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## **Panel V: Global Petrochemical Trends**

*Role of Primary Industrial Projects*

*In the National Economy*

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**Mr. Mohammed H. Al-Mady**

Vice Chairman and Managing Director

Saudi Basic Industries Corporation (SABIC)

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**SAUDI ARABIA**

**Major Investment Opportunities for the 21<sup>st</sup> Century**

**Jubail Industrial City – November 14, 2000**

Good morning. I am glad to be here at the invitation of the Royal Commission for Jubail & Yanbu to discuss the role of primary industrial projects in the national economy.

This is a topic that greatly interests us since SABIC is a result of one of the Kingdom's largest industrial development efforts. Twenty years ago, SABIC did not exist in its current form. Today, SABIC is a diversified Saudi Arabian petrochemical company with annual sales of US\$6 billion, producing 25 million tons/year of petrochemical and metal products. SABIC has 16,000 employees worldwide; most are employed within the Kingdom of Saudi Arabia, and about 73% are Saudi national citizens. SABIC is currently the largest petrochemical company located in the Mid-East and Africa region.

This morning we will review how primary industrial projects have affected the national economy in light of SABIC's experience in its first 20 years. We will look at how long-term petrochemical industry trends influenced SABIC's development, how SABIC's development has influenced Saudi Arabia's national economy, and some important implications of this for future investment opportunities in Saudi Arabia.

## **GLOBAL PETROCHEMICAL TRENDS**

Looking back, we see SABIC's successful development as a new primary industrial development project benefited from a number of special factors and comparative advantages.

Five special Saudi Arabian advantages were:

1. a large gas resource which is rich in ethane;
1. a rapidly growing, educated workforce eager to upgrade its skills;
1. a financing capability reflecting the Kingdom's ownership of around 25% of world oil reserves, and a cooperative, pro-business attitude throughout all levels of Government;
1. a geographic location about mid-way between large upstream and downstream chemical customer markets in Europe and Asia; and
1. close, mutually beneficial relations with several large companies which had technology and experience in petrochemical manufacturing and marketing operations – and who were willing to take a chance on what seemed to be attractive investment opportunity in Saudi Arabia.

In addition to Saudi Arabia's special comparative advantages, SABIC was also able to benefit from two long-term global trends for the petrochemical industry and world manufacturing in general.

1. Migration of global manufacturing facilities to 'best cost' sites located wherever they may be in the world;
1. Evolution of primary manufacturing activities towards more complex, value-added 'downstream' products and services.

### **Migration to 'Best Cost' Locations**

First, studies by Michael Porter of Harvard Business School and others show many of the world's more successful manufacturing firms have been shifting manufacturing facilities to 'best cost' locations in the more rapidly growing and lower cost developing regions. The pace of this migration seems to have accelerated in recent years due to:

1. improved global information and communication systems;
1. improved global logistics and distribution capabilities;
1. greater standardization of global customer requirements -- and of global production methods and capabilities; and
1. unforgiving economic realities of today's "leaner and meaner" global competitive environment.

The petrochemical industry provides clear examples of this migration.

**Chart 1** shows where 70-80% of the world's total ethylene and methanol capacity was located in traditional large market regions of North America, Europe and Japan in 1984 -- with less than 10% located in 'distant-from-large-market' developing regions such as Saudi Arabia. Only few 'distant-from-market', export-oriented petrochemical plants existed anywhere in the world 15 years ago.

Today's situation is different. Between 1984 and 1999, new plants built in developing regions added one-third of the world's new ethylene capacity, and more than 80% of all new methanol capacity. **Chart 1** also shows how SABIC and its partners have contributed to this industry migration in a major way with joint venture expansions in Saudi Arabia.

Industry consultants expect this industry migration will continue in this next decade -- and that this puts the Mid-East and Saudi Arabia in a favorable position to benefit from new petrochemical expansion projects:

1. **Chart 2** shows how recent economic projections of fast GDP growth with moderate inflation encourages future migration of manufacturing projects to the developing regions of the world. Chart 2 also shows how Saudi Arabia performed compared to industrialized regions and to other developing regions in terms of population and GDP growth and inflation -- and that Standard & Poor's DRI projects Saudi Arabia will to continue to grow more rapidly in the future.
1. **Chart 3** shows why chemical producers are especially encouraged to locate new manufacturing operations in 'resource-rich' developing regions; Chart 3 also shows how Saudi Arabia's energy resources -- seen in volume or in years of reserves -- compares favorably to most other industrialized regions and other developing regions.
1. **Chart 4** shows why, among developing regions, certain feedstock, energy resource and economic advantages favor new petrochemical investments at Mid-East and Saudi Arabian sites.

**Chart 5** uses ethylene as one example to show how developing regions are expected to expand faster than traditional large market regions.

1. Developing regions are projected to expand primary manufacturing capacity by 5-7%/year compared to 2%/year growth elsewhere;
1. Developing regions are projected to increase their consumption of downstream ethylene products by 7-9%/year, compared to 2-3%/year growth in traditional large market regions;
1. Developing regions are projected to continue to increasing exports; net exports of ethylene and derivatives from the Mid East and Africa are projected to rise another 2+ million tons/year in the next five years -- and Saudi Arabia is expected to account for a significant proportion of this increase.

The Mid-East has now replaced North America as the world's largest net exporter of ethylene and its derivatives. Asia is expected to remain a large net importer, and Europe recently became and is expected to remain a net importer of ethylene and its derivatives.

### **Evolution To Higher Value 'Downstream' Products**

A second manufacturing trend described by Professor Porter and others is the evolution from producing 'low cost' commodity products to complex 'value-added' secondary products. This is an important trend in looking at the role of primary manufacturing in Saudi Arabia's national economy.

New low cost operations usually start with a narrow line of commodity products sold on a price basis. Over time, this evolves through product development and extension to making higher value secondary products using local availability of low cost basic materials and market knowledge gained by selling the initial 'commodity-grade' products.

Classic examples of this manufacturing evolution include: Japanese toys to consumer electronics, Korean shipbuilding to general contracting, Japanese low-end copiers to sophisticated office products, Malaysian chips to computer assembly, Italian tile to ceramics, and recycled steel re-bar to 'value-added' wire and flat rolled products. At this time, Saudi Arabia is still in the early phases of evolution to more complex and sophisticated 'downstream' petrochemical products and services.

The petrochemical industry offers clear examples of this manufacturing evolution to 'downstream' secondary products.

Since ethylene and derivatives -- polyethylene, ethylene glycol, EDC/PVC, styrene and polystyrene -- form the largest sector of the petrochemical industry, we again use ethylene as a rough proxy for the industry:

Looking back at **Chart 5**, we see where the developing regions expanded capacity four times faster than traditional large market regions. Faster growth in primary production was accompanied by faster growth in the consumption of downstream products -- projected to grow 2-3 times faster in developing regions. 'Downstream' demand in some developing regions, such as parts of Asia and the Mid East, has even outpaced expansion of primary petrochemical manufacturing capacity.

Middle-East producers in general and SABIC in particular benefited from these long-term industry trends.

1. From 1984 to 1999, the Mid East+Africa region expanded ethylene production 17%/year -- compared to 12%/year for developing regions as a whole, and 4%/year for traditional large market regions of North America, Europe and Japan;
2. As SABIC's primary ethylene production rose to 3.2 million tons/year, local demand for secondary 'downstream' ethylene products grew by 13%/year, which was three times faster than traditional large market areas, and SABIC's exports of ethylene and derivatives increased to 2.6 million tons/year to meet the rising import demand in Asia, Europe and the Mid East.

During this 15-year period, Saudi Arabia accounted for about 90% of the Mid East region's total increase in net exports of ethylene and derivatives -- and SABIC now produces nearly half of all ethylene produced in the entire Mid-East/Africa region.

## **2. IMPACT ON SAUDI ARABIA'S ECONOMY**

We have looked at the impact that the development of Saudi Arabia's petrochemical manufacturing activities and infrastructure had on global petrochemical markets. This development has also had a major impact on the Saudi domestic economy in terms of its industrial diversification, employment levels, trade balances -- and profitability.

Following 1972-1974 oil price adjustments, about 85% of Saudi Arabia's economy -- measured by Gross Domestic Product -- depended on oil and oil product exports. Plans were made at that time to accomplish several national objectives through the massive effort of developing the complete infrastructure for the industrial cities of Jubail and Yanbu to provide a solid foundation for the future growth of SABIC and other industrial activities.

1. diversify (and help stabilize) future oil export revenues;
1. make full use of and add value to the Kingdom's natural resources;
1. introduce new technologies and capabilities to the workforce;
1. create the full infrastructure needed to link backwards to raw material and forward to a wide diversity of secondary industries.

**Chart 6** shows comparisons from 1974-1997 to highlight the impact these industrial development efforts had on Saudi Arabia's national economy.

Oil and related products now account for slightly less than half of GDP, as compared to 85% in 1974. Saudi Arabia's industrial development efforts allowed manufacturing to grow more than twice as fast as other sectors of the Saudi economy, and led manufacturing to expand from 1% of GDP in 1974 to more than 7% in 1997 -- and to nearly 10% by the end of 1998.

Manufacturing typically accounts for 20-25% of GDP in the large industrial economies of North America, Europe and Japan. Saudi Arabia rose from around 1% to about half this level in 15 years, and the groundwork is now in place to permit future progress from 10% to 20% to

develop faster than the difficult initial jump from 1% to 10%. With this basic infrastructure now in place, the Saudi manufacturing sector might reasonably strive to double its contribution to the national economy within the foreseeable future.

**Chart 7** shows growth in manufacturing led to 9-10%/year increase in the number of factories and direct employment -- with a 10-fold increase in the number of jobs in the manufacturing sector. From Saudi Arabia's national economic perspective, both the quality and number of new manufacturing jobs are important.

In most countries, chemical industry wages are typically 2-3 times higher and far more stable than wages in many retailing or consumer service sectors. Typical indirect job multipliers associated with manufacturing jobs suggest that the quarter of a million direct employees now employed in Saudi manufacturing sector may indirectly create as many as a million or more other jobs in the Saudi economy as a whole. Virtually none of these manufacturing jobs existed in Saudi Arabia 25 years ago.

SABIC's own employment grew from 790 in 1980 to more than 16,000 last year. Even with this rapid growth, the company's sales-per-employee and assets-per-employee productivity ratios now rank SABIC among the top 20 major international petrochemical companies.

**Chart 7** also shows how Saudi Arabia and SABIC are making use of what had previously been unused gas resources. Saudi Arabia is now utilizing virtually 100% of previously unused associated gas, compared to less than 15% utilization in 1974. Wasteful gas flaring has been virtually eliminated, and SABIC is now expanding its 'value-added' domestic use of Saudi Arabia's 'non-associated' gas and LPG.

Opportunities for future growth reflect the fact Aramco is one of the world's largest exporters of 'crude' LPG. The pace of future growth will reflect the economics of making more use of Saudi Arabia's gas resources within the Saudi domestic economy as compared to competing economics available in other developing regions -- and compared to the prices that might be obtained by exporting Saudi Arabia's energy raw materials elsewhere.

Finally, **Chart 8** shows how the chemical, plastics and metals sector has affected Saudi Arabia's external trade balance.

Primary and secondary manufactured products still represent only 10% of Saudi Arabia's total exports. However, 10% is an improvement from

less than 1% at the time SABIC began expanding in the mid-1980's. Since then, the Kingdom's trade balance for the chemical, plastics and metals sector improved from a 24 billion riyal deficit to less than a 5 billion riyal deficit. Within the chemicals sector by itself, Saudi Arabia had achieved a trade surplus of more than one billion riyals by 1997.

Relative to oil and oil products, Saudi Arabia's petrochemical exports are still relatively small. It will take time for SABIC and other manufacturing activities to better diversify the Kingdom's oil export levels associated with Saudi Arabia's ownership of 25% of the world's oil reserves.

Overall, SABIC and other industrial development efforts in Saudi Arabia were able to contribute significantly to stability and growth of the national economy. Of prime interest here today, the prospects for future growth in the manufacturing sector are encouraging. SABIC recognizes the global petrochemical industry is becoming more competitive with much greater future competition from other developing regions. Even so, by using the established infrastructure in Saudi Arabia as a growth platform, and by pushing even harder on future cost efficiencies, SABIC believes Saudi Arabia's future manufacturing investment prospects remain bright.

### **3. SAUDI ARABIA'S INVESTMENT PROSPECTS**

SABIC's involvement in industrial development is mainly centered on the petrochemical industry. The investment outlook within the petrochemical industry continues to look attractive for producers in developing regions such as the Mid East and Saudi Arabia. This reflects three factors:

1. Rapid growth in local and regional demand -- Saudi Arabia's local demand for ethylene products is projected to grow by 7-10%/year for the next decade, and this growth may be matched by other smaller markets in the Mid-East/Africa region;
2. Ability to export competitively-priced products -- Mid East and African producers are expected to substantially expand production and net exports of petrochemical products to meet rising import demands in Asia and Europe.
3. Opportunity to build on strength -- Future expansion in Saudi Arabia can benefit from its established infrastructure and manufacturing base by increasing primary production and adding secondary processing to manufacture more complex, higher valued product lines.

#### **Saudi Arabia's Current Situation**

Within the Mid East region, Saudi Arabia and SABIC were particularly active in developing chemical infrastructure in the past 15 years. As seen in **Chart 4**, Saudi Arabia's combination of a strong primary manufacturing position, abundant energy resources, and rapid economic growth -- with a 30-year record of stable exchange rates and low inflation -- allows the Kingdom and SABIC to provide a number of comparative advantages:

1. A large, well-established chemical industry infrastructure -- and the presence of numerous specialized industry vendors and contractors;
2. Modern marine logistics and storage capabilities -- with an already existing large volume of chemical shipping traffic;
3. A ready source of cost competitive feedstocks, basic chemicals and intermediate chemical products;
4. A small but rapidly growing regional market for future 'downstream' petrochemical products -- and a rapidly growing workforce which is already familiar with the industry;
5. An established worldwide market reputation for reliability, quality and service in the chemical industry;
6. A history of 'pro-business' Government attitudes and local community support for expanding petrochemical operations;
7. A proven financial track record with industry partners and investors.

All these factors encourage petrochemical development -- and consultants project that Saudi Arabia's share of total Mid-East/Africa region ethylene capacity may increase from about 46% in 1999 to more than 54% by 2009.

### **Saudi Arabia's Development Prospects**

SABIC believes Saudi Arabia is still in the early phases of extending and diversifying its petrochemical manufacturing activities.

We see future growth supported by rising local and regional demand -- and by a location and potential cost position that should allow exports of primary and secondary processed chemical products to Asia, Europe and elsewhere in the Mid East to remain a major growth engine.

We expect the next 'wave' of petrochemical investments will bring more advanced skills and technology to the existing primary industrial base. In the past, many of Saudi Arabia's large, capital-intense petrochemical projects were of particular interest to very large oil or chemical company

partners. As future development moves to more advanced, skill-intensive activities, we expect more medium-sized companies and partners will be in a better position to take advantage of Saudi Arabia's prospects.

1. Future investment opportunities range from large-scale, integrated plants to specialized 'downstream' value-added facilities, supported by assured basic and intermediate feedstocks at competitive prices;
2. Future market opportunities include a small but rapidly growing local and regional demand, and a favorable location from which to export to both Europe and Asia.

This range of options permits future investors -- large and small -- to focus their effort and capital on select product and market segments where they will have the greatest competitive advantages and where they can be most comfortable with the level of capital risk involved.

### **Partnership Financial Track Record**

SABIC partners who were 'early movers' in the first 'wave' of petrochemical manufacturing projects in the mid-1980's have had generally satisfactory financial returns on their efforts and risks over the past 13 years.

**Chart 9** summarizes the cumulative financial results for all eight major joint ventures affiliated with SABIC during the past 13 years. SABIC's partners in these eight ventures include large oil companies, such as Exxon/Mobil and Shell, chemical companies, such as Celanese, Ecofuel, Mitsubishi and Neste, and a number of local and international investors.

- Cash dividends paid out to partners has averaged a rate of return of about 25%/year on initial partner equity investment;
- Book value of our partner's share of equity in the eight ventures (after payment of cash dividends) has increased at a compound growth rate of approximately 11%/year;
- Cash dividends paid (25%/year) plus equity appreciation (11%/year) provided a total return to investors of about 36%/year;
- None of the joint ventures had negative results -- and all eight of these large, capital intense, development projects paid cash dividends to partners that exceeded the initial equity invested within 5-7 years after operations began.

- All eight joint ventures have elected to at least double -- and in some cases, quadruple -- the capacity of the original facilities.

It should be noted that 1987-1999 cumulative financial results for the eight joint ventures tend to overstate 'true' return where the initial start-up of the operation occurred before 1987. Even so, this can be seen as a favorable track record for Saudi Arabia and SABIC since the period 1987-1999 was a volatile and sometimes difficult period in the industry -- and one in which many petrochemical companies experienced less satisfactory results.

Historical financial results may not, of course, be indicative of future results -- for competitive reasons already discussed -- but our historical results can be compared to past results achieved by others.

Consultants and bankers tell us that possibly half or more of all joint ventures and mergers around the world fail to meet original investor goals, and are substantially modified or dissolved within five years. None of the eight SABIC joint ventures have had that disappointing experience.

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**Chart 10** displays an excerpt from our 4<sup>th</sup> Annual Report in 1980, which lists our investment principles, objectives and ultimate aim at that time.

Our goals today are not much different. What is different is Saudi Arabia can now point to an established track record of profitable development to provide new investors a tangible basis for confidence and optimism in the future investment outlook in the Kingdom of Saudi Arabia.

We welcome prospective new investors and partners, and encourage their serious evaluation of Saudi Arabia and SABIC as potential partners for future business investment.

We appreciate this opportunity to review these important trends with you this morning -- and we welcome any questions you may have.