “Seventh Five-year Plan” and “Future Strategy for Industrial Development” from the viewpoint of future industrial development planning and renewed development strategy.

Note that 6.3 will recommend specific actions, programs and projects required for implementation of such strategies, implementation systems and institutions.

The Plan is one stage of the entire process consisting of planning, implementation, assessment, and renewal (modification), and this process is being consistently maintained in Oman for the five-year plan period. Also, a long-term vision straddling multiple five-year plan periods is developed and is subject to periodical assessment.

On the other hand, the Strategy is the set of policies required to achieve the Plan’s objective. The Strategy here consists of eleven policies.

In the following section, the relationship between the Plan and the Strategy is reviewed. Then, the eleven policies composing the strategy are reviewed from the viewpoints of development strategy in 6.1, together with related proposals and recommendations.

6.2.1 Recommendation on the Plan-Strategy system, and its Implementation

(1) The Strategy as the Policy and Mechanism to Implement the Development Plan

The Strategy is positioned as one of the policies and mechanisms to accomplish the Plan. In other words, the Plan can be accomplished by implementing a policy that constitutes the Strategy.

In practice, however, the Plan and the Strategy are not always structured in such way to ensure that each plan is followed by a corresponding “strategy.”

The Plan contains a stream of policy goals, which are stated in the Long-term Plan. The part of the Plan describing industrial sector development is detailed regarding the annual activity plan of the Directorate General of the Industry. On the other hand, the Strategy is monitored separately from the above context. These systems are recommended to be unified. In other words, the Strategy *should not be one of the policies and mechanisms* to accomplish the Plan, but it *should be the policies and mechanisms themselves*. In this connection, each goal of the Plan should have a corresponding strategy to achieve the goal.

(2) Need for Institutionalization of the Strategy

Both the Plan and the Strategy properly identify the issues relating to industrial development, with width and depth. At the same time, it is apparent that many of the key issues pointed out in the planning process during the preceding plan period have still to be tackled and solved. They cannot be dealt with by the MOCI alone and appear to require concerted efforts with cooperation of other government agencies as well as the private sector. In addition, many of them are closely associated with Oman's history, culture, and custom. Yet, many challenges have been inherited from the previous plans. However, in actuality, most of the challenges inherited from the previous plan, must have yielded some accomplishment in the previous plan period, and the goal in the current period must be changed to reflect that. In order to follow up on the accomplishment properly, and reflect it in the next Plan, the implementation system of the Strategy has to be institutionalized, and updated as required.

A primary example is seen in that there is no permanent organization to implement the Strategy, despite the fact that the Strategy occupies an essential part of the mechanism to accomplish the Plan. Also, no activity cost is budgeted.

(3) Deployment of the Strategy to Actual Programs

While the Strategy identifies issues and specifies actions to be taken, it does not address specific programs. As is shown in 6.3.2, many strategies still remain at the stage of fact-finding study and consultation among the relevant Government agencies and organizations. Also important is to specify the time table for implementation.

The following section identifies primary challenges in the Plan and the Strategy. Then, in 6.2.3, the eleven policies that make up the Strategy are reviewed, together with proposals for reinforcing them.

6.2.2 Recommendation on the Primary Challenges

The primary challenge for industrialization, as shown in the Plan and the Strategy, is already shown in the long-term objective, namely “to move away from overdependence on limited oil resources and achieve economic growth in the course of industrial diversification.” The Strategy represents the Sultanate aptitude for taking up the challenge in the field of industrial development

Development of human resources and knowledge is recognized in the Strategy as the foundation for success in the challenge at the current of development stage.

(1) Transformation from an Oil-dependent Economy, and Industrial Diversification

Transformation from being an oil-dependent economy, and industrial diversification, are the most important policy agenda items. Despite efforts, the country’s dependency on oil is still high. In the industrial development process, the country still has to rely on oil resources in order to building necessary infrastructure, while it can only attract investment on the basis of a competitive advantage derived from availability of oil and gas-related energy resources. If new development projects using crude oil and natural gas are abruptly abandoned, it will shrink the national economy. Instead, the following should be the essential point of the policy for industrial diversification:

1. To use existing infrastructure in the most efficient way
2. To maximize the economic effect of use of oil and gas resources
3. To take steady steps toward the maximum use of alternative energy

While many investment projects achieve a good return, the rate of reinvestment in the country as a whole is not very high due to importation of producer goods and payments to foreign workers, etc. To ensure the efficient use of capital, therefore, the following policies need to be pursued.

1. Promotion of business startup and production by Omani people
2. Formation and development of inter-industrial linkages

(2) Creation of Opportunities for Business Startups and Employment *for Omani People*

While many businesses have been created in the country, together with employment opportunities, they have not necessarily created opportunities for Omani people. However, the situation cannot be improved only by offering jobs for local people. Vocational training cannot be a complete solution. Similarly, restriction on employment of foreign workers can have an adverse effect on companies in terms of competitiveness. Many factors are involved, including problems relating to education and social security in the country, and the working environment intended for foreign workers.

Under these circumstances, some companies have successfully fostered a cadre of Omani employees who can take charge of operation and management. Key success factors are as follows, in addition to strict enforcement of work rules and moral.

1. Respect for Omani employees
2. Provision of a good working environment
3. Future scalability (upgradability) of a specific job

Needless to say, it is imperative to instill a sense of professionalism (awareness of job responsibility) and basic skills to young people prior to employment. The above companies have an internal training system to teach such basics to new employees.

While the Strategy proposes a variety of instruments to implement employment-related policies, actual programs and their implementation are largely left to the Ministry of Education and the Ministry of Manpower. As suggested in the above example, human resource development can be accomplished effectively in the actual working environment that provides practical learning experience, rather than a pure educational or training environment. It is therefore desirable to implement a program that provides such training opportunities. In particular, the MOCI needs to give priority to such a program to facilitate practical training for Omani workers, as a formal institution outside ordinary education and training.

6.2.3 Individual Policies

As discussed in 2.2.5, the eleven policies that constitute key components of the Strategy are designed to address the primary challenge relating to industrial development.

As for their implementation, however, it is pointed out that there are many issues unresolved and inherited from the previous plan period, while the majority of strategies have not reached the policy and program implementation stage but are limited to discussion between related organizations and preliminary study.

- (1) Establishment of Strategic Priority Areas for Industrial Development, and Promotion of Investment Providing Incentives

These approaches are adopted by many countries for the purpose of catching up in a specific field or speeding up development of a specific sector.

Government designates a priority area because it is generally responsible for development of industrial infrastructure and energy supply and is therefore expected to send a clear message on its preference relating to resource allocation plans, including support programs, from the viewpoint of ensuring effective support for the private sector's activities. As a result, a priority area is selected from the areas that have already received public support by focusing on those that are expected to serve as a change agent or a vanguard for transformation or expansion.

Under the Strategy, six new strategic areas and two existing areas that require reforms are designated, together with the SME sector that is expected to carry out reforms in collaboration of global companies. Note that the Seventh Five-year Plan designates four sectors, of which the downstream sector for gas-based industries and the sector for industrial cluster formation are not included in the areas designated in the Strategy.

In 6.1, prospective areas and priority areas for industrialization are selected and their competitive advantages and restraints (as they are located in Oman) are analyzed. In this connection, it is important to define the areas of priority, categorizing the objectives in setting the priorities so that the government agency in charge of implementation can make the strategy into the detailed policy measures and programs. The proposed prospective and priority areas can be classified into the following groups according to the policy objectives.

- 1) Industrial areas for which investment and business development should be encouraged
 1. ICT related sector
 2. Downstream sector for heavy and chemical industries
 3. Sectors using nonmetal mineral resources (as new areas)
 4. Sectors engaged in transshipment, assembly, quality adjustment, and repackaging (as new areas)
- 2) Industrial areas for which the government should carry out development support projects
 1. Machining industry
 2. Plant engineering industry
 3. Packaging materials industry
- 3) Industrial areas for which research and development should be encouraged
 - Alternative energy related manufacturing
- 4) Industrial areas for which transformation (fundamental reforms) should be encouraged under support programs
 1. Construction industry
 2. Food industry
 3. Household goods industry
 4. Tourism

5. Sectors using nonmetal mineral resources (as existing areas)
6. Sectors engaged in transshipment, assembly, quality adjustment, and repackaging (as existing areas)

Specific policies and programs are described in 6.3. Also, policies and programs relating to SMEs are discussed in 7.2 – 7.3.

Note that the following area is designated in the Strategy but not included in the above list. Major reasons are discussed in 6.1.6.

- Biotechnology-based modern industries

(2) Adoption of Comprehensive and Effective Policies for Development Of Science- and Knowledge-Based Industries

Here, the Strategy basically covers policies relating to promotion of the IT industry, IT education, and dissemination of IT to governments. From the industrial development viewpoint, however, dissemination of IT to industry should be emphasized, together with promotion of IT-related SMEs. See 6.3.5 for details.

Knowledge-based industry is not limited to the ones using IT. As companies in Oman are generally required to explore and meet niche demand in order to maintain competitiveness, while avoiding competition with mass-produced, low-priced products, they need to improve expertise in the areas of product development, packaging, design, and marketing. Government policies and programs to support the acquisition of such expertise are considered to be one type of promotion of knowledge-based industry. See 6.3.2 for details.

(3) Reforming of the Government Mechanism to Provide Soft Loans

This is concerned with SMEs. As SME finance requires special credit supply techniques, the Strategy tries to address the need for improvement of the ability of financial institutions to provide soft loans for ODB and SMEs. It should be noted, however, that the poor rate of repayment of government loans in Oman is attributable to problems other than credit management techniques. As some point out, government loans in the country are often considered as a gift or grant, so institutional reform appears to be required to change such attitude. See 7.3 for details.

(4) Support for Reorganization of Companies Facing Difficulty

As discussed in 2.2.5, support for reorganization is already in the process of implementation and has produced some effects. The implementation mechanism is well developed, including an organization, and is capable of providing comprehensive support. By accumulating company

information obtained from this mechanism, a company credit information system can be developed, including information on 150 companies that has been collected under the PRICE Study.

(5) Improvement of Services and Industrial Incentives to the Levels Equal to those Offered in Neighboring (Competing) Countries

At present, research and study to collect basic information has been scheduled but not yet begun. As pointed out in 6.3.1, however, there are several issues that require improvement, so that the improvement in the first stage should be started prior to the overall improvement.

Items pointed out here cover diverse areas, as listed below.

- 1) Simplification of import duty exemption procedures for industrial materials
- 2) Phased reduction of government incentive payments
- 3) Expansion of industrial incubator service outside the IT sector
- 4) Conversion of the project permission system to a registration system
- 5) Improvement of port services
- 6) Expansion of industrial land in industrial estates and perfection of basic service capability (including natural gas supply capacity) for existing and planned industrial estates
- 7) Adjustment of gas and electricity charges for energy-intensive industries (reduction of government burden)
- 8) Continuation of the MOCI's efforts to reduce energy consumption (energy audits and commendation of energy saving efforts by individual companies)

The above items are classified into improvement of the business environment (1, 4 and 5), rationalization of government involvement and burden (2 and 7), and industrial promotion (3, 6 and 8).

As manufacturers in Oman rely on imports of raw materials and export some portions of products because of the small local market, they strongly desire the improvement of port services, including reduction of handling and other charges. This is considered to be very important as such improvement helps companies to augment their price competitiveness, while reducing production lead-time and consequently improving customer response, so that it should be started as early as possible. At present, many companies desire the improvement of unloading work efficiency at Muscat Port and the improvement of general cargo handling service and the reduction of container handling charges at Salalah Port.

(6) Reinvigoration of R&D Activities

As discussed in 6.1, a major challenge for Omani companies in the manufacturing sector is to explore domestic niche markets and to enter export markets by using their product development capability (creativity) as a competitive edge.

At present, R&D activities in the country are led by the Scientific Research Council (SRC). SRC is organized under the Ministry of Higher Education and its board members consist of seven ministers (including the MOCI) and four university presidents.

The roles of SRC in the field of science and technology, are preparation of science policy, advice to the government on technological issues and promotion of national, regional and international science cooperation, as well as capacity building.

SRC has submitted its development strategy in the field of science and technology to the Cabinet for approval. Under the strategy, the following three key programs will be implemented (in fact, they are already are being implemented).

1) Innovation Program

The program promotes innovation at the following three levels.

1. Industrial innovation program

This is a joint program with the MOCI and promotes research and development in the fields of productivity improvement and SME promotion, as identified in the Strategy, by serving as an intermediary for universities and technology transfer organizations.

2. Education innovation program

This targets educational institutions and is designed to nurture innovation culture.

3. Community innovation program

The program aims to disseminate the concept of innovation to local communities by establishing and operating Science Clubs.

2) Research Program

1. Open Research Grant: To foster autonomous research activities by universities and individuals by providing grant for research projects that are selected from applications.

Table 6.2-1 Examples of Applications for Open Research Grant, by Field

| Field | Number of applications | General description |
|------------------------------|------------------------|--|
| Energy & industry | 9 | Use of solar energy for oil drilling (to replace gas injection currently done), treatment of water produced from oil and gas wells, and improvement of energy efficiency |
| Health Science | 10 | Genetic manipulation of cancer cells |
| Bio-technology & environment | 9 | Extraction of medicinal essences from plants and seeds |
| Education / HRD | 3 | |
| Cultural & basic science | 5 | |
| ICT | 3 | |

2. Strategic Research Program: To promote research activities in the fields demanded in the country, such as pesticide resistance of insects doing damage to dates, bio-control (preventive technology), and cultivation methods, as well as research on road traffic accidents.

3. Building Research Chair Program: This is a research program under the initiative of various research institutes. At present, SQU is conducting nanotechnology research to reduce abrasion of solar power generation modules by sand dust.

3) Awareness Program

This is a public education program to raise awareness in the fields of education and medium.

To accomplish the goals, “conversion to the knowledge based industry” and “challenge for sustainable development,” development of testing and inspection functions and R&D activities required for product development and development of packaging technology are essential, together with related technical assistance. This is correctly identified in the Strategy. For “promotion of investment and business startup in strategic fields,” some areas require verification of feasibility of alternative energy sources for which commercial operation has not started, and joint R&D projects with industries such as verification of usability of energy saving building and construction materials in the Middle East. Details are discussed in 6.3.3.

Scientific and engineering research efforts led by the Research Council appear to cover various themes set forth in the Strategy and to produce results such as promotion of spontaneous research activities. However, from the standpoint of support for research and development in relation to industrial development, further improvement is desirable in the following areas.

1. Advice on the basis of analysis conducted by testing laboratories and analytical assistance in the product development process
2. Development of an information database based on R&D results and provision of “seeds” information
3. Intermediary function to promote joint research by companies and research organizations (including universities)

In addition, the Strategy should include the upgrading of capability in the fields of product development, development of packaging technology. See 6.3.3 for details.

(7) Implementation of Export Strategy for Non-oil Products Made in Oman

This policy aims to discover prospective export products on the basis of export market studies currently conducted by OCIPED, and to launch their promotional activities. So far, OCIPED has been supporting export promotion for selected fields and products, rather than provide general market study and information service. This focused approach has been proven to be highly effective for small scale industries in Oman. For SMEs, which have a dominant share of the manufacturing sector in Oman, it is generally difficult to obtain market information. In the future, similar efforts are expected to be taken for the prospective areas identified in 6.1, so as to back up export promotion efforts in relation to the prospective products by collecting and feeding relevant market information.

(8) Development and Application of a Legal Framework in the Fields of Commercial Trade and Competition

This will primarily cover the following areas: (1) industrial licensing; (2) anti-dumping; and (3) electronic commerce. In promoting conversion to knowledge-based industry and dissemination of IT to industries, legislation relating to protection of intellectual property is considered to be particularly important.

(9) Harmonization Between Economic Development and Environmental Regulation

In this aspect, it is important to ensure that individual companies understand environmental regulation and make necessary preparations, by providing information and ensuring transparency of the regulation process.

(10) Government's Leadership in Training of Omani Entrepreneurs

(11) Human Resource Development Targeting Omani People to Increase their Rate of Business Participation

The proposals and recommendations relating to these two policies are discussed in 7.3. These policies are not limited to education and training and consist of elements that embrace broader fields. They should therefore be addressed through active participation of industries. For this, the MOCI's leadership is essential.

6.2.4 Recommendation on Capacity Enhancement of the Implementation Body of the Strategy

As discussed earlier, the Strategy proposes policies to solve a variety of issues relating to industrial development. By adding the above information, the Strategy is expected to be reinforced and implemented. Furthermore, the augmentation of human and organizational capacities of the MOCI, which is responsible for policy implementation in the context of the Strategy, is called for. In this conjunction, the Strategy should be implemented with cooperation of industries so as to ensure accumulation of knowledge and experience on the industry side. As an instrument to promote industrial cooperation, the establishment of industrial councils with participation by representatives of industries is proposed.

(1) Establishment of Industrial Councils

The Strategy is based on 11 policies each of which requires its own implementation mechanisms, and the Strategy assumes the executive authorities concerned will adopt the implementation mechanisms which fit the respective policies.

Among the 11 policies, many require cooperation of and coordination with related organizations other than the MOCI, resulting in need to expend considerable time and effort. As a result, they are still in the stage of discussion between related organizations as well as at the preliminary study stage.

Efforts should be made to promote accumulation of knowledge of and experience in industrial development within the MOCI and the industrial sector, with a view to strengthen the implementation system. At present, foreign consultants are employed for most aspects of policy implementation. While knowledge and experience are thereby gained by the consultants, they are not effectively transferred to the MOCI or industry. For the MOCI, a better arrangement is to organize industrial councils according to the major category of development policies under active participation of related industries. In the process, elaborate discussion can be made on implementation of policy objectives, while using outside consultants for data

collection and supply as well as compilation of council proceedings. This framework led by the MOCI and industry would be much more effective in promoting accumulation of knowledge and experience by the two parties. Also, considering the fact that there are excellent Omani industrialists and managers, their experience should be respected and mobilized.

Finally, even if the policies may be the second best, their implementation and monitoring can serve as excellent learning opportunity for the MOCI and industry, thereby forming the basis of upgrading industrial policy.

(2) Capacity Building of Directorate General of Industry

The Directorate General of Industry is currently composed of five departments (see 2.2.3). Staff members of the Directorate General of Industry, which is responsible for leading implementation of the Strategy, should enhance its capability to understand the current state of industries, including problems facing them.. They also need to have knowledge of industrial policy as well as knowledge of and experience in policymaking. Specifically, expertise in the following areas is essential.

1. Updating of knowledge of industry (establishment of specialties in terms of industrial areas and contact with related organizations and companies; the Year Book constitutes a major step toward the goal)
2. Establishment of a relevant knowledge base (understanding of related laws, industrial standards, intellectual property, and industrial statistics)
3. Understanding of industrial policy
4. Accumulation of information in a usable form
5. Accumulation of experience on policy formulation (compilation of white paper and monitoring)
6. Understanding of management of individual companies

6.3 Recommended Policy Measures and Programs Based on the Strategies for Industrial Development

6.2 has made the recommendations on the Plan and the Strategy, to make them comprehensive and effective, on the basis the implications for strategies for industrial development, which are summarized in 6.1.6. The following recommends the detailed measures of the recommendations, which are presented in 6.2.

As discussed earlier, the position of the Government is to support voluntary efforts of the private sector in the industrialization process, and therefore, its basic industrial development policy should focus on the development and upgrading of the business environment, including infrastructure (see 6.3.1). In addition, the government should implement more aggressive policies and programs to encourage or facilitate private initiatives conducive to industrial development (see 6.3.2 through 6.3.4). Generally, these policies and programs do not target a specific industry or field but aim to back up activities by the private sector. Thus, they can be viewed as soft infrastructure. Then, for the industrial areas that are considered to be critical in future industrial development but which development cannot be effectively promoted by the above policies and programs (“priority areas”), additional policies and programs focusing on them need to be provided (see 6.3.5).

On the other hand, for SMEs that are disadvantaged in comparison to large companies because of small size and other factors and that cannot rely on the market mechanism alone to maintain competitive position, special policy consideration is required as part of industrial policy, including government support in line with the above mentioned development strategy (see 7.2).

Furthermore, small enterprises (including microenterprises) and entrepreneurs should require special treatment from an additional viewpoint (relating to social policy), and special support programs should be called for accordingly (see 7.3).

Table 6.3-1 General Framework of Industrial Development Policies and Programs by Target Industry Type

| Target: | Large enterprises (including smaller established companies) | Medium-size enterprises | Small enterprises / microenterprises | Small entrepreneurs |
|--|---|-------------------------|--------------------------------------|---------------------|
| Policies and programs covering industrial development in general (6.3.1~6.3.4) | ✓ | ✓ | ✓ | ✓ |
| Policies and programs targeting priority industries (6.3.5) | ✓ | ✓ | ✓ | ✓ |
| Policies and programs targeting SMEs (7.2) | | ✓ | ✓ | ✓ |
| Policies and programs targeting small enterprises / microenterprises and small entrepreneurs (7.3) | | | ✓ | ✓ |

6.3.1 Industry-friendly Business Environment

(1) Objective and Outline

The Omani government's committed efforts to industrial development and the good business environment are highly valued by industry circles. The government has been actively investing in industrial infrastructure prior to the start of projects, thereby successfully attracting large-scale industrial projects funded by local and foreign investors.

However, the existing infrastructure cannot keep up with the rapid pace of industrial development, and expectations for further infrastructure development and service upgrading have been voiced by many companies.

While it is very difficult to satisfy every request, it is recommended to take action on items that can be immediately dealt with, while taking alternative measures for difficult ones.

(2) Contents

The issues raised by the industry as identified by the enterprise survey, which was conducted as part of the current Study, are as follows:

1) Ports and harbors

- Streamlining of unloading operation at Muscat Port
- The lowering of handling charges and fees at Salalah Port
- Expansion of general cargo handling capacity at Salalah Port

2) Electricity charge

- Adoption of a reduced summer charge

3) Small enterprises and microenterprises

- Ease of restriction on employment of foreign workers
- Mitigation of negative impacts of rising land rent in Muscat

(3) Factors Necessary to Be Considered in Planning the Measures

It is essential to understand the nature and real cause of the issues before preparing the measures to solve the above issues, instead of simply preparing countermeasures. Some issues may be solved if the direct countermeasures are prepared, while others require set of measures to come to the real solution.

In the latter case, it is advised to propose the measures to be taken in the near future, while assuming the final solution will be worked out over the longer-term.

6.3.2 Shift to Knowledge-Based Industry

(1) Objective and Outline

In 6.1, Oman's comparative advantages and constraints in relation to industrial development are analyzed, and the following areas are identified as having competitiveness, as learned from the existing industries.

- 1) Goods and services that are not suitable for mass production and meet the specific needs of customers
- 2) Products that are differentiated from competitors by offering excellent quality
- 3) Products that are not suitable for transportation over long distances (heavy weight or other factors) and can be supported by sufficient demand in Oman and other GCC countries
- 4) Products for which the differentiating factor is a seasonal difference among production areas
- 5) Products that adopt customized packaging that meets convenience of users

The products and services are commonly characterized by their focus on high-end and middle markets, thereby to avoid competition with mass produced products that target a highly competitive, low-end market by relying on price competitiveness. Also, they have to be supported by technology and the production process that can meet strict requirements and specifications demanded by the high-end market.

Because of the small scale of local and neighboring markets, Oman cannot enjoy a competitive advantage in terms of economies of scale, except for the areas where it has a good cost advantage in terms of raw material and utilities.

Meanwhile, manufacturing industry is facing intensifying competition worldwide as hardware production has reached very high levels in terms of technology, volume, and cost. Instead, software (or additional value) incorporated into (represented by) hardware is increasingly becoming a differentiating factor for sustainability and prosperity. In consequence, many manufacturing companies are pursuing management strategies focusing on market creation by developing new products offering new applications or opportunities.

In this conjunction, the key success factor is largely technology that can be expected to enable a unique function or a high level of performance unrivaled by competitors.

In contrast, the key success factor for Omani companies is differentiation strategy that focuses on niche market opportunities within the country and the GCC region. While it still works well, the same strategy may be increasingly adopted by manufacturers of mass produced, low cost products, as judged from the global industry trend.

Facing such a potential competitive threat, Omani companies should strive to compete outside the home market (including the GCC countries) by using their strength in niche market-related expertise. This would help them to kindle industrial innovativeness and thus allow them to maintain competitiveness in the home market.

All in all, upgrading the ability to explore or create a new market is critical for Omani companies if they are to expand into the international market, and time has come to make conscious efforts in that direction.

Shift to knowledge-based industry is the key for promoting such efforts. and the knowledge based industry must be supported by the following elements.

- 1) Organizations and industries supporting R&D activities
- 2) Management resources capable of driving market creation and development

As discussed above, there is a competitive threat for Omani companies so long as they serve the local markets, for the quality of mass market products will likely be improved as seen in developing countries that went through the industrialization process. It is therefore imperative to explore export markets by leveraging their strength that has been fostered through the domestic experience.

This policy aims to deliver broad programs that help companies to obtain capabilities required for exploring export opportunities.

(2) Project Description

- 1) Dissemination of success stories (case studies)

The program is designed to introduce cases studies relating to knowledge-based management to individual companies for the purpose of inspiring and encouraging business development by pursuit of niche opportunities.

Worldwide, various industries that traditionally belonged to the manufacturing sector are converting or diversifying into service business by meeting the needs of customers. In other words, they represent a primary example of market creation. For instance, a furniture maker has diversified to a general interior contractor, and a manufacturer of electric wire and cable has added cable laying service. They can be used as a model for similar development in other industries.

- 2) Comprehensive support for R&D and product development activities

The program is designed to provide technical and financial support for companies doing R&D and product development. It will be financed by a special fund established for the

purpose. Companies seeking the program's support will make application by submitting plans (with a small fee). Organizations providing technical support will register in advance. They will review the submitted plans and notify the fund of plans suitable for support. Then, a joint agreement will be signed by a technical support organization and a client company prior to the start of a R&D project.

For a successful development project, the client company will pay an adequate compensation to the fund and the technical support organization to cover the cost incurred in relation to funding and support. Otherwise, the fund will pay one-third of the incurred cost to the support organization.

3) Creation of a Loan Scheme Targeting Equipment Modernization

In addition to R&D and planning capabilities and activities, modernization (modification) of equipment is required to develop knowledge-based industry capable of market creation. This may entail substantial investment, which often needs to be funded by means of public financial support. Efforts should be made to create and maintain a sufficient financial source. Note that equipment modernization leads to the improvement of the working environment and the enhancement of employment opportunities for Omani people.

4) Other Programs

- a) Creation of testing, inspection and R&D functions and provision of technical advice on the basis of actual tests and inspection: Designed to identify problems through examination and to relate the results to improvement, representing the first step of knowledge based management.
- b) Dissemination of the design process: To disseminate design development techniques (in the form of a workshop focusing on practical training).

6.3.3 Promotion of Investment and Business Startups in Strategic Areas

(1) Objective and Outline

The primary purpose is to encourage investment and business startups in areas where vigorous business activities are not seen but investment is strategically desirable.

(2) Contents

Typical industrial areas, which require investment and business startup with priority, are described as follows.

1) Development of the downstream sector for heavy and chemical industries

As discussed in 6.1.3, development of the downstream sector is generally justified by the country's geographical advantage (especially Salalah and Sohar) and cost advantage (energy, land, utilities). In other words, successful development depends on the downstream sector being able to benefit from cost advantages for the upstream projects (large scale plants) in the form of adequate transfer prices.

Products that can be made by the downstream sector for heavy and chemical industries are listed in previously cited Figure 6.1-1.

First of all, intermediate products are already produced on a commercial basis, leaving little room for new downstream development. Final products in petrochemical and chemical (natural gas based) sectors are plastics, which are dominated by mass produced imports. If a manufacturer of plastics products is to locate in Oman, it will not be able to maintain competitiveness so far as it targets the local market (including other GCC countries). Otherwise, it will face fierce price competition with mass produced imports. Again, it has to develop niche products that can be clearly differentiated from mass products.

As for the downstream sector for the aluminum smelting, intermediate products, when manufactured, can be supplied to existing manufacturers of aluminum products and then to other markets, so long as they are cost competitive. Also, the aluminum processing industry may attract new entrants. It should be noted, however, that they need competitiveness other than price if they try to serve a distant market.

The same thing can be said about the steel industry. In all the cases, therefore, Omani companies need to offer comparative advantages other than price, in consideration of the relatively small local market, while companies in the neighboring countries have a similar locational advantage.

2) Use of non-metal mineral resources

Oman is reportedly endowed with a variety of non-metal mineral resources, and those exploited on a commercial basis are lime, gypsum, marble, and crushed stone. They are basically used as construction materials that range from low to high value added products. Because of their heavy weight, they are cost competitive when they are supplied to a nearby market because of the relatively low transportation cost. On the other hand, marbles have become an export product that appeals to the global market because of their decorative quality.

In addition, gypsum makers recently have been exploring export markets. Application of this material has previously been limited but is now expanding to building construction (gypsum boards).

Thus, efforts should be made to develop and market higher valued added products from available resources, rather than the materials itself.

3) Processing and repackaging industries leveraging the country's geographical advantage

Clearly, Oman's geographical advantage cannot match Dubai's position as a major transportation hub having a variety of functions. Thus, strategic use of Oman's locational advantage should be conceived in consideration of the presence of the dominant hubs in the same region. While Dubai is positioned as a major hub in the southern part of the Gulf area, Bahrain is building hub functions for the northern part. From this viewpoint, Oman can be viewed as a potential hub in the periphery of the Gulf area. It can serve as a commercial center connecting the Middle East, East Africa, Pakistan and India.

In addition, a new geographical advantage seems to be emerging, as automotive parts manufacturers have started production in Salalah to take advantage of proximity to the European market (due to availability of container transport service).

A conventional method to use a country's geographical advantage is the establishment of a free zone or a free trade zone. Oman's free zones differ from those in other countries in that they try to take advantage of abundant natural gas supply, vast land, and a new port facility, as seen in the case of Salalah.

Availability of land continues to offer further industrial development opportunities, whereas natural gas resources are increasingly limited to narrow the choice of potential industries.

In this conjunction, it is important to realize that most industries in Oman are engaged in relatively simple processing, assembly, and repackaging. As the energy advantage (availability of low-cost natural gas) cannot be offered to companies in the FZ as done previously, the country's geographical advantage needs to be redefined as a springboard for local companies to expand their business from the home market to the global one.

They cannot simply rely on the country's strategic location, which is one geographical advantage but does not constitute comparative advantage by itself. As discussed earlier, the country is not suitable for mass production because of the small market size. The geographical advantage should be combined with industrial efforts in relation to innovative product development and marketing strategy.

6.3.4 Challenge for Sustainable Development

(1) Objective and Outline

At present, Oman's manufacturing sector relies almost entirely on foreign technology and makes few efforts to develop or upgrade on its own.

Also, many industrial plants have been constructed in the country, but their design and engineering, construction management, and maintenance are largely conducted by foreign companies, so that there is no accumulation of expertise and experience, which would otherwise form the basis of industrial development.

Most manufacturers import intermediate products and process or assemble them to make final products. Most processing and assembly operations are conducted in-house, and there is little inter-industrial linkage in the form of subcontracting. As a result, there is no industry-wide accumulation of production technology and expertise.

As a result, the country's industrial structure lacks a firm foundation including vertical or horizontal agglomeration. Industry generally purchases foreign technology by aid of funds obtained from oil and gas revenues. If such purchases become unaffordable in the future, the industries will soon lose competitiveness due to the lack of resources to upgrade the technology base.

This policy element, therefore, aims to foster industrial capabilities required for spontaneous and sustainable development. Note that such capabilities should be transferred to not only companies but also Omani engineers and technicians.

(2) Project Description

Under the policy agenda, the following two programs are recommended.

1) Establishment of a central metalworking and machining workshop, including a foundry

At present, manufacturers can only perform maintenance and repairing of small dies and molds. Die making and the repairing of large dies are outsourced to other countries.

This program is designed to establish a metalworking and machining joint venture with the government's capital subscription and cooperation of companies that have high levels of metalworking and machining technology, to be operated on a minimum/ non-profit basis. The joint venture will be used as a central place for technology transfer in the relevant areas and will hire foreign engineers and technicians in the initial stage of operation. It will also receive around five Omani people each year as special trainees given government scholarships to provide field training for around seven years. These trainees who have completed the training

program (subject to an annual test with extension of the program period for those who have failed it) will be certified as a “specially trained engineer/technician under the national program.”

2) Plant engineer training program

In Oman, POD is only one company that has expertise and experience in the plant engineering field. The other three engineering firms are mainly engaged in plant construction (as subcontractors) and the fabrication of tanks and structures. They have no engineering technology to build and maintain a complex plant.

Under the program, around five special trainees with government scholarships will be accepted from among college graduates and company workers with specific experience (including engineers and technicians working for the three engineering firms). With cooperation of PDO, they will receive field training for around seven years. These trainees who have completed the training program (subject to an annual test with extension of the program period for those who have failed it) will be certified as a “specially trained engineer/technician under the national program.”

(3) Key Considerations Relating to Program Implementation

It is important to ensure that the special trainees who have completed the program possess a required set of knowledge and skills by evaluating them in strict accordance with preset criteria and standards, i.e., even if no one can meet requirements.

The “specially trained engineer/technician under the national program” to be certified for these programs should be widely recognized in the country as having professional status and qualification to lead the technology trends in the country.

6.3.5 Sector Specific Recommendations for the Priority Areas of Industry

(1) Objective and Outline

This policy element aims to create an impetus for development of priority areas, particularly by combination with other programs.

(2) Project Description

1) Industrial development seminar for the downstream sector for heavy and chemical industries (existing, under construction, and being planned)

The seminar is designed to advertise business opportunities in relation to downstream development and to give guidance to potential investors. In coordination with the program to

provide technology and market information (as discussed earlier), it will ensure collection of information and continuous support.

It is proposed to hold the following development seminars by inviting experts in respective fields.

- Specific products and markets
- Production technology and competition
- Presentation of pre-feasibility study results (investment requirements and risks)

2) Promotion of IT used by companies

2)-1 IT promotion program for companies

A special campaign will be made to promote use of IT to companies, especially SMEs. It will be accompanied by a loan program to provide necessary funds for SMEs. Importantly, IT can help SMEs to standardize their accounting systems and upgrade day-to-day operations and management.

2)-2 Software development support program for IT-related startups

The program will be implemented concurrently with the above IT promotion program and is designed to encourage business startups relating to development of IT software. The program will consist of the following elements: (a) to provide a basic model for business software to be used by SMEs; (b) to develop IT-related startups that provide service customizing basic software to the needs of individual companies; (c) to loan funds required by IT-related startup companies; and (d) to provide technical assistance for the startup companies through the IT Business Guidance Center.

3) Joint verification and research project on optimum systems for solar and wind power generation

The project will be conducted jointly by industry, academic circles and government to perfect solar and wind power generation systems optimized for commercial operation in Oman (and other GCC countries) through field verification tests. Participating companies, universities and other educational institutions will be determined through an open selection process and are expected to bear portions of the project cost. The government will be represented by the MOCI and a ministry or other organization relating to the electricity sector. In the verification project, power generation systems and equipment will be upgraded on the basis of lessons learned from pilot projects and other experiments conducted so far, and an Oman model will be developed for verification. In the project, participating companies will be able to acquire experience and expertise.

4) Central metalworking and machining workshop project

- See 6.3.4. (2)-1).

5) Special training program for plant engineers and technicians

- See 6.3.4 (2)-2).

6) Packaging technology center

The center will perform, among other things, the following functions and provide consultation, guidance and support services relating to improvement of packaging for SMEs.

1. Contract laboratory testing for packaging materials and technical advice on the basis of the results: Generally, when a problem arises in relation to a packaging material in use, the center will identify the cause through testing and analysis and give advice on possible improvement to the client company.
2. Testing relating to a recommended consumption period: To conduct tests required to determine a recommended consumption period for food products and to give advice on packaging in relation to the consumption period.
3. Consulting service relating to packaging materials: To help companies to select an optimum packaging material for respective products.
4. Collection of information on packaging technology and materials
5. Proprietary research: Such as the improvement and development packaging for specialty products
6. Packaging technology study group: To organize a study group with participation of manufacturers of packaging materials and machinery (including foreign countries) and user companies to promote information exchange and implementation of joint research projects.
7. Contract packaging: To package products for SMEs in order to facilitate prototyping of packages by SMEs. Notably, as the scope of service is to be limited at the initial stage, the center will provide financial assistance for small-scale production by bearing portions of the packaging cost (to be limited to new product and packaging development projects), while packaging service that can be handled on a commercial basis will be entrusted to respective companies.

6.4 Recommendation on Regional Industrial Development Plans in Selected Areas

6.4.1 Overview

(1) Regional industrial development plans to be studied

This section recommends the basic direction of regional industrial development plans in Sur, Al Buraymi and Nizwa, from the viewpoint of “Prospective and Priority Areas of Industrial Development and Their Development Strategies” which was presented in 6.2.

The only available regional development plan targeting specific regions or areas is “the target industries to be promoted in the respective industrial estates (IE)” (Table 6.4.1-1). The strategy was formulated in 1998. The rationale for the selection of target industries is not available. Further, the strategy is not appropriate to be reviewed, with significant change in the business circumstances.

As for Sur, the Supreme Committee for Town Planning (SCTP) has taken up a step towards contract on development of the Sur Industrial Master Plan. On the other hand, the study on regional industrial development plan of Nizwa and Al Buraymi has just started as a part of that of Oman National Special Strategy Plan.¹

(2) Major viewpoints of the study

1) Advantages or constraints of the selected regions for locating the prospective and the priority industries

The study will focus on the advantages or constraints of the selected region, in developing the prospective and priority industries, which was discussed in 6.2.

Location factors, which are critical in site selection, differ according to industry types and target markets. For instance, adequacy of site selection may become a major factor in the following cases.

- In the case when the transportation cost is a key factor for determining competitiveness
- In the case when proximity to a source of raw materials is critically important
- In the case when proximity to the market is required to provide responsive service for customers

¹ Information from SCTP

Table 6.4.1-1 Target Industries to be Promoted in IE

| Industry | Buraimi | KOM | Nizwa | Raysut | Rusayl | Sohar | Sur |
|---|---------|-----|-------|--------|--------|-------|-----|
| ICT | | | | | | | |
| Software Development in Arabic | | ○ | | | | | |
| Data Center & Business Continuity | | ○ | | | | | |
| Call Center | | ○ | | | | | |
| Media, Gaming & Animation | | ○ | | | | | |
| System Integration | | ○ | | | | | |
| Medical Transcription | | ○ | | | | | |
| Education & Vocational Training | | | | | | | |
| IT Education | | ○ | | | | | |
| Technical Skills Training | | | | | ○ | | |
| Gaming & New Media Education | | ○ | | | | | |
| Hospitality & Tourism | | | | ○ | | | |
| Manufacturing | | | | | | | |
| Oil & Natural Gas Refinery | | | | ○ | | | ○ |
| Industrial Gas | ○ | | ○ | ○ | | ○ | ○ |
| Pharmaceuticals | | | | ○ | ○ | ○ | |
| Chemicals | | | | ○ | ○ | ○ | ○ |
| Plastics & Molding | ○ | | | ○ | ○ | ○ | |
| Precision Engineering | | ○ | | | ○ | | |
| Electrical & Electronics, including Household Goods | | | | | ○ | | |
| Computer & Peripherals Assembly & Manufacturing | | ○ | | ○ | ○ | | |
| Medical Devices | | ○ | | | ○ | | |
| Machineries & Automation | ○ | ○ | | | ○ | | |
| Food & Beverage - Agriculture & Fish Processing / Canning | | | | ○ | | | ○ |
| Automotive Spare Parts | ○ | | ○ | ○ | | ○ | |
| Batteries | ○ | | | ○ | | ○ | |
| Building Materials, Ceramic, & Gas | | | ○ | ○ | | ○ | ○ |
| Sanitary & Plumbing | | | ○ | ○ | | | ○ |
| Packaging | ○ | | ○ | ○ | ○ | ○ | ○ |
| Rubber Products | ○ | | ○ | ○ | | ○ | ○ |
| Textiles & Garments | | | ○ | ○ | | ○ | |
| Metal Fabrication | ○ | | ○ | ○ | | ○ | ○ |
| Wood Products | ○ | | ○ | ○ | | ○ | |

2) Input supply capability, presence of related industries, and development of industrial infrastructure

For industries making site selection, availability of industrial infrastructure and input supply capability can become a determinant factor. In Oman, however, labor force, energy cost and land are by no means critical location factors. Also, non-exist of ports and roads are not regarded as the critical factor. On the other hand, gas supply capability can constitute a decisive factor.

In addition, presence of related industries is important in some cases. In particular, future industrial development in Oman requires this viewpoint. Also, proximity to a research institute or a testing laboratory can be important, but its construction plan may be assumed for industrial development in Oman.

3) Verification of investment prospect

For target industries in each region, which are considered to be suitable from the above viewpoints, further verification is required as to whether they can attract investment. For this purpose, existing companies in industrial estates and those who have applied for tenancy are analyzed for an investment prospect for each industry type.

6.4.2 Recommendation on Regional Industrial Development Plan for Sur

(1) Overview of Sur Region

Sur has approximately 82,000 inhabitants, whereas the Sharqiyah Governorate centered on Sur has 370,000, which account for 13% of the country's total population (Table 6.4.2-1). In the Sur Region, there are two cities having population of over 20,000, namely Ibra and Badhiyah.

Table 6.4.2-1 Population and Land Area of the Sharqiyah Region

| Year | Population ('000) | | | Area (Km ²) |
|-------------------|-------------------|---------|---------|-------------------------|
| | 2006 | 2007 | 2008 | |
| Ash Sharqiyah (a) | 338.6 | 355.4 | 368.0 | 36,400 |
| Oman Total (b) | 2,577.1 | 2,743.5 | 2,867.4 | 309,500 |
| (a) / (b) (%) | 13.1 | 13.0 | 12.8 | 11.8 |

Source: Ministry of National Economy, Statistical Year Book 2009

Foreign residents account for 22% of the region's total population, although it is lower compared to that at the national level, 31%. However, when it comes to that of Sur alone, it is 35%, reflecting the concentration of manufacturing industries in Sur.

Sur is located in the southeast end of the Arabian Peninsula and has long history of commercial trade with India because of proximity to the subcontinent. Sur has been known as a good harbor to take refuge from storms and as a major place to build dhows. Dhows are mainly made of lumbers produced in Malabar, India. Many residents in the coastal area of Sur are originated in the west coast of India.

The Sharqiyah region is endowed with tourist attractions, such as sea turtles' egg-laying sites, desert, citadels, limestone caves, Islamic water channels, and oases. Also, shipyards to build dhows attract many tourists.

(2) Existing industries

In the region, 26 companies are engaged in food processing, accounting for 45% of the total number of manufacturing establishments. They consist of 9 bakeries, 4 marine products processors (operated by fishery companies), and 7 ice and drinking water makers. The second largest subsector is the non-metal mineral products industry (mainly construction materials) that consists of 13 companies. These two subsectors account for a combined total of 67% of the total number of establishments in the manufacturing sector. Other subsectors include wood products, printing, metalworking products, and other products that meet local demand. There is no company in the chemicals and machinery industries that serve a large market (except for LNG and urea fertilizer companies engaging in export). Micro enterprises with less than ten employees account for 54% of the total (26 of 48), far above 34% on the national average. In other words, industries based on the local demand represent a major part of the region's economic base, except for LNG and related companies operating in a recently developed Sur Industrial Estate (Sur IE).

Table 6.4.2-2 Number of Enterprises in Manufacturing Sector in Sharqiyah Region

| ISIC Codes | Product | No. of Establishments | % of total | Less than 10 Employees Thereof |
|------------|------------------------------|-----------------------|------------|--------------------------------|
| 1512 | Fish / Fish Products | 4 | 45 | 1 |
| 1541 | Bakery Products | 9 | | 4 |
| 1554 | Water / Soft Drinks / Ice | 7 | | 2 |
| 15XX | Unidentified | 6 | | 0 |
| 2022 | Builder's Carpentry | 4 | 7 | 3 |
| 2211 | Books, Brochures | 1 | 5 | 1 |
| 2222 | Printed Matters | 1 | | 1 |
| 22XX | Unidentified | 1 | | 0 |
| 2320 | Refined Petroleum Products | 3 | 5 | 0 |
| 2412 | Fertilizers | 1 | 2 | 0 |
| 2520 | Plastic Products | 1 | 2 | 0 |
| 2695 | Articles of Concrete, Brocks | 9 | 22 | 8 |
| 2699 | Shaped / Finished Stones | 2 | | 1 |
| 26XX | Unidentified | 2 | | 0 |
| 2720 | Basic / Non-ferrous Metal | 1 | 2 | 1 |
| 2811 | Structural Metal Products | 4 | 9 | 3 |
| 2899 | Other Metal Products | 1 | | 1 |
| 3610 | Furniture | 1 | 2 | 0 |
| Total | | 58 | 100 | 26 |

Source: MOCI, Yearly Industrial Statistical Book, Issued in 2008

As seen in Tables 6.4.2-3 and 6.4.2-4, there is a common trend in the value of industrial shipments from the Sur region and the value of external trade handled at Sur Port. Namely, the majority of the shipment and handling value are that of LNG and nitrogen fertilizer. It is noteworthy fact that besides the LNG and nitrogen fertilizer, the external trade handled at the port includes significant imports and re-exports of fishing boats and their spare parts, while the value is still small compared with that of the total shipment.

Table 6.4.2-3 Industrial Shipments in Sharqiyah Region

| ISIC Codes | Subsectors | Oman Total | | Sharqiyah Region | |
|------------|---|--------------------------|------------|--------------------------|---------------|
| | | Shipments (R.O.'000) (a) | % of Total | Shipments (R.O.'000) (b) | (b) / (a) (%) |
| 15 | Food Product & Beverages | 354,266 | 9 | 621 | 0 |
| 18 | Readymade Garments | 2,404 | 0 | 0 | 0 |
| 20 | Products of Wood Except Furniture | 7,913 | 0 | 7,299 | 92 |
| 21 | Paper / Paper Products | 21,243 | 1 | 0 | 0 |
| 22 | Printed Materials / Recorded Media | 19,878 | 0 | 150 | 1 |
| 23 | Refined Petrol-Products & Liquid Gas | 2,449,698 | 60 | 904,470 (*) | 37 |
| 24 | Chemical / Chemical Products | 289,685 | 7 | 118,348 (*) | 41 |
| 25 | Rubber / Plastic Products | 84,395 | 2 | 70 (*) | 0 |
| 26 | Other Non-metallic Products | 266,516 | 6 | 181 | 0 |
| 27 | Basic Metals | 202,696 | 5 | 0 | 0 |
| 28 | Fabricated Metal Products | 66,156 | 2 | 857 | 1 |
| 29 | Machinery & Equipment nec. | 24,997 | 1 | 0 | 0 |
| 31 | Electrical Machinery / Apparatus | 261,184 | 6 | 0 | 0 |
| 33 | Medical, Precision / Optical Instrument | 4,883 | 0 | 0 | 0 |
| 34 | Motor Vehicle, Trailers | 177 | 0 | 0 | 0 |
| 36 | Furniture Manufacturing | 46,333 | 1 | 196 | 0 |
| 99 | Other Manufacturing | 8,742 | 0 | 0 | 0 |
| Total | | 4,111,166 | 100 | 1,032,192 | 25 |

Note: (*) Revised based on the information on the actual state.

Source: MOCI, Yearly Industrial Statistical Book, Issued in 2008

Table 6.4.2-4 Breakdown of External Trade Handled at Sur Port

| ISIC Codes | HS Codes | Description of the HS Code | Trade Values | |
|-----------------------|----------|--|----------------------|------------------------|
| | | | HS Code (RO '000) | ISIC Code (RO '000) |
| Imports | | | | |
| 24 | | Manufacture of soap and detergents, perfumes and toilet preparations | | |
| 2424 | 3304XX | Make-up Preparations | < 0.5 | < 0.5 |
| 34 | | Motor Vehicles, Trailers & Semi-trailers | | |
| 3410 | 8702XX | Motor vehicles for the transport of ten or more persons | 11 | } 589 |
| 3410 | 8703XX | Motor cars and other motor vehicles for the transport of persons | 506 | |
| 3410 | 8704XX | Motor vehicles for the transport of goods | 73 | |
| 35 | | Vessels and Vessel-related Pars | | |
| 3511 | 8407XX | Spark-ignition reciprocating or rotary internal combustion piston engines. | 43 | } 1,971 |
| 3511 | 8408XX | Marine Propulsion Diesel Engines | 1,047 | |
| 3511 | 8901XX | Other vessels for transport of goods | 106 | |
| 3511 | 8902XX | Fishing Vessels | 775 | |
| Import Total | | | 2,561 | 2,561 |
| Exports | | | | |
| 23 | | Refined Petroleum Products | | |
| 2320 | 271110 | LNG | 884,923 | } 891,083 |
| 2320 | 271190 | Condensate | 6,160 | |
| 24 | | Chemicals and Chemical Products | | |
| 2412 | 310210 | Urea | 158,658 | 158,658 |
| 35 | | Vessels and Vessel-related Pars | | |
| 3511 | 890200 | Fishing vessels | 123 | 123 |
| Export Total | | | 1,049,864 | 1,049,864 |
| Reexports | | | | |
| 29 | | Manufacture of Machinery | | |
| 2929 | 8426XX | Derricks, Cranes | 465 | 465 |
| 34 | | Motor Vehicles, Trailers & Semi-trailers | | |
| 3410 | 870000 | Vehicles other than railway, and parts and accessories thereof. | 5 | 5 |
| 35 | | Vessels and Vessel-related Pars | | |
| 3511 | 840810 | Marine Propulsion Diesel Engines | 3 | } 3,395 |
| 3511 | 890200 | Fishing Vessels | 32 | |
| 3511 | 890400 | Tugs and Pusher Craft | 3,360 | |
| Reexport Total | | | 3,865 | 3,865 |

Source: Ministry of National Economy, Foreign Trade Statistics 2008

(3) Target industries designated by PEIE

PEIE designates target industries for Sur IE under the assumption that a LNG plant construction project (for export) will be finalized and a deep sea port will be constructed. These are mainly natural gas and related industries. In addition, the following industries are also selected as the target industries to be promoted:

- Packaging materials
- Food processing, construction materials and metalworking
- Natural gas, nitrogen fertilizer and industrial gas
- Rubber products
- Industries relating to sanitary and plumbing

(4) Industrial infrastructure and business environment

1) Utilities

Utilities and other infrastructure facilities available at Sur IE are summarized in Table 6.4.2-5.

Table 6.4.2-5 Infrastructure Facilities Available at Sur Industrial Estate

| Utilities | |
|----------------------------|--|
| Electricity | Supplied by Mazoon Electricity Company S.A.O.C |
| Fuel | Natural gas supplied by Ministry of Oil & Gas. LPG in a cylinder is supplied by National Gas Company. |
| Water | Supplied by Sur Municipality, originated from Public Authority for Electricity & Water |
| Sewerage | Provided with a sanitary sewer system and a storm sewer system |
| Transportation | |
| Nearest Major Highway(s) | Sur - Muscat Highway, of a two-lane highway, connecting to Muscat at length of around 200 km |
| Nearest Commercial Airport | Muscat International Airport located 200km away from Sur, New airport at Sur under construction, located 60km away |
| Nearest Port Facility | Sultan Qaboos Port located 200km away from Sur |

Source: PEIE, Vital Statistics, Sur Estates

Installed power general capacity in the region is 425MW. On the other hand, electricity demand amounted to 224MW in 2008, accounting for 7.5% of the country's total demand. If demand is assumed to grow as forecasted by the MONE while maintaining the 7.5% of the national demand, the total demand in 2015 will reach 671MW including additional demand of 275MW expected from Sur IE. The power supply system in the Sharqiyah region is

connected to the MIS² and can receive the supply from other districts when necessary.

Table 6.4.2-6 Installed Power Supply Capacity in Sharqiyah Region

| Power Stations | Installed Capacities (MW) | % of Total |
|----------------------|---------------------------|------------|
| Masirah | 11 | 2.5 |
| Sur (1) | 49 | 11.6 |
| Sur (2) | | 0.0 |
| Al Kamil (central) | 282 | 66.4 |
| Al Kamil (diesel) | 2 | 0.5 |
| Jaalan Bani Bu Hasan | 21 | 4.9 |
| Al Mudaybi | 24 | 5.7 |
| Al Mudhairib | 36 | 8.5 |
| Sharqiyah Total | 425 | 100.0 |
| Oman Total | 3,991 | |

Source: Table 2-9 of Electricity & Water, Statistical Year Book 2009, Ministry of National Economy

Natural gas produced from the Saih Rawl field in the central part is transported to a LNG plant in Sur via a 48-inch pipeline. However, use of gas as industrial fuel cannot be generally expected. Any manufacturer that intends to use natural gas as fuel must apply to the MOG and the MOCI³ for investment impact assessment, to determine if its project meets specific conditions for the preferential treatment.

As for LPG, two wholesalers, Muscat Gas and Natural Gas, receive supply from MFR's refineries and make refilling to cylinders in Sur. Its application is limited to household cooking.

Water demand is expected to increase from 15,000m³ per day in 2008 to 67,000m³ in 2015. On the other hand, supply capacity will expand to 80,000m³ per day as an osmosis-type desalination plant is completed in 2009 (Table 6.4.2-7).

² Main Interconnected System: The MIS covers the Governorate of Muscat, the Governorate of Buraimi and most of the South Baitinah, Dakhliyah, Sharqia, North Batinah and Dhahirah regions, serving around 500,000 electricity customers.

³ Ministry of Oil & Gas, Ministry of Commerce & Industry

Table 6.4.2-7 Water Demand and Desalination Capacity in Sharqiyah Region

(Unit in 1,000 m³/day)

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|----------------------------|------|------|------|------|------|------|------|------|
| Peak Demand | 15 | 56 | 58 | 60 | 62 | 64 | 66 | 67 |
| Desalination Capacity | | | | | | | | |
| Sur Desalination Plant | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| New Sur Desalination Plant | | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| Total Capacity | 12 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |

Source: p21 to p23, OPWP's 7 Year Statement, OPWP

2) Industrial infrastructure

There are two-lane expressways connecting Sur and Muscat, with route length of 200km. There is an international airport (Seeb) in Muscat.

At present, Sultan Qaboos Port is used and it takes more than four hours between the port and Sur. In Sur, there is a jetty for fishing boats, which is currently under repair but cannot be used for shipment of industrial products due to shallow water depth (3 – 5m). LNG and fertilizer companies have their own terminals, which are not available to other companies. Sur Port mostly handles exports (99.4% of all cargoes for external trade) and is thus not used for importing and reexporting purposes.

A new airport (Ras Al Hadd) is scheduled to open in Sur, in 2010⁴. It is expected to handle around 500,000 users annually. While the new airport may improve accessibility to various tourist resorts in the country, it will not likely contribute much to the improvement of the district's advantage in comparison to other industrial development areas⁵.

There is no plan to construct a new port. However, if the Zoom Project (manufacturing of iron and steel products) is materialized at Sur IE, a new jetty for bulk carriers to import iron ores and other materials will be constructed.

At present, the Supreme Committee of Two Planning is reviewing the ongoing Master Plan for Sur Industrial Estate, including port development⁶.

⁴ PEIE, Vital Statistics, Sur Industrial Estates, and Oman Airport Management Company

⁵ However, if direct flight service with India and Pakistan is started, business opportunity will arise to export products to these markets by air.

⁶ PEIE.

(5) Current tenants of the Sur IE, and trends of application for the IE

Present tenant companies at Sur IE and candidates are summarized in Table 6.4.2-8. Notably, food processing, rubber products and sanitary and plumbing industries are not included in the tenant and candidate companies, although they are included in the target industries designated by PEIE. Other than the target industries, Sur IE accommodates a manufacturer of glass fiber based containers, a boat manufacturer, and two furniture manufacturers.

Table 6.4.2-8 Tenant Composition at Sur Industrial Estate

| ISIC Code | Industries | No. of Tenants | Typical Activities / Products of the Industries | No. of Existing Companies Outside of IE (*) |
|---------------|--|----------------|--|---|
| # 15XX | Food & Beverage | 1 | Mineral water | 26 |
| # 2101/2720 | Packaging | 2 | Aluminum foil and Paper Folding Sheet | 1 |
| # 2320 | Oil & Natural Gas Refinery | 2 | LNG | 1 |
| # 2320/2441 | Industrial Gas | 2 | LPG filling and distribution, CO ₂ Gas | 0 |
| # 2412 | Chemicals | 1 | Urea + Ammonia | 0 |
| # 2511/2519 | Rubber Products | 0 | Retreated tires and gaskets | 0 |
| 2520 | Plastic Products | 2 | Glass-fiber made bath tabs, shower trays, and boat | |
| # 26XX | Building Materials, Ceramic, & Glass | 9 | Blocks, Crushers, Marble, Tiles, and Ready-mix | 13 |
| # 27XX / 28XX | Metal Fabrication | 2 | Steel fabrication | 5 |
| 3610 | Wooden Products | 2 | Wooden furniture | |
| # 4520 | Construction works including sanitary & plumbing | 0 | | |
| Total | | 23 | | 46 |

Notes: # Target industries of Sur IE.

(*) In the areas of target industries only.

Source: PEIE, Tenant Directory of PEIE

(6) Advantages and constraints of Sur for industrial development

Following examines advantages and constraints of industrial development in the prospective and priority industrial areas discussed in 6.2, in Sur.

Table 6.4.2-9 Advantages / Constraints of Sur for Development of the Prospective Industrial Areas

| | Highly advantageous | Advantageous | With significant constraints |
|--|---------------------|--------------|------------------------------|
| (1) Manufacturing industries to meet the increasing demand in Oman and neighboring countries | | | |
| 1) Construction related | | ✓(*1) | |
| 2) Processed food | | ✓(*1) | |
| 3) Goods of daily necessity character | | ✓(*1) | |
| 4) Tourism related | ✓ | | |
| (2) Manufacturing industries leveraging an existing industrial base, or prospective resources | | | |
| 1) Downstream areas for existing and planned heavy and chemical industries | | | ✓ |
| 2) Areas using non-metal mineral resources | | | ✓ |
| (3) New strategic development areas | | | |
| 1) ICT related industries | | ✓(*2) | |
| 2) Energy alternatives to oil and natural gas | | | ✓(*3) |
| 3) Areas leveraging advantageous location of Oman | | ✓(*4) | |
| (4) Supporting sustainable industrial development | | | |
| 1) Metalworking and machining work | | | ✓(*5) |
| 2) Plant engineering | | | ✓(*5) |
| 3) Packaging materials | | | ✓(*5) |

(Notes)

- *1: Mainly meeting local demand, with some degree of concentration and not requiring new investment promotion.
- *2: To promote use of IT among local companies.
- *3: Low energy density for solar power generation due to cloudy weather
- *4: Assuming construction of a small and general cargo port for export to India, etc.
- *5: Local demand cannot be expected.

A certain industrial base has been established for some existing industries, such as construction materials and members (handrails, gates, fences, etc.) and food processing, where the

number of companies are expected to increase in the future with demand increase. Currently, however, there seem to be few advantage in Sur except for available raw materials, to attract larger companies in these industries, which serve a national market.

A possible area is wood doors and other building materials, which are specialty products in the area and can expect larger market opportunity due to the opening of expressways to help improve access to Muscat.

Also, the development of a food processing industry using fish (e.g., smoking and drying) can be expected in light of the fact that there are a number of fish distributors in Sur, which buy products from fishermen in a coastal area around Sur. For these industries to grow, however, market development efforts are required, including product development for tourists who visit Sur.

In the tourism related areas, consideration should be given to the development of Sur as a tourist gateway to tourism resources in the southeast coastal area and in the Sharqiya region, developing souvenir products targeting the tourists.

PEIE's plan to attract priority industries is focusing on natural gas related industries. However, as a LNG plant is already in operation, it will be difficult to attract more companies or projects that consumes natural gas in large quantities. Also, LNG and nitrogen fertilizer are entirely exported, and prohibit the development of related industries locally.

As for non-metal mineral resources, Sur has some reserves, as seen in other regions, but it is not suitable for a large project because it is remote from the major consumption area.

In the ICT industry, small enterprises engaged in software development will have opportunity, but the market is fairly small and mainly consists of small enterprises and micro enterprises only.

A major geographical advantage lies in proximity to India, including the development of business opportunity based on the interchange of human resources. However, the provision of a favorable business environment, such as FZ, and construction of a general cargo port will be required.

(7) Recommendations relating to an industrial development plan and its realization

In consideration of the above factors, the development of an industrial development plan focusing on the following areas, together with policies and programs to realize the plan, is recommended.

1) Development of a gateway for tourism development and products targeting tourists

A gateway facility is recommended to be constructed within the industrial estate in order to attract tourists who use the expressway, and specialty products be developed to sell them at the facility, such as:

- Processed marine products (dried or smoked)
- Traditional medicine, cosmetics, and soaps (e.g., Antique Kohl, Myrrh Crystal, Sandalwood oil)
- Others

2) Support for startup or inducement of industries serving local demand

Establishment of an incubator facility is recommended in the industrial estate to support the startup companies that serve local demand, and the required support staff should be assigned from the National Incubator Center which was recommended in 7.3.2.1.

3) Startup support for small IT companies

A facility (office) to support small companies providing service for local industries, typically software development, should be provided within the industrial estate.

4) Industrial development targeting India

A part of the industrial estate is recommended to be designated as a free zone to attract SMEs from India. It should be accompanied by construction of a general cargo port that can accommodate small ships for direct transport service to and from the west coast area of India⁷.

In this conjunction, a prospective area is found in glass and ceramics industries with medium-level energy consumption. Also, repacking of food by using Oman's packaging technology seems to be viable.

⁷ A detailed feasibility study will be required.

6.4.3 Recommendation on Regional Industrial Development Plan for Nizwa

(1) Overview of Nizwa Region

Nizwa has around 81,000 population and is close to cities with population ranging between 40,000 and 60,000, such as Bahla and Izki. Total population of the Dakhliya region is 308,000, accounting for around 11% of the country's population (Table 6.4.3-1).

Table 6.4.3-1 Population and Land Area of Ad Dakhliyah

| | Year | Population ('000) | | | Area (Km ²) |
|---------------|------|-------------------|---------|---------|-------------------------|
| | | 2006 | 2007 | 2008 | |
| Ad Dakhliyah | (a) | 287.1 | 299.1 | 308.7 | 31,900 |
| Oman Total | (b) | 2,577.1 | 2,743.5 | 2,867.4 | 309,500 |
| (a) / (b) (%) | | 11.1 | 10.9 | 10.8 | 10.3 |

Source: Ministry of National Economy, Statistical Year Book 2009,

Nizwa is 180km away from Muscat, located in middle point from the inland regions, such as Dakhliya, Dhahira, Sharqiya, and Wasta. It is connected to all of them by road networks. It is also close to the country's major oil wells and non-metal mineral resources such as crushed stone and marble.

Nizwa is installed with the country's largest traditional irrigation system using underground water channels (Faraji), and cultivates dates, limes, mangos, sugarcanes, and other crops.

The area around Nizwa is endowed with tourist attractions, including four forts (e.g., Bahla and Nizawa), the Al Hota cave, and Misfah (a mountain village). It is also close to a famous earthenware producing area of Bahla.

(2) Existing Industries

In the Ad Dakhliya region centered on Nizwa, there are 63 manufacturing companies, which represent 9% of the country's total. 35 manufacturers are small enterprises and micro enterprises with ten or less employees. Manufacturers of non-metal mineral building materials account for the largest share (25 enterprises), followed by that of metal products (14 enterprises), and food and beverage (9 enterprises). Most of them are those with less than ten employees (13, 8 and 5 enterprises, respectively in the above subsectors).

(3) Target industries to be promoted by PEIE

PEIE designates eight target industries, namely industrial gas, automotive repair parts, building materials, ceramics and glass, sanitary and plumbing work, packaging, rubber products, textile and garment, metal products, and wood products.

Table 6.4.3-2 Number of Enterprises in Manufacturing Sector in Adh Dakhliyah Region

| ISIC Codes | Product | No. of Establishments | % of Total | Less than 10 Employees Thereof |
|------------|------------------------------|-----------------------|------------|--------------------------------|
| 1513 | Fruit / Vegetables | 2 | 14 | 0 |
| 1541 | Bakery Products | 5 | | 4 |
| 1549 | Other Food Products | 1 | | 1 |
| 15XX | Unidentified | 1 | | 0 |
| 2022 | Builder's Carpentry | 3 | 5 | 3 |
| 2221 | Account Books, Notes | 2 | 3 | 1 |
| 2320 | Refined Petroleum Products | 1 | 2 | 0 |
| 2520 | Plastic Products | 2 | 3 | 0 |
| 2692 | Bricks, Brocks | 1 | 40 | 0 |
| 2695 | Articles of Concrete, Brocks | 15 | | 11 |
| 2696 | Marble | 1 | | 1 |
| 2699 | Shaped / Finished Stones | 5 | | 1 |
| 26XX | Unidentified | 3 | | 0 |
| 2731 | Casted Iron / Steel | 1 | 3 | 0 |
| 2796 | Unidentified | 1 | | 1 |
| 2811 | Structural Metal Products | 8 | 22 | 3 |
| 2893 | Treated / Coated Metal | 2 | | 2 |
| 2899 | Other Metal Products | 3 | | 3 |
| 28XX | Unidentified | 1 | | 0 |
| 3610 | Furniture | 4 | 6 | 3 |
| 3622 | Unidentified | 1 | 2 | 1 |
| Total | | 63 | 100 | 35 |

Source: MOCI, Yearly Industrial Statistical Book, Issued in 2008

Table 6.4.3-3 Industrial Shipments in Adh Dakhliyah Region

| ISIC Code | Subsectors | Oman Total | | Ad Dakhliyah Region | |
|-----------|---|--------------------------|------------|--------------------------|---------------|
| | | Shipments (R.O.'000) (a) | % of Total | Shipments (R.O.'000) (b) | (b) / (a) (%) |
| 15 | Food Product & Beverages | 354,266 | 9 | 141 | 0 |
| 18 | Readymade Garments | 2,404 | 0 | 0 | 0 |
| 20 | Products of Wood Except Furniture | 7,913 | 0 | 0 | 0 |
| 21 | Paper / Paper Products | 21,243 | 1 | 0 | 0 |
| 22 | Printed Materials / Recorded Media | 19,878 | 0 | 7,230 | 36 |
| 23 | Refined Petrol-Products & Liquid Gas | 2,449,698 | 60 | 155 (*) | 0 |
| 24 | Chemical / Chemical Products | 289,685 | 7 | 0 (*) | 0 |
| 25 | Rubber / Plastic Products | 84,395 | 2 | 587 (*) | 1 |
| 26 | Other Non-metallic Products | 266,516 | 6 | 1,405 | 1 |
| 27 | Basic Metals | 202,696 | 5 | 15,164 | 7 |
| 28 | Fabricated Metal Products | 66,156 | 2 | 435 | 1 |
| 29 | Machinery & Equipment nec. | 24,997 | 1 | 0 | 0 |
| 31 | Electrical Machinery / Apparatus | 261,184 | 6 | 0 | 0 |
| 33 | Medical, Precision / Optical Instrument | 4,883 | 0 | 0 | 0 |
| 34 | Motor Vehicle, Trailers | 177 | 0 | 0 | 0 |
| 36 | Furniture Manufacturing | 46,333 | 1 | 817 | 2 |
| 99 | Other Manufacturing | 8,742 | 0 | 0 | 0 |
| Total | | 4,111,166 | 100 | 25,934 | 1 |

Note: (*) Revised based on information on the actual state.

Source: MOCI, Yearly Industrial Statistical Book, Issued in 2008

(4) Industrial infrastructure and business environment

1) Utilities

Utilities and other infrastructure facilities available at Nizwa IE are summarized in Table 6.4.3-4.

Table 6.4.3-4 Infrastructure Facilities Available at Nizwa IE

| Utilities | |
|----------------------------|---|
| Electricity | Supplied by Ministry of Housing, Electricity and Water |
| Fuel | LPG available supplied by a company of LPG filling. Natural gas may be supplied by PDO. |
| Water | Well water from IZZ is supplied through a water pipeline at a diameter of 200 mm |
| Sewerage | Provided with a sanitary sewer system and a storm sewer system |
| Transportation | |
| Nearest Major Highway(s) | Nizwa – Salalah Highway, of a single-lane highway, connecting to Muscat |
| Nearest Commercial Airport | Seeb International Airport located 140km away from Nizwa |
| Nearest Port Facility | Mina Sultan Qaboos located 200km away from Nizwa |

Source: PEIE, Vital Statistics, Nizwa Estates

Table 6.4.3-5 Power Generation Capacity in Adh Dakhliyah Region

| Power Stations | Installed Capacities (MW) | % of Oman Total |
|----------------|---------------------------|-----------------|
| Manah | 279 | 7.0 |
| Oman Total | 3,991 | 100.0 |

Source: Ministry of National Economy, Statistical Year Book 2009

Assuming that the power demand in Ad Dakhliyah region accounts for 7.5% of the national demand, the demand will exceed the generation capacity in the region in 2010, and the supplementary supply will become necessary from the other regions.

Table 6.4.3-6 Power Demand in Ad Dakhliyah Region

(Unit in MW)

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|
| Ad Dakhliyah Expected Demands (a) = (b) x 7.5 % (Note 1) | 227 | 253 | 280 | 317 | 338 | 356 | 374 | 401 |
| Oman Total Demand (b) (Note 2) | 3,031 | 3,371 | 3,739 | 4,220 | 4,507 | 4,742 | 4,984 | 5,348 |

Note 1: (7.5 %) = (Region's Distribution: 969 GWh) / (Omani Distribution: 12,850 GWh)

Distribution figures of 969 GWh, and 12,850 GWh are based on Table 2-9 of Electricity & Water, Statistical Year Book 2009, Ministry of National Economy

Note 2: Source: p15, OPWP's 7 Year Statement, OPWP

Underground water is used as the source of industrial water in Nizwa. In 2009, the supply shortage of industrial water was experienced in Nizwa due to lack of rainfall. A water pipeline is installed from Barka, but the water supply is limited for drinking water only. If the industry needs the bulk of water for industrial processing, they receive the water by tank truck.

Natural gas cannot be expected as the source of energy in Nizwa, in principle. Those enterprises which want to use natural gas for fuel have to apply it to the IE. However, the natural gas supply will be permitted only if the industry is regarded as the special important industry for priority treatment.

LPG is available from two LPG filling companies of Muscat Gas and Natural Gas, which receive LPG from MFR Refinery. However, LPG is available only for kitchen use.

2) Industrial infrastructure

There are two-lane expressways connecting Nizwa and Muscat, with route length of 200 km, whereas one-lane expressways is connecting 800 km between Nizwa and Salalah. For Dubai, the route via Al Buraymi is commonly used.

As for the airport, the Seeb International Airport in Muscat is used, while the Sultan Qaboos Port, which is located 200 km from Nizwa, is used as its sea port.

(5) Current tenant composition and recent applicants for Nizwa IE

As shown in Table 6.4.3-7, Nizwa IE accommodates almost 50 companies, the majority of which are related to crude oil production to make products or provide services.

Among the target industries of Nizwa IE to promote, apparel industry, packaging materials industry, and car parts manufacturing industries are those with no tenant nor applicant currently. On the other hand, besides the target industries, 2 food processing companies, 2 chemical companies, a veneer manufacturer, a manufacturer of glass fiber container are found in the IE, apart from the companies related to oil field operation.

Table 6.4.3-7 Number of Enterprises by Subsector in and outside of Nizwa IE

| | ISIC Code | Industries | No. of Tenants ^(#1) | Typical Activities / Products of the Industries | No. of Existing Companies Outside of IE ^(#2) |
|-------|----------------------|--|--------------------------------|--|---|
| | O 1120 | Oilfield services | 9 | Oilfield services including drilling, EOR activities, inspection, and piping galvanizing | |
| | 15XX | Food-processing | 2 | Manufacturing of food including tea | |
| # | 1810 | Wearing Apparel | 0 | | 0 |
| | 2021 | Veneer sheets; Plywood, and Laminboard | 1 | Veneer sheets | |
| # | 2320 | Industrial Gas | 2 | LPG filling and distribution | 1 |
| | 24XX | Chemicals | 2 | Pharmaceuticals and detergents | |
| # | 2511/2519 | Rubber Products | 2 | Retreated tires and gaskets | |
| | 2520 | Plastic Products | 1 | Glass-fiber made bath tabs and shower trays | |
| # | 2520 | Packaging | 0 | | 1 ^(#3) |
| | 2610 | Glass and glass products | 1 | Glass Bottles and Tableware | |
| # | 26XX | Building Materials, Ceramic, & Glass | 5 | Blocks, tiles, and marbles | 25 |
| # | O 27XX / 28XX | Metal Fabrication | 5 | Castings, steel fabrication, and tanks | 16 |
| # | 2919 | Automotive Spare Parts | 0 | | 0 |
| | O 2924 | Oilfield-related Machinery | 1 | Oilfield-related machinery | |
| | O 3120 | Electric Station | 1 | Electric station | |
| # | 3610 | Wooden Products | 1 | Wooden furniture | 4 |
| # | O 4520 | Construction works including sanitary & plumbing | 7 | Construction works, including piping | 0 |
| | 6023 | Logistics | 4 | Logistics including truck freight and warehouse-storing | |
| Total | | | 44 | | 46 |

Notes: (*1) Including those who are allocated the land in the IE, but not operated yet.

(*2) In the areas of target industries only.

(*3) Not confirmed.

Target industries of Nizwa IE.

O Oilfield-related products and services.

Source: PEIE, Tenant Directory of PEIE

(6) Advantages and constraints of Nizwa for industrial development

Following examines advantages and constraints of industrial development in the prospective and priority industrial areas discussed in 6.2, in Nizwa.

Table 6.4.3-8 Advantages / Constraints of Nizwa for Development of the Prospective Industrial Areas

| | Highly advantageous | Advantageous | With significant constraints |
|--|---------------------|--------------|------------------------------|
| (1) Manufacturing industries to meet the increasing demand in Oman and neighboring countries | | | |
| 1) Construction related | ✓(*1) | | |
| 2) Processed food | ✓(*1) | | |
| 3) Goods of daily necessity character | | ✓(*2) | |
| 4) Tourism related | ✓(*1) | | |
| (2) Manufacturing industries leveraging an existing industrial base, or prospective resources | | | |
| 1) Downstream areas for existing and planned heavy and chemical industries | ✓(*4) | | |
| 2) Areas using non-metal mineral resources | ✓(*1) | | |
| (3) New strategic development areas | | | |
| 1) ICT related industries | | ✓(*3) | |
| 2) Energy alternatives to oil and natural gas | | | ✓ |
| 3) Areas leveraging advantageous location of Oman | | | ✓ |
| (4) Supporting sustainable industrial development | | | |
| 1) Metalworking and machining work | | | ✓(*5) |
| 2) Plant engineering | ✓(*4) | | |
| 3) Packaging materials | ✓(*6) | | |

(Notes)

(*1) Availability of raw material resources (including tourist attractions in the case of tourism industry) can offer a major advantage.

(*2) Mainly meeting local demand, with some degree of concentration and not requiring new investment promotion.

(*3) To promote use of IT among local companies.

(*4) Development leveraging the advantage as the oil drilling industry cluster.

(*5) Local demand cannot be expected.

(*6) With increasing demand from food industry.

As the oil drilling industry cluster has been formed in Nizwa, industrial development leveraging the advantage of industry cluster should be considered as one of the strategies. Namely, promote concentration of the industries relating to oil drilling in Nizwa, together with support organizations, and then support development of industries encouraging application of the specific technology and professional service know-how to other industrial areas.

Meanwhile, in the case of other established industries of building materials and members (handrails, gates, fences, etc.), and food processing subsectors, there are considerable number of enterprises already in exist, and further increase in the number of enterprises can be expected accordingly with the future increase in demand in the local markets. In addition, they also have potential to attract investment targeting for the national or regional (neighboring countries) markets, because of proximity to non-metal mineral resources or availability of agricultural produces. Such investment potential is suitable particularly for SMEs because of a relatively small size of operation, rather than international investors. However, it is important to note that intensive R&D support relating to product development and advanced packaging technology are required for the government to help SMEs to go beyond their present territory (limited local market), and explore new markets in exports.

In the field of tourism, it is recommended to develop Nizwa as a regional center for tourism, while encouraging handicrafts and other product industries targeting the tourists (such as earthenware, textile, food, and agricultural produces).

In the ICT industry, small enterprises engaged in software development will have opportunity, but the market is fairly small and mainly consists of small enterprises and micro enterprises only.

(7) Recommendations relating to an industrial development plan and its realization

In consideration of the above factors, the regional industrial development plan focusing on the following areas, together with policies and programs to realize the plan, is recommended.

1) Promotion of cluster development of the oil drilling industry cluster

Promote concentration of oil drilling and related industries (such as production and supply of related materials, assembly and repairing of equipment and components, processing and machining of parts, engineering service relating to oil drilling and pipeline transportation, transportation of heavy articles, etc.), together with the related support functions of research and development, and testing, and metalworking and machining services, and encourage deployment of the expertise and technology thus concentrated, to the related industrial areas for

expanded industrial activities.

To accomplish the above objective, a space is recommended to be provided in the industrial estate to be used by the testing institutions (including the laboratories operated by private company), together with service that can be used commonly by the testing institutions. Also, it is recommended to establish an incubator facility to encourage new business startups using the expertise and technology for the development of relevant industrial fields.

- 2) Creation of a tourist center as a hub for the visitors, and encourage development of products targeting tourists

A tourist center facility is recommended to be established in the industry estate to attract tourists who visit various attractions in the area, while products featuring local materials or cultures should be developed for sales at the center, such as.

- Processed food using agricultural produces harvested in the surrounding areas
- Development of products targeting tourists, including those made of traditional earthenware and textiles
- Others

- 3) Support for startup or inducement of industries of food processing and production of building materials from non-metal minerals serving local demand

Establishment of an incubator facility is recommended in the industrial estate to support the startup companies that serve local demand, and the required support staff should be assigned from the National Incubator Center which was recommended in 7.3.2.1.

- 4) Startup support for small IT companies

A facility (office) to support small companies providing service for local industries, typically software development, should be provided within the industrial estate.

6.4.4 Recommendation on Regional Industrial Development Plan for Al Buraymi

(1) Overview of Al Buraymi and Adh Dhahirah Region

Al Buraymi is located in the Adh Dhahirah region, which has approximately 260,000 inhabitants, accounting for around 9% of the country's total population (Table 6.4.4-1). The Al Buraymi Governorate has population of around 90,000, of which foreigners represent 59%.

Table 6.4.4-1 Population and Land Area of Adh Dhahirah/Al Buraymi

| Year | Population ('000) | | | Area (Km ²) |
|-------------------|-------------------|---------|---------|-------------------------|
| | 2006 | 2007 | 2008 | |
| Adh Dhahirah* (a) | 229.8 | 246.5 | 258.6 | 44,000 |
| Oman Total (b) | 2,577.1 | 2,743.5 | 2,867.4 | 309,500 |
| (a) / (b) (%) | 8.9 | 9.0 | 9.0 | 14.2 |

Note: * including Al Buraymi Governorate

Source: Ministry of National Economy, Statistical Year Book 2009

Al Buraymi is situated in the northwestern part, adjacent to the UAE, and was well known as an oasis town and a transportation hub for caravans who carried goods between the Arabian Sea and the inner part of the Arabian Peninsula. The ancient oasis town straddles over Oman and the UAE, and the latter side forms the second largest city in Abu Dhabi, Al Ain.

Tourist resources in Buraymi and its surrounding areas include two citadels in Khandaq and Hillah (recently repaired) and several ruins. Situated 160km southeast of Buraymi, there are also historic sites of Al Ayn and Bat, which are listed as UNESCO World Heritage Site. Despite a high potential value as tourist resources, these sites are not widely known due to the lack of a proper access road and a direction board. Near the sites, there is an oasis, Wadi Damm.

(2) Existing industries

In Adh Dhahirah/Al Buraymi, there are 60 manufacturing establishments, of which 28 are engaged in production of non-metal mineral products (building materials) that are supplied to the local market including the UAE. Other establishments also serve the local demand, including food and beverage (10), chemicals, plastics products, and metalworking products.

Table 6.4.4-2 Number of Enterprises in the Manufacturing Sector in Adh Dhahirah / Al Buraymi

| ISIC Code | Product | No. of Establishments | % of Total | Less than 10 Employees Thereof |
|-----------|------------------------------|-----------------------|------------|--------------------------------|
| 1511 | Flours | 2 | 17 | 2 |
| 1512 | Fish / Fish Products | 1 | | 0 |
| 1541 | Bakery Products | 6 | | 2 |
| 1554 | Water / Soft Drinks / Ice | 1 | | 0 |
| 2213 | Records, Tapes, Medias | 1 | 7 | 0 |
| 2221 | Account Books, Notes | 3 | | 3 |
| 2320 | Refined Petroleum Products | 3 | 5 | 0 |
| 2413 | Plastics in Primary Forms | 1 | 8 | 1 |
| 2422 | Paints & Colors | 1 | | 0 |
| 2423 | Medicine Products | 1 | | 0 |
| 2424 | Soap, Perfume | 1 | | 1 |
| 24XX | Unidentified | 1 | | 0 |
| 2511 | Retreated Tires | 1 | 7 | 0 |
| 2520 | Plastic Products | 3 | | 0 |
| 2610 | Glassware | 1 | 47 | 0 |
| 2695 | Articles of Concrete, Brocks | 7 | | 2 |
| 2696 | Marble | 2 | | 0 |
| 2699 | Shaped / Finished Stones | 11 | | 0 |
| 26XX | Unidentified | 7 | | 0 |
| 2720 | Basic / Non-ferrous Metal | 1 | 2 | 0 |
| 2811 | Structural Metal Products | 1 | 7 | 1 |
| 2893 | Treated / Coated Metal | 2 | | 2 |
| 2899 | Other Metal Products | 1 | | 0 |
| 3120 | Electric Distribution Panels | 1 | 2 | 1 |
| Total | | 60 | 100 | 15 |

Source: MOCI, Yearly Industrial Statistical Book, Issued in 2008

(3) PEIE's target industries

PEIE designates the following areas as target industries to be promoted in Al Buraymi IE, although it does not specify any reason for selection.

- Industrial gas
- Molded plastics products
- Machinery
- Automotive spare parts, storage batteries, rubber products (presumably, retreated tires)

- Packaging materials
- Metal products
- Wood products

(4) Industrial infrastructure and business environment

1) Utilities

Utilities and other infrastructure facilities available at Buraymi IE are summarized in Table 6.4.4-3.

The Region does not have any power generation system. Power outage often occurs during the period of peak demand. Water is available from municipal waterworks. As a result, water supply is not sufficient and many companies purchase supplemental water that is delivered by tank trucks of long haul.

Table 6.4.4-3 Infrastructure Facilities Available at Buraymi Industrial Estate

| | |
|----------------|--|
| Utilities | |
| Electricity | Supplied by Ministry of Housing, Electricity and Water |
| Fuel | Gas supply in process |
| Water | Not available at present |
| Sewerage | Not provided with a sanitary sewer system and a storm sewer system |
| Transportation | |
| Highway(s) | Buraimi - Mandah Highway, of a two-lane highway, connecting to Dubai |
| Airport | Dubai International Airport located 120km away from Al Buraymi |
| Port Facility | Sohar Port located 120km away from Al Buraymi |

Source: PEIE, Vital Statistics

Natural gas is not currently supplied in the Region, and there is no supply plan at present. As shown in Table 6.4.4-4, natural gas price is very low in comparison to electricity with one fourteenth of the electricity charge (in the case of peak in summer) and kerosene (one eighth). Thus, it will not be commercially viable for energy consuming industries to operate in the industrial estate.

Table 6.4.4-4 Comparison of Energy Prices

| Energies | Unit Prices (a) | | Sources | Specific Heats (or Conversion Factor) (b) | Converted Unit Prices (a) / (b) X 1,000 | Converted Unit Prices (1RO = 2US\$, 1BTU = 0.252 Kcal) |
|---------------|--------------------|----------------------|---------|--|--|--|
| Electricity** | 12.0 | Bisas/KWH | 1 | 860 Kcal/KWH | 14 RO/MM Kcal | 7.0 US\$/MMBTU |
| *** | 24.0 | Bisas/KWH | 1 | 860 Kcal/KWH | 28 RO/MM Kcal | 14.1 US\$/MMBTU |
| Natural Gas | 20.5 | Bisas/m ³ | 1 | 10,000 Kcal/Nm ³ | 2 RO/MM Kcal | 0.9 US\$/MMBTU |
| Imported Gas | 1.5 | US\$/MMBTU | 2 | 0.252 Kcal/BTU | 3 RO/MM Kcal* | 1.5 US\$/MMBTU |
| Gas Oil | 146.0 | Bisas/L | 3 | 9,200 Kcal/L | 16 RO/MM Kcal | 8.0 US\$/MMBTU |

Note: * Assuming that US\$ 2 equal to R.O. 1 (one Omani Rial)

** August to March, *** April to July

Source 1: Rates of Service, PEIE

2: Study on Renewable Energy Resources, Oman, May, 2008

3: Oil & Gas, Statistic Year Book, 2009, Ministry of National Economy

2) Industrial infrastructure

Buraymi is relatively close to Sohar, Dubai, and Abu Dhabi, as connected by paved road.

Previously, traffic between Oman and the UAE was freely made without border control. Three years ago, however, border posts were established on the UAE side and movement of foreigners over the border is now controlled, i.e., foreigners other than GCC citizens have to go through the appointed border posts and pay toll. As foreigners account for 59% of Buraymi's population, such border control has significant impacts on their activity. For instance, companies where foreign staff plays an important role are experiencing difficulty in various circumstances. Also, the toll (300AED per large truck) causes cost increase for many businesses, while time required for customs clearance and other procedures – especially long waiting during the rush hours in the morning – becomes an additional cost factor.

Under these circumstances, companies that target the UAE market by establishing their business base in Al Buraymi are forced to reconsider their operational strategy, including relocation to Sohar.

At present, Dubai – both port and airport – is widely used by companies operating in the Region.

(5) Advantage / constraint of Al Buraymi for industrial development

Following examines advantages and constraints of industrial development in the prospective and priority industrial areas discussed in 6.2, in Al Buraymi.

Table 6.4.2-5 Advantages / Constraints of Al Buraymi for Development of the Prospective Industrial Areas

| | Highly advantageous | Advantageous | With significant constraints |
|--|---------------------|--------------|------------------------------|
| (1) Manufacturing industries to meet the increasing demand in Oman and neighboring countries | | | |
| 1) Construction related | ✓(*1) | | |
| 2) Processed food | ✓(*1) | | |
| 3) Goods of daily necessity character | ✓(*1) | | |
| 4) Tourism related | ✓(*1) | | |
| (2) Manufacturing industries leveraging an existing industrial base, or prospective resources | | | |
| 1) Downstream areas for existing and planned heavy and chemical industries | | ✓(*2) | |
| 2) Areas using non-metal mineral resources | ✓(*1) | | |
| (3) New strategic development areas | | | |
| 1) ICT related industries | | ✓(*3) | |
| 2) Energy alternatives to oil and natural gas | | | ✓ |
| 3) Areas leveraging advantageous location of Oman | ✓(*1) | | |
| (4) Supporting sustainable industrial development | | | |
| 1) Metalworking and machining work | | ✓(*4) | |
| 2) Plant engineering | | | ✓ |
| 3) Packaging materials | ✓(*5) | | |

(Notes)

*1: Mainly serving the local and the UAE markets, with existing industries; while further promoting enterprises (particularly of SMEs) that intend to explore the UAE market with efforts of product and market development, etc.

*2: Industries in a downstream sectors for heavy and chemical industries in Sohar, targeting the UAE market

*3: To promote use of IT among local companies.

*4: Manufacturing of automotive parts (including that for the UAE market)

*5: To meet the needs of the food processing industry.

Al Buraymi does not have a specific advantage in comparison to Al Ayn, Dubai, and Sharjah, but certain industries can compete in the UAE market, as well as the local market, by taking advantage of their proximity to the market. These include processed food industries (including repackaging), and household goods (mainly of plastics products). However, without significant differentiation efforts compared with the competing goods in the market, they cannot penetrate into the market. These efforts include the development of a new product and upgrading of packaging materials, etc. Since they belong to the SME sector, the government should provide more aggressive support particularly in relation to R&D and packaging technology.

Currently, the UAE's border control policy seems to limit the local advantage significantly in terms of market proximity. If this policy continues, it is important to seek for countermeasures to ease the problem including development of cooperation with companies in the UAE side.

Subsectors making building materials from non-metal mineral resources are prospective industries that can penetrate the UAE market that is fairly large. Again, the UAE's border control policy acts as impediment. However, as there is large demand for these materials in the UAE, Omani companies will solve this problem with cooperating with the UAE side.

Also, exports of automotive parts (effectively, sales of imported parts to UAE customers who visit Oman) have reached substantial levels, and this practice is expected to continue, although sales activity may be restricted due to restriction on the sales right. In addition, there is potential demand for spare parts, together with a future prospect for manufacture or assembly locally.

On the other hand, restraint on energy and water supply is a decisive factor for limiting development, making it difficult for mass energy and water consuming industries to operate in Al Buraymi.

At present, 20 or more micro enterprises are engaged in recycling of waste plastics products in the UAE, although their operation is limited to collection, cleaning and crushing of waste plastics products. While their operation may be expanded to plastics processing by using the recycled products, they will likely encounter difficulty similar to that in the case of processing of newly produced materials, unless they develop advanced R&D and other differentiation capabilities, together with alliance with UAE companies.

The recycling of metal products is also limited to collection and classification. Again, the further processing of recycled metals will face a similar restraint as expected for plastics processing.

Finally, waste paper can also be recycled from the UAE, but its commercial viability is low due to the difficulty in obtaining water used for the recycling process.

As for the ICT and related industries, there is an opportunity for small companies that develop software for local companies, but the market is fairly small and mainly consists of the customers of small enterprises and micro enterprises.

(6) Recommendations relating to an industrial development plan and its realization

In consideration of the above factors, it is recommended to develop an industrial development plan focusing on the following areas, together with policies and programs to realize the plan.

1) Support for startup or inducement of industries serving local demand (including the UAE market)

Establishment of an incubator facility is recommended in the industrial estate to support the startup companies that serve local demand, and the required support staff should be assigned from the National Incubator Center which have recommended in 7.3.2.1.

2) Startup support for small IT companies

A facility (office) to support small companies providing service for local industries, typically software development, should be provided within the industrial estate.

7 Review and Recommendation on Direction, Policy and Measures of SME Promotion

7 Review and Recommendation on Direction, Policy and Measures of SME Promotion

7.1 Current Situation of SMEs in Oman

7.1.1 SMEs in Oman

Officially, in Oman, medium size enterprises are defined as enterprises with between 10 and 99 employees, whereas small enterprises are defined as those with less than 10 employees.

On the other hand, ODB does not use the term SME or small enterprises; instead, it defines the loans less than R.O. 5,000 as small scale loans, which are provided by the loan program targeting small and micro enterprises.

The target SMEs of the SME policy are the enterprises with handicaps compared with “ordinary” enterprises, because of the small size of their operation. They cannot rely the business activities solely on the prevailing market mechanisms. They are weak in terms of company organization, resulting in limitations to data gathering, marketing, manpower development and research and development, etc. They have weak financial bases compared with large enterprises.

The following three categories of enterprises are identified in general in Oman in view of their features according to their size of employment. Of these categories of the enterprises, the enterprises with less than 70 employees are found to have characteristics of typical SMEs.¹ The enterprises with less 30 employees have characteristics of small enterprises, having mostly no internal management organization, and having their management depending totally on the capability of the owner/manager.²

Table 7.1-1 shows the sources of the paid up capital in the manufacturing sector. In the case of enterprises with less than 100 employees, the Omani capital accounts for more than 94% of the total capital, while the share of the capital of foreign sources increases to around 25% in the case of

¹ Omani enterprises which have the nature of leading firms, are mostly those with more than 150 employees, according to the enterprise survey conducted for this study. However, the number of enterprises with 70-150 employees is comparatively less, and some of them can be categorized as SMEs in view of their management and operation, while others may be categorized as leading enterprises. Thus, it was found difficult to categorize them clearly using scale employment alone, according to the enterprise survey. In order to define SME clearly, it is recommended to undertake a separate enterprise survey, designed for this specific purpose. Nevertheless, in order to figure out the number of enterprises under the above definition, it is necessary to depend on the existing statistics. In this context, the current study uses the definition of enterprises with employees less than 100 as the SMEs, for convenience.

² Some of the enterprises with a small number of employees, which are operated as one of a group of enterprises, have the nature of a leading companies despite their small size of operation.

enterprises with employees between 100 and 200, and further exceeds 30% in the case of that with more than 200 employees. This fact also supports the estimates that the enterprises with the features of SME are those with less than 100 employees.

Table 7.1-1 Source of Paid-up Capital in Manufacturing Sector

(As of 2007, Unit: T.R.O)

| Source of Capital | Size of Enterprises in Number of Employees | | | | |
|-------------------|--|----------------|----------------|----------------|----------------|
| | 10-30 | 30-100 | 100-200 | Over 200 | Total (B) |
| Oman | 50,580 | 276,466 | 94,407 | 262,663 | 684,116 |
| GCC | 488 | 9,911 | 21,838 | 14,788 | 47,025 |
| Foreign | 2,611 | 6,941 | 9,045 | 106,831 | 125,428 |
| Total (A) | 53,679 | 293,318 | 125,290 | 384,282 | 856,569 |
| (% of Total (A)) | | | | | |
| Oman | 94.2 | 94.3 | 75.4 | 68.4 | 79.9 |
| GCC | 0.9 | 3.4 | 17.4 | 3.8 | 5.5 |
| Foreign | 4.9 | 2.4 | 7.2 | 27.8 | 14.6 |

Source: MOCI, "Yearly Industrial Statistical Book" (Data: 2007)

(1) Enterprises with more than 150 employees

Enterprises with more than 150 employees represent the leading medium and large-sized enterprises in Oman.

Except for the enterprises operated by the Government, enterprises established under a national policy, and foreign-owned enterprises or their affiliates, most of the enterprises in Oman have been established with the intention of substituting for imported goods. However, with significant inflow of the mass-produced, low-priced industrial products from China and India, those who have financial capability, though most of them are part of one or another group, shifted their target to the high-end and upper-middle markets, upgrading their business and avoiding the tough competition with the imported goods.

Production machinery has mainly been acquired from such countries as India, and most are based on matured technology. However, in the recent years, many enterprises have imported the machines and equipment from Europe and Japan, which are based on the most update technologies. They have also imported and used quality raw materials certified by third parties for their products, despite the higher prices of these materials.

They have been successful to a considerable extent, differentiating their products from the mass-produced products. From 60 to 70% of their products are destined to the domestic and

GCC markets, while the remainder is for India, Pakistan, and North African countries. In some specific cases, products are exported to as far as Europe. In the domestic markets, they are targeting high-end to upper-middle markets, or the special markets of Government or military procurement.

(2) Enterprises with 30 to 70 employees

Enterprises with 30 to 70 employees display the characteristics of medium size enterprises.

Many enterprises with between 30 and 70 employees have also started their businesses on the basis of import substitution. However, they often failed to make the transition regarding their target consumers to the high-end and upper- middle markets. Machinery and equipment are based on mature technologies. They have faced severe competition from low-priced mass-produced imports, and suffered from difficulty in their business operation. Quite a number of them have dropped out.

Most of these firms have corporate organization units specialized in marketing and accounting, etc. However, the management depends mainly on the personal capacity of the general manager, and the company organizations execute their responsibility only to a limited extent, resulting in difficulty in accessing the market and technical information. This has caused the failure to make an appropriately timed transition. In addition, the funds available for them are far insufficient.

(3) Enterprises with less than 20 employees

Most of the enterprises under this category have almost no company organization, and their management depend son the personal capacity of the general manager.

The features of the enterprises under this category are as follows:

There are two types of business startup. One is the startup by an Omani national. Often, they started businesses on the basis of their personal interest. Or, in many cases, they started a construction business first, and moved into manufacturing of products related to the construction business, or are interested in by the owners. Their seed money comes from personal funds or funds from their families or relatives.

Another case is the business startup by expatriates, who had worked in Oman as a worker, and have found an appropriate Omani person as their sponsor. This type of business startup can be commonly seen for small operations, especially in the commercial and service sectors. Basically, these small enterprises target local demand in a limited geographical area, and discover niche demand in their own ways, often by leveraging community-based services. These small enterprises in the manufacturing sector are found in such areas as products related to building materials and parts, such as blocks and cement tiles, fabricated metal doors and fences, and wooden doors and handrails of stairs, etc.

They have survived without severe competition from the imported mass-production products that often are from China. However, they are facing difficulty in expanding business because of restriction on number of employees, and increases in rent.

Also, some small enterprises are operated as manufacturers serving the national market, rather than the local community. They are basically smaller medium-size enterprises. While some of them pursue a unique management style and have creativity (a traditional advantage of small enterprises), others barely survive without growth prospects, as they easily lose their traditional market to mass-produced imports.

(4) Startups under the public support program

As discussed above, there are increasing cases of business startups benefiting from various support programs implemented by the Government or other public organizations, in addition to SMEs that have been incorporated by entrepreneurs at their own initiative. Such startup cases are roughly divided into the following types.

- 1) Handicraft production by housewives
- 2) Catering service or low-level computer data processing service for young people looking for jobs

7.1.2 Number of SMEs in the Manufacturing Sector, and Their Distribution among the Subsectors

(1) SME statistics and the number of SMEs

The MNE estimates that there are around 112,800 SMEs in the country (Table 7.1-2).³ The estimate is based on the 2003 census, with adjustment based on the number of companies registered with the MOCI. Note that the registration data do not include companies that have registered but have not started commercial operation and those that have been closed down.⁴ Then, the MNE confirms the operating status of registered companies on the basis of business registration with municipalities⁵ before adding them to the total estimate.

³ In this case, companies with less than 100 employees are considered as SMEs. Also, the company list based on the census includes 61,500 enterprises having an unknown scale of the workforce. On the other hand, the number of companies having 100 or more employees is accurately estimated and they are assumed to be SMEs for summation purposes.

⁴ The number of companies registered with the MOCI (cumulative total up to the end of 2007) is 139,545.

⁵ A company conducting business is required to register with each municipality where it is located.

Table 7.1-2 Number of SME by Economic Activity

| | SME by Number of Employees | | | Estimated Total of SMEs | 100+ | Grand Total |
|---|----------------------------|-------|------------|-------------------------|------|-------------|
| | 1-19 | 20-99 | Not Stated | | | |
| Agriculture | 80 | 6 | 159 | 245 | 8 | 253 |
| Fishing | 2 | 3 | 4 | 9 | | 9 |
| Mining & Quarrying | 39 | 22 | 148 | 209 | 28 | 237 |
| Manufacturing | 10,839 | 201 | 9,623 | 20,663 | 84 | 20,747 |
| Electricity, Gas and Water | 46 | 5 | 46 | 97 | 2 | 99 |
| Construction | 4,345 | 160 | 10,745 | 15,250 | 132 | 15,382 |
| Whole Sale, Retail Trade and Car Repair | 24,136 | 344 | 24,735 | 49,215 | 101 | 49,316 |
| Hotels and Restaurants | 2,953 | 82 | 3,809 | 6,844 | 24 | 6,868 |
| Transport Storage and Communication | 614 | 58 | 2,182 | 2,854 | 22 | 2,876 |
| Financial Intermediaries | 438 | 58 | 441 | 937 | 19 | 956 |
| Real Estate and Renting Services | 1,852 | 79 | 3,921 | 5,852 | 33 | 5,885 |
| Social Insurance | 5 | 1 | 11 | 17 | 2 | 19 |
| Health and Social Work | 232 | 68 | 384 | 684 | 13 | 697 |
| Community and Personal Services | 395 | 17 | 303 | 715 | 4 | 719 |
| Domestic Services | 4,120 | 8 | 4,485 | 8,613 | 2 | 8,615 |
| Not Stated | 30 | 0 | 81 | 111 | | 111 |
| Unknown | 19 | 0 | 435 | 454 | 1 | 455 |
| Total | 50,145 | 1,112 | 61,512 | 112,769 | 475 | 113,244 |

Source: MNE

SMEs account for 99.6% of all the enterprises in the country (113,244). By sector, commerce has the highest share, 43.6%, followed by manufacturing (18.3%) and construction (13.5%). Other sectors are household service (cleaning, etc.; 7.6%), hotels and restaurants (6.1%), and real estate (5.2%).

Note that the statistics will be updated after the census to be conducted in 2010. Also, the MNE conducts an Annual Economic Survey as the basis of estimating the National Accounts, but it covers large enterprises only and does not include manufacturing establishments.

In the future, it is planned to link these data to the MOM's data (i.e., companies are required to register in order to obtain a license to employ foreign people). Also, in 2011, the MNE plans to conduct a Comprehensive Survey (sampling survey) to understand the current state of large, medium-size, and small enterprises separately.

On the other hand, business statistics covering manufacturing industries are annually conducted by the MOCI. However, the ministry's industrial statistics does not include companies with less than 10 employees because their data are not accurate.

Data showing the number of enterprises in the manufacturing sector, by company size, are

calculated by incorporating the above data and are shown in Table 7.1-3 (as of 2007; note that the number of enterprises with less than 10 employees was estimated from the MOCI's registration list in 2005). Notably, the manufacturing sector has 606 companies with less than 100 employees, of which 245 are companies with less than 10 employees.

Table 7.1-3 Number of Enterprises in Manufacturing Sector by Subsector and by Number of Employees

| Subsector | Total | Number Enterprises by Number of Employee | | | % of Total | | |
|---------------------------------------|------------|--|------------|--------------|--------------|--------------|--------------|
| | | Over 100 | 10-99 | Less than 10 | Over 100 | 10-99 | Less than 10 |
| Food Product & Beverages | 151 | 28 | 69 | 54 | 23.5 | 19.1 | 22.0 |
| Readymade Garments | 3 | 3 | 0 | 0 | 2.5 | 0.0 | 0.0 |
| Products of Wood Except Furniture | 35 | 4 | 6 | 25 | 3.4 | 1.7 | 10.2 |
| Paper/Paper Products | 13 | 8 | 5 | 0 | 6.7 | 1.4 | 0.0 |
| Printed Materials / Recorded Media | 37 | 2 | 26 | 9 | 1.7 | 7.2 | 3.7 |
| Refined Petro-Products & liquid gas | 15 | 3 | 10 | 2 | 2.5 | 2.8 | 0.8 |
| Chemical/Chemical Products | 47 | 11 | 31 | 5 | 9.2 | 8.6 | 2.0 |
| Rubber & Plastic Products | 46 | 4 | 41 | 1 | 3.4 | 11.4 | 0.4 |
| Other Non-Metallic Products | 183 | 21 | 85 | 77 | 17.6 | 23.5 | 31.4 |
| Basic Metals | 18 | 6 | 5 | 7 | 5.0 | 1.4 | 2.9 |
| Fabricated Metal Products | 102 | 13 | 40 | 49 | 10.9 | 11.1 | 20.0 |
| Machinery & Equipment nec. | 13 | 1 | 10 | 2 | 0.8 | 2.8 | 0.8 |
| Electrical Machinery/Apparatus | 13 | 4 | 8 | 1 | 3.4 | 2.2 | 0.4 |
| Medical, Precision/Optical Instrument | 1 | 0 | 1 | 0 | 0.0 | 0.3 | 0.0 |
| Motor Vehicle, Trailers | 6 | 0 | 3 | 3 | 0.0 | 0.8 | 1.2 |
| Furniture Manufacturing | 30 | 7 | 17 | 6 | 5.9 | 4.7 | 2.4 |
| *Other Manufacturing | 12 | 4 | 4 | 4 | 3.4 | 1.1 | 1.6 |
| Total | 725 | 119 | 361 | 245 | 100.0 | 100.0 | 100.0 |

Note: Data in 2007, except for data on enterprises with employees less than 10, which are in 2005.

Source: MOCI

These figures are significantly different from the MNE estimates that indicate 10,175 enterprises with less than five employees in the manufacturing sector. One reason is that the MNE data do not include workshop-type enterprises because they exclude enterprises with investment of R.O. 5,000 or more.⁶ Also, it can be estimated that around 90% of 10,175 companies with less than five employees (shown in the MNE data) are tailors.⁷ On the other hand, the MOCI data do not include workshop-type and private enterprises.

(2) SMEs in the manufacturing sector

Table 7.1-3 shown above, gives the distribution of small enterprises with less than 10

⁶ According to the MOCI's registration data, there are 10,017 companies with investment of R.O. 5,000 in all the industries, among the number of companies registered up to the end of 2007.

⁷ According to the MNE

employees, by subsector in 2007 (the number of firms with employees less than 10 is for 2005).

Although the classification of enterprises by size in this table does not coincide with that of the above classification, these statistics are the only available ones of this kind. The current Study will define SMEs by the number of employees, based on this table and as follows:

- Large-size enterprises: 100 or more employees
- Medium-size enterprises: 10 or more but less than 100
- Small-size enterprises: less than 10

According to the above definition, there are 361 medium-sized enterprises, and 245 small-sized enterprises. By subsector, the largest number of SMEs are seen in the subsector of non-metallic mineral products, which mainly produces building and construction materials, with 26.7% of all SMEs belonging to this subsector (or 23.5% of total medium enterprises and 31.4% of total small enterprises), followed by the processed food and beverage subsector with 20.3% (or 19.1% of medium, and 31.4% of small), and the metal processing subsector with 14.7% (or 11.1% of medium, and 20.0% of small). In the case of medium-size enterprises, the plastics products subsector accounts for 11.4% of the total medium enterprises followed by the processed food and beverage subsector, while it accounts for 0.4% total small enterprises. Contrasting to this, existence of small sized enterprises is more significant in the wood processing subsector, accounting for 10.2% of total small enterprises.

7.1.3 Government Agencies and Organizations Engaged in SME Promotion

(1) Government agencies

Oman's SME promotion policy is led by the MOCI, particularly the Directorate General of SME Development, which was established in March 2007 in recognition of the importance of government-led industrial development efforts, especially industrial diversification and creation of business and employment opportunities for the Omani people. It has the following five departments.

1. Department of Entrepreneur: Newly established in 2009 and still in the stage of preparation. It is primarily responsible for entrepreneur support in the areas of business startup procedures and financing.
2. Direction and Guidance Department: Takes charge of SME consulting service, organization of workshops to improve business skills, and promotion of linkage with large and medium-sized enterprises
3. Department of Business Development: Provides business support service for SMEs, such as

- the organization of workshops, database development, and the provision of technical service.
4. Business Diagnostic Center: Newly established at the end of 2008 and is still in the stage of preparation. It plans to provide consulting and corporate diagnosis services for SMEs.
 5. Department of Coordination and Follow-up: Responsible for budget control and development of departmental strategies,.

Note that the Directorate General intends to target small enterprises with less than 10 employees at least at the outset.

(2) Other government organizations

In Oman, the following organizations are engaged in industrial development, investment promotion, and export development. They do not necessarily serve SMEs only but their activities mainly focus on SMEs.

1) Oman Center for Investment Promotion and Export Development (OCIPED)

OCIPED has the primary mission of promoting exports of non-oil products to countries other than the GCC and conducts the following activities.

a) Overseas market studies

OCIPED conducts country-specific surveys to determine the comparative advantage of Omani products in countries other than the GCC. Recently, it has concentrated on the Middle East, such as Yemen, Syria and Iran, and African countries including Kenya and Sudan.

b) Matchmaking service

OCIPED provides a matchmaking service as a bridge between Omani companies seeking export opportunities and potential foreign buyers.

c) Information service

This supports companies that intend to export their products, by providing information on a target export market. Also, it holds workshops to teach export procedures.

2) Oman Development Bank (ODB)

This is a national bank and provides soft loans to support development projects conducive to economic diversification. It has 16 branches in major cities including Muscat, Salalah, Sohar, Nizwa, Sur, and Ibri. The majority of its loans go to small projects in the agriculture and fishery sectors. The average value of loans for agriculture or fishery projects is R.O. 4,000-5,000, whereas that for manufacturing and service industries is around R.O. 20,000 (Tables 7.1-4 and 7.1-5)

Table 7.1-4 Recent ODB Loan Trend

| Year | 2005 | 2006 | 2007 | 2008 |
|----------------------------------|-------|--------|--------|--------|
| Number of cases | 1,430 | 2,402 | 4,356 | 4,648 |
| Value of loan (R.O. thousand) | 5,671 | 11,214 | 29,998 | 30,197 |

Source: ODB

Table 7.1-5 Composition of ODB Loans in 2008, by Sector

| Sector | Manufacturing | Service | Agriculture | Fishery | Total |
|--|----------------|----------------|----------------|-----------------|------------------|
| Value of loan (R.O. thousand) | 9,095 (31%) | 4,426 (14%) | 5,766 (19%) | 10,911 (36%) | 30,197 (100%) |
| Number of cases | 455 | 239 | 1,161 | 2,793 | 4,648 |
| Loan value per case (R.O. thousand) | 20 | 18 | 5 | 4 | 6.6 |

Source: ODB

ODB sets priority areas annually from the viewpoint of industrial development and financial status. At present, the following priority areas are designated: (1) tourism; (2) petroleum and mining; and (3) others (e.g., medicine).

The loan period and the interest rates vary according to the value of loan, as follows.

| Project | Value of loan ^(*4) (R.O.) | Interest rate (% per year) | Loan period (years) |
|------------------|--------------------------------------|-------------------------------|--|
| Micro | ~5,000 | 0 ^(*1) | 6 (5 years with 1 year grace period) |
| Small loan | 5,000~50,000 | 3 ^(*2) | 7-10 ^(*3) |
| Medium-size loan | 50,000~250,000 | 3 | 7-10 |
| Corporate loan | 250,000~ | 3 | 7-10 |

*1: The interest rate is 9% annually, of which 6% are subsidized by government.

*2: Micro projects in agriculture, fishery and handicraft sectors; () - no interest.

*3: The grace period for repayment is, in principle, one half the loan period, generally one to two years.

*4: Credit line: In principle, ODB loan is expected to cover one-third the total project cost, while the owned capital accounts for one-third, and other financial institutions the remaining one-third. However, the actual credit line varies according to regions, e.g., up to 50% of the project cost for projects in Muscat, or up to 56% outside the city. In addition, up to 90% of micro projects in other regions is covered by ODB loan.

ODB also lends short-term operating funds at 8.5%, for periods within one year (no government subsidy).

It defines companies with capital of R.O. 20,000 or less as SMEs. However, it does not offer different loan terms according to company size. Rather, the value of the project (investment) is used as criteria.

Bad debts represent a substantial portion of ODB's loans, 18.5% in 2008, albeit is on the decline in recent years.

(3) Trade associations and chambers of commerce and industry

In Oman, there is no trade association organized by companies in the same trade. On the other hand, there is the Oman Chamber of Commerce and Industry that represents the private sector and industry as a whole. The total membership is around 143,000 business establishments, and there are 10 chapters throughout the country. It has an Industrial Committee that represents the interest of industrial members. On the other hand, it does not have an internal organization representing SMEs.

Table 7.1-6 List of the OCCI Members up to 30-9-2008

| | International | Excellent | First | Second | Third | Fourth | Consultant | Total |
|---------|---------------|-----------|--------|--------|-------|---------|------------|---------|
| Muscat | | 1,879 | 7,927 | 5,708 | 3,774 | 36,085 | 98 | 55,837 |
| Ibra | - | 54 | 163 | 452 | 458 | 8,352 | - | 9,479 |
| Buraimi | - | 79 | 235 | 386 | 304 | 4,774 | - | 5,778 |
| Khasab | - | 26 | 63 | 115 | 80 | 1,082 | - | 1,366 |
| Sohar | 14 | 303 | 838 | 918 | 1,030 | 17,061 | 2 | 20,152 |
| Salalah | 12 | 311 | 1,474 | 1,204 | 1,494 | 14,994 | 19 | 19,496 |
| Sur | 1 | 127 | 230 | 508 | 437 | 8,354 | 2 | 9,658 |
| Ibri | - | 61 | 91 | 172 | 229 | 4,633 | - | 5,186 |
| Nizwa | - | 116 | 283 | 341 | 813 | 8,186 | - | 9,739 |
| Rustaq | 1 | 16 | 128 | 300 | 302 | 5,810 | - | 6,556 |
| Total | 394 | 2,972 | 11,432 | 10,104 | 8,921 | 109,331 | 121 | 142,881 |

Source: OCCI

(4) Organizations to support development of employment and business startup opportunities

The following organizations provide support for development of employment and business startup opportunities under the sponsorship of large enterprises.

1) Intilaaqah Program (Entrepreneurship guidance program for young people)

This is funded by Shell Oil and has provided support for young entrepreneurs in Oman since 1995. This program is implemented in 26 countries, including the Middle East (Egypt, Syria, Qatar, Saudi Arabia, and the UAE). Shell Oil contributes 85% of the fund and local companies including commercial banks the remaining 15%. It also allies with government organizations, such as KOM and Sanad, and Sultan Qaboos University.

It outsources its services, such as training and corporate diagnosis, to outside organizations. For this purpose, it is affiliated with 17 private training institutes. Its program offerings include a one-day introductory course, an owner (3-5 days) course, a business planning (90 days) course, corporate diagnosis, and consultation service on startup and management. Up to 2008, a total of 6,093 persons (2,095 men and 3,998 women) have attended the program's training courses.

As a result, around 3,500 projects have started up, including tour guide, private school, fast food shop, café, food store, and beauty salon establishments.

However, there are many cases of failure, mainly due to the following reasons.

- Inability to collect sales proceeds from relatives
- Discontinuation of business by female entrepreneurs after marriage
- Lack of distinction between revenues and profits
- The competitive environment

More recently, the program has launched an initiative to collaborate with large corporations (newly established for industrial projects) in order to explore new opportunities. For instance, the alliance with Sohar Aluminum proceeds as follows.

1. Presentation of the program intent to Sohar Aluminum and identification of the needs (benefits for the company: proximity, the multiplier effect in relation to regional development, and social responsibility)
2. Implementation of training courses to meet the company's needs upon its approval (such as printing, office supply, food supply, and maintenance)
3. Selection of subcontractors and suppliers at discretion of the company (qualification and bidding)

The program plans to conduct a similar collaboration project with large companies to be established in Sohar, but it has still to obtain their approval partly because they do not like an outside organization to meddle with corporate management.

2) Grofin

Grofin is a foundation based in South Africa and has offices in nine countries, mainly Africa. Oman is only the country in the Middle East where it has an office, which was established in 2005. Using the funds contributed by Shell Foundation and other organizations, it provides loans for business expansion of small companies⁸.

Its loan service was started in 2007. It has extended loans to 11 companies (e.g., mineral water container, transportation, limousine service, and woodworking) out of around 600 applications. The amount of loans generally ranges between R.O. 20,000-380,000, with the annual interest rate of 18% and the repayment period of 6 years. Review and examination of loan applications takes 2-6 months.

While ODB provides loans to microenterprises and commercial banks mainly serve large enterprises, Grofin supplies funds to small- and medium-size enterprises. It plays a desirable role in filling the gap by meeting the unfulfilled needs of the SME sector, but its financial resources are not sufficient to meet high demand. Grofin's program is well received as evidenced from a large number of applications (around 600), because it is extremely difficult for smaller enterprises to gain access to commercial finance; commercial banks demand security money or property (mortgage) for loans, but small enterprises cannot provide it. On the other hand, the program does not demand any security.

(5) Private BDS providers

In the private sector, accounting and consulting firms provide management support service.

In Oman, 16 business establishments are formally registered in the category, including foreign-affiliated ones. They primarily provide the following three types of service.

1. Accounting and audit
2. Tax management (filing of tax returns)
3. Consulting service (corporate diagnosis)

Large accounting firms and consulting firms are capable of performing all the services and actually do provide them. On the other hand, medium-sized firms essentially provide the first two types of service, but not consulting service. Then, small firms are generally specialized in accounting audit work.

⁸ Grofin's defines small enterprises as companies having 50 or less employees, with an annual turnover of R.O.2 million or less and gross assets not exceeding R.O.1.2 million.

Their clients are mainly large and medium-size enterprises. Few accounting firms provide service particularly for small enterprises and microenterprises.

Consulting firms are mainly engaged in research projects commissioned by government and other organizations and do not generally have the function to provide management consultation for private companies.

Thus, accounting and consulting firms in Oman are basically engaged in accounting, audit and tax management services, while they provide consultation services (such as corporate diagnosis) for an expensive fee, which most SMEs cannot afford.

7.2 Direction of SME Promotion in Oman

7.2.1 Role in Industrial and Economic Development of SME

A consensus on the direction of SME promotion has not been formed in Oman, despite the fact that importance of SME promotion is widely recognized.

It is widely recognized throughout the world that SMEs play an important role in industrial and economic development in the following aspects.

- 1) SMEs can be relatively easily created and can thus be considered as a spawning ground for business.
- 2) They provide niche products or services that cannot be available from large corporations and play a supplemental role to make up for shortcomings in the functions of large enterprises. This promotes industrial diversification. In particular, SMEs can easily be engaged in flexible production (small lot and large variety production) because they can make decisions more flexibly than large enterprises. In fact, many large- and medium-size enterprises in Oman use responsiveness to customers as a main source of competitiveness, and if some of their operations or business processes are entrusted to SMEs, they will be carried out more efficiently.
- 3) They make significant contribution to diversification of local industries and increase value added by respective local communities.
- 4) SMEs require less “per unit” capital to create jobs in comparison to large enterprises. Also, they can absorb surplus jobs by maintaining a workforce under adverse economic conditions.

7.2.2 Direction of SME Promotion in Oman

This section discusses what objective SME promotion should aim at in Oman. In particular, four directions of SME promotion are proposed by taking into account industrialization in Oman (6.2) and the role expected of SMEs (7.2.1) are considered.

Note that, in Oman, there is no need to promote SMEs for the purpose of creating business that meets basic needs, as seen in many developing countries.

The focus of SME support in the case of Oman seems to have been placed on the small enterprises, particularly those with less than 10 employees. It is because of the fact that there are over 100,000 small enterprises, and that the government has just started development of the support system for them and it has still limited capacity for support. However, as to be discussed later, the target SMEs should not be limited to those with less than 10 employees, considering that SMEs are an important part of industrial structure.

In this context, the following focuses on the layer of enterprises with less than 70 employees, in 7.1.1 (it may be extended to those of less than 100 employees for the convenience of statistical definition). Therefore, some of the recommended SME promotion policies and measures might be handled by government agencies or institutions other than those currently in charge. Nevertheless, these are the SME promotion policies and measures in this country.

Most of the SMEs in Oman had operated their businesses in the same areas or level of industries as that of large enterprises, so far, although their operation is smaller in scale.

However, they do not have enough access to market and technology information in comparison to large- and medium-size enterprises, so that they cannot refocus on the niche market and thus strive to compete with imported mass production products.

In the future, the promotion of SME should target the areas where SMEs can play their specific part, maximizing the advantages of small scale operations.

(1) Promotion of SMEs conducive for diversification and deepening of industrial development

1) Promotion of SMEs to form support industries

SMEs can characteristically respond effectively to the needs for flexible production or customized production. Promoting SMEs by focusing on such ability is considered to be effective in industrial development by fostering support industries that form a weak part of the country's industrial structure.

As already explained in 6.1 "Provisional Discussion on the Priority and Prospective Areas of Industrial Development in Oman,, the industrial structure of Oman shows limited linkage among the industrial subsectors, and the manufacturing processes mostly start from imported

semi-manufactured products instead of raw materials, except for the Mega Projects in the areas of petrochemical production and basic metal production, which have been developed in recent years.

Therefore, they are heavily dependent on import and services from abroad, not only in introducing new facilities and equipment, but also in procuring most of their raw materials, and in maintaining the facilities and equipment. That has resulted in the high-cost nature of industrial operations in this country.

If there are enterprises which can fill in the gaps of these industrial areas, industry as a whole will be more competitive compared to the current level.

2) SME promotion for the benefit of supporting research and development

On the other hand, since the global scale of operation is hard to attain by enterprises in Oman due to the limited size of local markets, manufacturers have made efforts to keep their competitiveness with quality products and services, to introduce new technologies, and to target niche markets, rather than seek economies of scale. In order to maintain such competitiveness, the continuous efforts at research and development are essential. Research and development, however, is too costly for the individual enterprises operating as scales such as common in Oman.

In the case of industrialized countries, SMEs have played an important role in the R&D activities of industries, by contracting with large companies for a part of trial production for product development. It will be the existence of enterprises covering diverse areas of industries that reduces the burden of costs of the individual enterprises for R&D and activates their R&D activities. Promotion of SMEs is conducive for creating and nurturing SMEs, which will play diverse roles in the industries.

3) SME promotion as the means to diversify tourism

For tourism, development of large resort areas and hotels plays a decisive role in significantly increasing the tourist population. On the other hand, SMEs help the tourism industry to gain competitiveness by providing additional value to visitors in a variety of ways, such as:

- Souvenir shops and local restaurants to provide special products and services
- Tour organizers who find, develop and market tourist attractions

Also, resort facilities and hotels provide a variety of business opportunities for SMEs, including food and beverage supply, amenity products, and entertainment and other services.

4) SME promotion in relation to the ICT industry

The ICT industry is a spawning ground for small businesses, such as computer programming service and creation of computer graphics software such as animations. Also, there are plenty of business opportunities in terms of subcontracting from large corporations.

(2) SME promotion as a measure to nurture industrialist entrepreneurs

So far, most Omani entrepreneurs tend to be involved in industries as investors, and not as industrialists. As a result, they have started new businesses without relationship with the enterprises they have been involved.

Even enterprises which are operated within a certain investment group have been operated without any linkages with the other enterprises under the group. Nurturing of industrialist entrepreneurs, who can identify the needs of new businesses based on their operations, is essential, considering that the SMEs are expected to play an active role in creating new businesses based on the needs and seeds identified through their operation, which leads to diversification and deepening of industries.

There are essentially two approaches to achieve the goal. The first is to invigorate existing businesses by introducing knowledge-based management techniques to SMEs in the manufacturing and service industries. This would aim to help them to obtain sustainable competitiveness and make a forward step toward becoming export-oriented companies.

The second approach is to guide young entrepreneurs and aspiring mid-career workers (middle managers, engineers, etc.) to start new businesses and seek employment in startups according to a new direction of industrial development.

The Techno-Mine Project under the PEIE is one of the activities planned to encourage business startups. This project is targeting ICT related and innovative businesses. However, there will be many other areas of businesses which need support for start-up. Particularly important for support are those businesses which the entrepreneurs intend to start on the basis of needs arising from their current businesses. Such support will definitely encourage the culture of industrialist entrepreneurs.

(3) SME promotion for creation of job opportunities for Omani people

It is a well-known fact that the job creation capacity of SMEs is high, while the unit costs for the job creation by SMEs per job is low, compared to that of large enterprises.

However, most SMEs in Oman take advantage of the availability of skilled workers from foreign countries and opt for labor-intensive management. Yet, they do not contribute much to job creation for the Omani people.

At the same time, there is a relatively high rate of closings among SMEs. As a result, many of them try to ensure flexibility in headcount adjustment by hiring as many foreign workers as possible.

To encourage job creation for Omani people, SMEs are expected to offer unskilled job opportunities, while establishing a working environment favorable to unskilled workers. This entails the shifting to the more automated capital-intensive operation, i.e., mechanization to reduce the need for manual skills of foreign workers. (Note that it is imperative to train local workers to obtain skills required on a mechanized shop floor.)

(4) Support for development and deployment of new business models in small-scale commerce and service sectors

Thousands of small enterprises have been involved in the services related to the daily lives of the citizens, such as beauty parlors, tailors, laundry shops, grocery shops, and food shops.

Many small enterprises are also found in the areas of transportation and construction. They are active particularly in the community-based services.

These services, indispensable in community life, are mostly provided or operated by foreign workers, again failing to create jobs for Oman people.

At the same time, these service are closely related to the daily lives of citizens in terms of convenience, safety and health. Therefore, they need to be supported by the Government by setting the minimum requirement of the services, so that people can make use of the services with a sense of security.

To encourage participation by local people, without compromising security and other requirements, introduce new business models, which may be introduced. such as the introduction of a franchise system for service operation. This could promote modernization and reduce dependence on specific skills, thereby to facilitate operation by local workforce. It will be useful for job creation in rural areas.

In this conjunction, care should be taken to encourage spontaneous growth of community-based businesses by supporting the modernization process (especially, the improvement of the working environment led by mechanization), rather than imposing or reinforcing regulations such as restrictions on employment of foreign workers.

7.3 Proposals and Recommendations on SME Promotion Policies, Programs and Systems

In the case of SME promotion in Oman, it is necessary to consider the specific feature of SME management observed in Oman, which are described in the following, in developing the support policy and measures for SMEs. Further, the policy and measures should be established with due consideration of the support needs of SMEs, which may vary depending on the stage of SME from startup to operation, while defining the policy targets and the policy objectives.

- 1) In the case of Oman, even the SME hires a manager who has knowledge and experience of the industry, and therefore, the needs for support in the field of technology and management is minimal. Rather, the technical and managerial support of the government should be focused mainly on small scale individual entrepreneurs for their business startup and operation.
- 2) However, the SME's capability to access to the information on markets and technologies are rather limited, and the government support in this field is vital importance.
- 3) Generally, SMEs in Oman can get loans for operation from the banks. In addition, local investors are available including those of other GCC countries.
- 4) However, for the small and micro scale entrepreneurs and enterprises, most of them are expatriates, they have difficulty in providing guarantee or collateral at the request of the bank, and loan access is very hard for them, as conceivable from the rushed application for the soft loan programs by the government for SMEs, and other loan programs specific to SMEs provided by other SME agencies.
- 5) Business startups and job creation have shown significant progress in Oman, but the startups of businesses by Omani entrepreneurs and creation of job for Omani workers are still to progress.

7.3.1 Policies, Programs and Systems for Promotion of Small and Medium-sized Enterprises

This section presents proposals and recommendations relating to promotion policies, programs, and systems targeting medium-sized enterprises with 10-100 employees (For the smaller enterprises having 10 or less employees, see 7.3.2.).

The internal management organization of these companies are generally weak, and have difficulty to access important information on the latest market and technology. They follow a management style adopted by large enterprises, but on a smaller scale. They make mass market products, rather than niche products where they can show strength, and consequently face intensifying competition with imports.

Note that, companies ranging between 10-20 employees include those having the managerial characteristic of the smaller enterprises, as described in 7.3.2, while one may find the companies of the similar characteristics discussing here for those between 100-120 employees.

While the total number of SMEs is estimated at around 112,800 (Table 7.1-2), around 1,100 enterprises employ 20-99 persons (based on known data). In addition, there are 61,500 enterprises whose workforce is unknown and they are thought to include medium-sized enterprises. Of 1,100 enterprises, 201 are classified as the manufacturing sector, whereas employment data are not known for other 9,600 enterprises. On the other hand, the MOCI's statistics estimate that there are 244 companies in the manufacturing sector.

In connection with the general direction of SME promotion discussed in 7.2.2, key points in promotional efforts targeting the medium-sized enterprises are summarized as follows.

- 1) Promotion of industrial diversification
- 2) Encouragement of deployment to areas that require reinforcement in the context of the industrial structure, such as the formation of supporting industries and the development of downstream industries
- 3) Refocusing on improvement of competitiveness (as the current size of operation and management style will make competition with imported products more and more difficult)
- 4) Improvement of the working environment to create employment opportunities for Oman people (many of the medium-sized enterprises cannot retain local people for a long time due to the poor working environment, so that SME promotion does not necessarily lead to job creation)

To accomplish these policy goals, the following three programs are proposed.

| Program | Policy objective | | | |
|---|---|---|--|--|
| | Promotion of industrial diversification | Encouragement of deployment to areas to be reinforced | Refocusing on improvement of competitiveness | Improvement of the working environment |
| (1) Business matching program for promotion of industrial diversification | ✓ | ✓ | | |
| (2) Preferential treatment of SME products in government procurement and public works | ✓ | ✓ | ✓ | |
| (3) SME factory modernization support program | | | ✓ | ✓ |

7.3.1.1 Business matching program for promotion of industrial diversification

(1) Objective and outline

To promote diversification of industries and deployment into areas to be reinforced in relation to industrial development, the program will build a set of databases that can be shared and used by government and technical support organizations engaged in SME support as well as potential entrepreneurs who intend to start up their own business.

In particular, the following will be constructed to provide information useful for business matching and other purposes.

- Origin Oman database
- Buyer/supplier database
- Theme-focused database

Note that these databases will be linked to other programs, such as 6.2.3 “Promotion of Investment and Business Startup in Heavy and Chemical Industries.”

(2) Project description

1) Origin Oman database

To list Origin Oman registered products as an instrument to promote use of local resources and investment in new business opportunities.

2) Buyer/supplier database

To collect information on buyers and suppliers for the purpose of increasing business opportunities.

3) Theme-focused database

To collect and compile information relating to a specific theme, such as industrial areas to be reinforced. For instance, a database on food-related packaging materials can be used for not only procurement purposes, but also as an instrument to search for market opportunities for new materials or to obtain hints on new product development.

(3) Key considerations in program implementation

1) Data management

The above three databases require proper maintenance by means of information updating.

- When users find a database that is not regularly updated, they cease to use it. Companies that provide information for a database are required to update their own information. To keep the database updated all the time, a company that fails to update its own data needs to be deleted.
- Information stored in the database is restricted to a unified format. To provide supplemental information, the database should be linked to Web sites of respective

companies.

- Compatibility and scalability of the database should be taken into consideration in order to allow for future expansion of applications.

2) Possible applications

The following applications appear to be feasible.

- Business startup
- Product development
- Rationalization of production
- Provision of information for overseas buyers
- Recruitment of subcontractors
- Upstream and downstream deployment
- Promotion of the Origin Oman campaign

3) Implementation system

This program will be led by the Industrial Bureau of the MOCI, and the management committee will be organized by representatives of related organizations, including PEIE responsible for database management (Origin Oman), OCIPED (exports and imports), and the Oman Chamber of Commerce and Industry.

7.3.1.2 Preferential treatment of SME products in government procurement and public works

(1) Objective and outline

The program is designed to require preferential treatment of products and services supplied by SMEs for government procurement or public works, thereby to increase business opportunities for SME products, including opportunities for improving competitiveness.

It should be noted, however, that SMEs are often limited in ability to meet quality, price, volume and/or delivery requirements, so the program should be carefully designed to reflect the situation. Needless to say, the program should not accept inferior products.

(2) Project description

1) Preferential treatment program

Preferential treatment (e.g., 10% price preference) will be given to SMEs for procurement of the following products through bid by the government, public projects, and the large enterprises if they agree to cooperate on this point. “10% price preference” means that a contract is awarded to a SME when its bidding price is 10% or less higher than that offered by a large enterprise or an established medium-sized enterprise.

- Goods purchased by government (e.g., furniture, fixtures, and office equipment and supplies)
- Goods purchased in public works (construction materials such as tiles and blocks)
- Goods purchased for educational purpose (furniture, educational devices, toys)

2) Implementation

- The program will be implemented as part of each procurement contract.
- Prior to program implementation, preferential treatment conditions will be established and notified.
- Each organization making procurement will report the results of each procurement process to the MOCI, which will then evaluate and record them. It will then propose the program's improvement as required.

(3) Key considerations in program implementation

- SMEs that are eligible for preferential treatment should be clearly defined in advance, in terms such as the number of employees. In addition, group companies and foreign-affiliated or owned companies should be excluded. Prior registration (qualification) procedures should preferably be adopted. Finally, preferential treatment should be applied to a joint offer (consortium) of SMEs, each of which has eligibility.
- Eligible goods and services should preferably be designated in a large group or category with view to promoting expansion of product offerings by SMEs.
- The program will by no means give an absolute privilege to SMEs, regardless of their ability or efforts. In particular, technical and specific requirements inherent to a procurement contract should not take into account the SME status.

7.3.1.3 SME factory modernization program

(1) Objective and outline

This program is designed to promote modernization of production facilities and equipment of SMEs, including mechanization, in order to improve cost competitiveness and the working environment, thereby to improve productivity and stability of Omani employees. The program will be implemented in the following steps.

- Selection of factories that want to modernize their factories
- Diagnosis of selected factories
- Analysis of diagnosis results and development of improvement measures
- Design of support for improvement measures and new investment
- Follow-up activities

(2) Project description

- Selection of factories: A long list will be prepared in consideration of industry type, geographical area, degree of improvement, and budget, and it will be narrowed down to a short list by taking into account capability and intention of candidate factories. Final selection (tentatively named) will be made by the management committee.
- Factory diagnosis: To be performed by a diagnosis team.
- Examination of diagnosis results: Identification of improvement items and decision on the method for improvement⁹
- Improvement activities: Support will be provided in the following areas.
 - Advisory service
 - Engineering service
 - ODB finance
- Follow-up after improvement: Evaluation on the degree of improvement (productivity, stability of workforce, etc.) and mandatory periodical reporting

7.3.2 Recommendations on Promotion Policies, Measures and Systems for Small and Micro-Enterprises, and Business Startups

This section presents proposals relating to promotion policies, programs and system for small and micro-enterprises (10 or less employees) in the manufacturing sector. These manufacturing establishments conduct business to meet local demand. From the standpoint of overall industrial development, however, they should look for opportunities to start or expand business in the fields that are highly demanded. In this conjunction, the section makes proposals relating to promotion policies, programs and systems for entrepreneurs venturing into new business fields, from the viewpoint of promoting industrial development in priority areas.

Note that the proposals are basically targeting the manufacturing sector, but due consideration is given to the commerce and service sectors because many small enterprises and micro-enterprises are service oriented (as manufacturers of workshop type or providing related service).

Also note that some of companies with 10-30 employees have the similar managerial characteristics of the enterprises described in the above.

There are around 50,100 enterprises in this category, and most of the 61,500 companies with an unknown scale of workforce appear to be classified here. Of the total, 10,800 companies are classified as in the manufacturing sector and there are an additional 9,600 companies for which employment data are unknown. On the other hand, the MOCI statistics estimate that there are 110 manufacturing establishments with 10-19 employees and 245 with nine employees, totaling 355.

⁹ Promotion of “5S” approach will be useful in this context.

Note that the MOCI figures do not include companies with capital of R.O. 5,000 or less.

Promotion of manufacturing enterprises of this size should focus on the encouragement of new startups in priority fields for industrial development, particularly for the interest of fostering industrialist entrepreneurs., as discussed in 7.2.2.

Finally, not very many enterprises of this size are started by Omani people, probably due to the poor working environment, so that promotion of small enterprises does not lead to job creation for local people. Thus, efforts should be made to create business opportunities for Omani people, such as the upgrading of the business environment.

To accomplish these policy goals, the following three programs are proposed.

| Program | Policy objective | | |
|--|---|---|--|
| | Promotion of industrial diversification | Encouragement of deployment to areas to be reinforced | Improvement of the working environment |
| (1) Development of industrial estates for SMEs with an incubator function to support business startups and to foster industrialist entrepreneurs | ✓ | ✓ | |
| (2) Entrepreneurship education program | ✓ | | |
| (3) Startup promotion program for small-scale commerce and service operators | | | ✓ |

7.3.2.1 Development of industrial estates for SMEs with an incubator function to support business startup and to foster industrialist entrepreneurs

(1) Objective and Outline

The program aims to support small business startups by Omani entrepreneurs. At present, there is one incubator organization to support small business startup in science-related innovative fields, i.e., The Knowledge of Mine (TKM) located within the KOM. In addition, an incubator function is needed to support business startups in the prospective industrial areas for development, including the downstream sector for heavy and chemical industries, together with related supporting industries.

In the past, a large number of small investment projects have emerged in Oman but have ended up in a state of suspension or were discontinued within a short period of time. An inadequate business plan or the lack of experience seems to be a major cause.

Under the program, a small industrial estate having an incubator function will be established within industrial estates and will provide support in the business planning and preparation stages

as well as in the initial stage of business startup.

(2) Project Description

1) Eligibility

Only Omani people may operate in the SME industrial estate. They have to submit a business plan in advance for evaluation of feasibility.

2) Facilities

Two types of incubator facilities will be provided: the office type that can be used in the planning and preparation stages; and the factory type where small operations can be started.

3) Consulting function

There will be internal and external advisors. If a company asks for advice in relation to a field that is outside the specialty of the internal advisor or at a higher level of experience, the external advisor will be referred to.

In addition, mentors will be provided by companies (large enterprises, established medium-size enterprises or SMEs) to give advice as considered to meet the needs of a tenant company, which can learn from experience or a field tour on a factory under operation.

(3) Key Considerations in Program Implementation

As one condition to operate in the SME industrial estate, the tenant company is required to agree and ensure that Omani personnel be directly engaged in the company's operation and management. Each company can operate in the facility for around three years and may extend the period by another three years if certain conditions are met. On the other hand, a small factory lot can be operated continuously. Thus, space planning and layout should be carefully made to allow for possible continuation of non-factory business operation.

7.3.2.2 Entrepreneurship education program

(1) Objective and Outline

This education program is designed to encourage business startups by Omani people, while creating business opportunities for them. It needs to be held in each region and thus may be implemented more effectively in collaboration with SANAD's district office (MOHR) and vocational training centers. Possible course modules are as follows.

- Introduction: Success stories of SMEs: Half day
- Business management: Failure analysis and management fundamentals: One day
- Feasibility study: Simplified feasibility study procedures: 2-3 days

- Follow-up guidance for business startup: for those who have completed all the above courses, and are in the stage of business preparation or startup, provide follow-up guidance by the accredited consultants)

(2) Program Description

1) Location

The entrepreneurship education program will be offered in each region in order to encourage use of human and physical resources available in that particular region and to promote broad participation.

2) Period

The program period should be as short as reasonable. In particular, the introductory course should be limited to a half day. Then, longer courses should be offered according to the level of interest of participants.

3) Program management and tools

- Success stories should be presented in person to inspire the audience.
- A field trip is also a powerful tool.

7.3.2.3 Startup promotion program for small-scale commerce and service operators

(1) Objective and Outline

While businesses that meet local demand in Oman entail many opportunities including job creation, they are rarely operated by Omani people. Major reasons include the lack of knowledge and experience in business management among Omani people and a difficult operating environment facing these businesses.

The program is designed to develop a franchise business model to operate local-oriented small businesses in a more favorable environment and to encourage its dissemination among Omani people. In the process, the program aims to ensure transfer of business know-how to Omani entrepreneurs, while increasing the number of local employees.

(2) Project Description

The program will promote commercial deployment of the franchise business model for small businesses serving local demand (mainly commerce and service sectors, including convenience stores, fast food shops, bakeries, confectionaries, and automobile repair shops) and provide support for Omani entrepreneurs who start such business, including the lending of the startup capital.

At the same time, initiatives will be made to develop small businesses under the leadership of large corporations or established medium-size enterprises (which can be perceived as CSR), such as bakery or confectionary business in collaboration of a flour mill, and a small repair unit attached to a car dealership.

(3) Key Considerations in Program Implementation

These small businesses are indispensable in society and should be free from undue regulation if they are to grow and prosper. At the same time, they cannot avoid competition. In fact, competition helps them to improve quality of their products and services. Again, unjustified restriction on competition creates an adverse effect on consumers who would otherwise benefit from such community-based businesses. In this sense, excessive support for Omani business owners should be avoided, while participation of foreign inventors in the franchise business should not be restricted, unless required for regulatory purposes.

7.3.3 Intensification of Financing Program for SME

Most of SMEs have been able to access to the ordinary loans of the commercial banks in the case of Oman, while the smaller-medium enterprises¹⁰ and small/micro enterprises have difficulty in access to finance. In this context, different types of needs may be identified for intensification of financing programs for SMEs, depending on the types of SMEs, respectively. These are:

- 1) Smaller-medium enterprises, who have difficulty in providing collaterals demanded by the commercial banks, and
- 2) Small and micro enterprises, who have difficulty in preparing the viable business plan. For this type of enterprises (or business operation), provision of loan will not be effective without improvement of their business plan. Nevertheless, continued support for development of their businesses is particularly important, in view of business startups by Omani entrepreneurs.

Considering the above, following two programs are recommended as the programs to intensify the SME support in the field of financing:

7.3.3.1 Establishment of credit guarantee system for SMEs

(1) Objective and Outline

The program is designed to establish a credit guarantee scheme as one of key elements for facilitating SME finance.

¹⁰ These are the SMEs with less than 70 employees in general. However, all of them do not necessarily have difficulty in access to finance. If these enterprises are defined as those with less than 30 employees, the definition is too narrow to represent the target SMEs.

The proposed SME management skill upgrading programs (see 7.3.2) is expected to contribute to the improvement of governance and management capabilities of SMEs. Nevertheless, creation of credit guarantee scheme is indispensable, considering the vulnerability of financial base of SMEs, and the weak resilience of SMEs against business fluctuation.

(2) Program description

The program is to establish a credit guarantee system, which assumes strict appraisal of loan application, and covers selected industries.

The credit guarantee organization is assumed to be established under financial contribution by commercial banks, and the government. They will also provide working capital of the guarantee organization. Using these funds, the credit guarantee organization will guarantee repayment of loans made by the commercial banks.

In addition, a re-guarantee scheme will be established to back up the organization's guarantee service by maintaining insurance with the government to cover 70-80% of the amount to be indemnified in the case of default.

The credit guarantee system is operated in many countries. As shown in Table 7.3-1, credit guarantee systems that are currently in operation are roughly divided into two types. One is widely seen in Europe and provides partial guarantee by emphasizing credit examination and focusing on specific industries. It has a major advantage in the ease of implementation. The other is mostly seen in Asia. It has been developed by governments in the region as part of their economic and financial policies. It is characterized by 100% guarantee and covers all industry types.

From the viewpoint of SME promotion, the second type is more effective in expansion of SME loans, while the cost for credit guarantee becomes higher than the first type. Also, 100% guarantee tends to create a moral hazard.

In consideration of governance and moral standard of business operators in Oman, it is recommended to introduce the first type (partial guarantee on selected industries) under the program.

Table 7.3-1 International Comparison of Guarantee System by Country

| Country Pays | Guarantee institution | Guarantee percentage (guarantee amount to total fund amount) | guarantee fee | No. of annual guarantee | Data in year | re-guarantee system or not |
|--------------|-----------------------|--|---------------|-------------------------|--------------|----------------------------|
| Germany | KGG | 80-90% | 0.5-1.0% | 7,886 | 1994 | None |
| U.K. | DTI | 70% | 1.5% | 7,484 | 1995 | None |
| Spain | SGR, SCM | 100% | 1.0-1.4% | 9,542 | 1995 | 50% (Enterprise) |
| U.S.A. | SBA | 90% | 2.0% | 599 | 1995 | 50% (Government) |
| Indonesia | PT. Askrindo | 70% | 0.65% | 59,729 | 1996 | None |
| Malaysia | CGCMB | 70-90% | 0.5-1.0% | 14,965 | 1996 | None |
| Nepal | CGCN | 75% | 1.8-8.0% | 47,856 | 1996 | None |
| Thailand | SICGC | 80% | 2.0% | 237 | 1996 | None |
| Taiwan | SMBCGF | 100% | 0.75% | 100,952 | 1996 | None |
| S.Korea | KCGF | 100% | 1.0% | 144,274 | 1996 | None |
| Japan | CGC | 100% | 1.0% | 1,669,584 | 1999 | 70% (Government) |

Source: "Credit Supplement Systems in Asia, Europe and North America" National Federation of Credit Guarantee Corporations

7.3.3.2 Government soft loan for small enterprises with conditions of in-advance and continuous guidance on their management

(1) Objective and outline

ODB provides soft loan to small and individual entrepreneurs for business startups. However, the non-repayment rate under this program has been as high as 18.5%. The high non-repayment rate is attributable mainly to limited business experience of the entrepreneurs, and insufficient market information, resulting in fail of business in a short period after startups.

This program is to prevent the early operation stage of small enterprises from the management fail, providing them with the government soft loan and management guidance as a package.

(2) Contents

As seen also in the case of business guidance program of Intilaaqah, for young entrepreneurs, there are many cases of management failure with fundamental missteps, which include failure to collect sale proceeds from the relatives of the owners, and misunderstanding of revenue and profit, etc.

In order to avoid such problems of fundamental nature, this program is to provide government soft loan without collateral, but only to the small enterprises who are the participants to the separate management guidance program for small enterprises. Namely, under this program, only the entrepreneurs who meet the following conditions, will be eligible to the government soft

loan for business startup.

- 1) Tenant small enterprises of the industrial estates, which have the function as an business incubator (see 7.3.2.1), who passed the evaluation of their business plan at the time of application to the industrial estates
- 2) The entrepreneurs who completed the entrepreneurship education program (see 7.3.2.2), and have received the follow-up guidance for more than 3 months
- 3) The participants to the startup promotion program for small-scale commerce and service operators (see 7.3.2.3)

7.3.4 Other Recommendations Related to Development of Small Enterprises

7.3.4.1 Prospective industrial areas for small enterprises

Small enterprises have high potential of starting up businesses regardless of the industrial fields. Nevertheless, they are most likely to start the businesses in the following two categories of the industrial fields, namely;

1. New business areas which are related to business seeds identified by the entrepreneur based on his/her knowledge and expertise
2. Business areas which are based on the existing (or expected) demand in the markets

The latter case will be more common compared with the former case, for the start up of small enterprises in general. In the case of Oman, following will be the possible opportunities of demand for small business start-ups observed for the latter case:

- 1) Community based demand
- 2) Demand to be expected from tourists
- 3) Demand for computer software development for the local companies to use IT for their business management

Table 7.3-2 shows the prospective industrial areas for small enterprise promotion, among the prospective industrial areas for development (for detail, see 6.2), while suggesting the possible approach of intervention to support the development.

It is noteworthy fact that, all the possible/effective promotional intervention are related to that for startup of the businesses, and not the support for operation of the existing enterprises.

Table 7.3-2 Prospective Industrial Areas to Promote Small Enterprises

| Prospective industrial areas particularly for small enterprises: Prospective areas for industrial development | Manufacturing industries which base on community-based demand | Manufacturing industries which base on tourism related demand | Software development for local enterprises for use of IT | Commerce and service industries which base on community-based demand |
|--|--|---|--|---|
| (1) Manufacturing industries to meet the increasing demand in Oman and neighboring countries | | | | |
| 1) Construction related | ✓ (*1) | | | |
| 2) Processed food | ✓ (*2) | ✓ (*4) | | ✓ (*2) |
| 3) Goods of daily necessity character | | ✓ (*4) | | ✓ (*3) |
| 4) Tourism related | | ✓ (*4) | | |
| (2) Manufacturing industries leveraging an existing industrial base, or prospective resources | | | | |
| 1) Downstream areas for existing and planned heavy and chemical industries | | | | |
| 2) Areas using non-metal mineral resources | ✓ (*1) | | | |
| (3) New strategic development areas | | | | |
| 1) ICT related industries | | | ✓ (*5) | |
| 2) Energy alternatives to oil and natural gas | | | | |
| 3) Areas leveraging advantageous location of Oman | | | | |
| (4) Supporting sustainable industrial development | | | | |
| 1) Metalworking and machining work | | | | |
| 2) Plant engineering | | | | |
| 3) Packaging materials | | | | |
| Proposed intervention by the government for support of the small enterprises | 1) Business incubators with managerial and technical support system (see 7.3.2.1) 2) Entrepreneurship education program (see 7.3.2.3) | 1) Development of gate way / visitor center facilities to attract the tourists 2) Business incubators with managerial and technical support system (see 7.3.2.1) | 1) System to support customer development and business matching (see 7.3.1.1) 2) Promotion of IT use for SMEs (see 6.3.5) | 1) Startup promotion program for small-scale commerce and service operators (see 7.3.2.3) |

(Notes)

(*1) Particularly those serving individuals to build their houses

(*2) Bakeries, confectionary factories, fast foods shop, etc.

(*3) Convenience stores, specialty stores, etc.

(*4) Product development targeting tourists.

(*5) For local enterprises.

7.3.4.2 Recommendation on support system for small businesses

Considering the support for small enterprises in the various fields, the following support system is proposed:

| Area of support | Support program / system | Person / staff to be contacted directly by small enterprises | Source of resource persons | Supervising agency / institution |
|-----------------|---|--|--|----------------------------------|
| Managerial | Business incubator (see 7.3.2.1) | Counselor | Consulting Firms | PEIE |
| | | Advisor (*2) | Private companies | |
| Technical | Test, analysis, and consultancy service | Research / consulting staff of Industrial Technology Center | Industrial Technology Center | Industrial Technology Center |
| | Technical mentor program | Researcher of universities | University network | |
| Financial | Government soft loan program with managerial advisory service (see 7.3.3.2) | Counselor, or Business Advisor | Consulting Firms and Private companies | ODB |

Notes:

(*1) Consultants who have sufficient knowledge on the existing SME support programs which are provided by the government agencies and other organizations.

(*2) Professionals / experts in a specific fields of management with business experiences

Here, the following new institutions are proposed to enhance the support capacity of the Government for the small enterprises and potential entrepreneurs. These are:

1) Incubator

(for detail, see 7.3.2.1)

2) Industrial Technology Center:

The expected main function of this Center is to give technical advice to the client enterprises, based on the tests and analysis of the materials/products upon their request. In addition to this function, important is the function to organize a technical support network, involving research institutes, universities, Research Council, and laboratories or R&D departments of private sector, including those abroad. The Center is also expected to organize a forum among the private sector and research sector for exchange of technical information particularly among those in the different industrial fields.

7.3.4.3 Registration of small businesses

Currently there is no registration system SMEs. Is a new registration system necessary ? This is the topics to be discussed in the following.

Currently, there is no data which exactly shows the number of small enterprises and their managerial situation. However, it does not necessarily mean new registration system of small enterprises is necessary.

There are three major reasons for SMEs to be registered.

1) To figure out the number of small enterprises to plan the effective policy for the SMEs

This can be done without creating a new system for registration, with the method of Ministry of National Economy is currently doing. Namely, based on the national census of establishment, which is carried out every 5 years, number of new establishments is added based on the business registration to the Municipality.

2) To see the picture of management condition of small businesses

To monitor the management conditions of SMEs periodically is very important for promote/support SMEs. However, the registration system itself will not be useful for this purpose. Rather, a sampling survey on SMEs should be conducted periodically, using the database of SMEs which are prepared in the above survey.

3) To disseminate the information specific to small enterprises using the registration system

This type of information will not be necessary to be disseminated to all the small enterprises. Rather, it will be more than enough if the information is disseminated to the motivated small enterprises. In this context, organization of the motivated SMEs is more recommendable than preparing the list of all the SMEs. For this objective, it is recommended to organize SMEs as one of the internal group organizations of the Chamber of Commerce and Industries. This can be the alternative of small business registration. Participation of SMEs to such organization will benefit the participated SMEs, being

offered the opportunity of information exchange among the member enterprises, trainings, as well as increase in credit worthiness.

In conclusion, creation of a new registration system specific for small enterprises is not recommendable. Nevertheless, following are recommended in the context of the above:

- 1) Implementation of periodical sampling surveys of small enterprises to study the business conditions of the small enterprises
- 2) Creation of an internal group-organization of small enterprises within OCCI

7.3.4.4 Promotion of small enterprises through linkages with large or medium enterprises

There are many cases particularly in the developing countries for large enterprises provide support for small enterprises as one of their corporate social responsibility (CSR). However, it is not applicable to small enterprises in Oman, due to the fact that there is no small enterprises operating on a survival basis.

Small businesses in Oman is operated as one of the small scale ordinary businesses to seek for the profit. In other words, the relationship between large enterprises and small enterprise should be equal partnership in general. The linkage to be established should be the one which is profitable also large enterprises.

Small enterprises, particularly those which are at the start of their businesses, need support from outside, due to insufficient experiences on business. Some of the programs to promote support for small enterprises by large enterprises are as follows:

- 1) Sub-contract promotion program
- 2) Procurement of products or services of small enterprises under CSR, or big brother-small brother relationship
- 3) Mentor program

Again, this type of program is not necessarily applicable to the small enterprises in Oman, because of the fact that such linkage development is mostly promoted with a large enterprises through subcontracting or outsourcing of a part of their processes or parts, but most of the large enterprises in Oman do not do such practices.

Thus, the business opportunities, which the large enterprises may provide to small enterprises, will be those of supplementary nature, such as cleaning of workshops, and catering services, etc. However, considering the fact that the basic objective of promotion of small enterprises is development of businesses, which the large enterprises will have difficulty to undertake by

themselves, expecting diversification and deepening of the industries, the support by the large enterprises should be expected in other ways.

Namely, also considering the fact that focus of small enterprise promotion in Oman should be placed mainly on startup of businesses by the Omani entrepreneurs, instead of providing technical or marketing services to the existing SMEs, the support by the large enterprises should be expected for the following:

- 1) Encouraging registration of their staff, who have business experiences in a specific management or technical field, to the Business Advisor registration system
- 2) Provision of test and analysis service to small enterprises, using their testing facilities
- 3) Participation to business forum among those from the different industrial areas, for exchange of business and technical information with small enterprises

