

Special Section 1: Potential for sustaining the manufacturing sector growth

The domestic manufacturing sector seems well poised to sustain the growth spurt in recent years. This evaluation is based on the potential and the opportunities that the domestic industry has to expand at a desirable pace. The potential, obviously, varies from industry to industry.

For instance, *rising incomes in domestic as well as in other emerging economies* promise a healthy demand for local industrial products. Petroleum refining, for instance, is one of the industries where in the medium to long term, excess demand situation appears

Table SS1.1: Projected Demand & Supply of POL in Domestic Economy

	Demand	Supply	Net Demand
2009-10	26.0	17.3	8.7
2011-12	30.9	31.3	-0.4
2014-15	31.9	31.3	0.6
2019-2020	42.3	31.3	11

Source: PARCO 3rd Pakistan Oil & Gas Conference 2007
Expansion of Refining Capacities Vs Importing Refined Products

prevailing in the economy. Though, the completion of a new refinery project is expected to double the refining capacity by end 2011, but this self-sufficiency appears short-lived and demand will again surpass supply in subsequent years (see **Table SS1.1**).

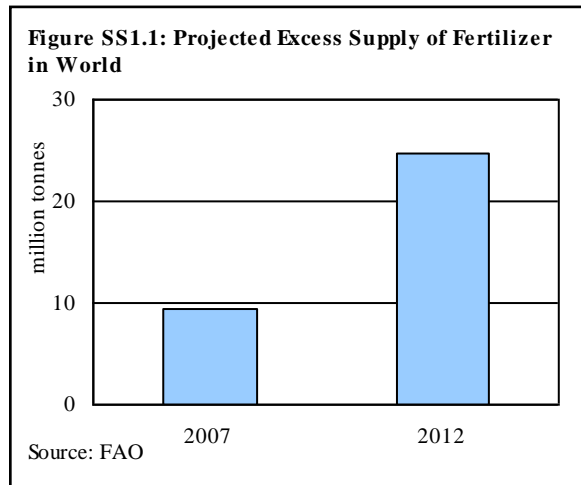
Cement is another sector where the demand is expected to remain strong. However, the envisaged market conditions in cement are different from petroleum refining in two respects: first, the demand appears strong only in the external market¹, and second, the export potential is visible in short to medium term alone. The latter follows from the capacity building measures in importing countries to achieve self-sufficiency. However, a need of building domestic infrastructure including a number of water reservoirs is likely to support domestic demand for cement.

Similarly, *promoting domestic consumption* of a few products may allow the relevant industries to expand further. Fertilizer is one such industry. Given that at present, the level of fertilizer consumption in Pakistan is one of the lowest among agrarian economies, coupled with the visible success of government efforts to encourage farmers to raise the fertilizer off-take; it will not be unrealistic to foresee an increasing demand for fertilizer going ahead.

¹ As the industry is producing more than the projected domestic consumption.

The export potential, however, in the sector remains limited despite Pakistan's competitive advantage in urea production². Specifically, the capacity expansion program in almost all the companies is expected to produce a supply glut in coming years.³ However, the prevailing excess supply in the international market may not allow domestic producers to export the surpluses.

Moreover, with almost 50 new urea fertilizer plants in the pipeline⁴, the supply-demand gap internationally is expected to widen further in next five years (see **Figure SS1.1**).



Thus, with limited export potential, the domestic demand will remain critical in shaping the fertilizer sector outlook. However, supply situation of natural gas in the country will be crucial in guiding the investment decisions in this sector.

Pharmaceutical is another sector where if appropriate measures are taken, domestic consumption can see substantial growth going forward. At present a large segment (almost 50 percent) of population in the country lacks access to medicare. If the government is able to provide even primary health care to all, the growth potential for the industry is immense.

While promoting raw material industries would suffice the cost-price related bottlenecks in industries, *promotion of complementary industries* can also serve as the deepening of certain manufacturing concerns. Most important in this regard are the footwear and automobile industries. In the former case, the absence of

² Indeed, competitive advantage is there for Pakistan to export the surpluses attributed mainly to the natural gas.

³ The ongoing capacity expansion plans will take the industry capacity to 7.5 million ton per annum by the year 2010. According to an estimate, the domestic demand for urea (which is 6.8 million ton per annum) is expected to grow at a CAGR of 5.25 percent in next five years.

⁴ While East and West Asia contribute two-third of the capacity expansion, Africa and South Asia are other main sources of the expansion (source: International Fertilizer Industry Association (IFA), Medium Term Outlook for Fertilizer Demand, Supply & Trade 2007-2011, June 2007).

international standard vendors for supplying various components is cited as one of the major bottlenecks in footwear industry. Similarly, promoting the industries capable of tooling, including the lasts, moulds, soles top of encounter materials, decorative trims, etc. may improve cost-effectiveness and turnaround time for taking product to the retail market.

With unprecedented growth in automobile sector starting FY02, a robust annual growth rate of almost 35 percent has also taken place in the vendor industries during the last five years. This robust growth was contributed both by the original equipment manufacturers (OEMs) as well as vendors who made a heavy investment of approximately US\$ 2 billion during the last three years. Despite this phenomenal growth, there is a huge scope for the industry to expand given the excess demand prevailing in domestic market and the level of

Box SS1.1: Protection to Motorcycle Vendor Industry

The component industry enjoys tariff protection under the Tariff Based System (TBS). Under the TBS, those parts which had been localized prior to 2004 carry an import duty of 50% while non localized parts carry a duty rate of 35%. As the motorcycle industry had reached substantial level of local content which in some cases was, as high as 90% with the 70CC model, the localized parts and components carry high levels of tariff protection. However this protection is not available for parts which are imported in CKD kit form. Non tariff protection is provided by the Engineering Development Board when it insists that original equipment manufacturers (OEMs) either purchase localized components from Pakistani component manufacturers or else import them directly. OEMs are not allowed to purchase from the commercial importers.

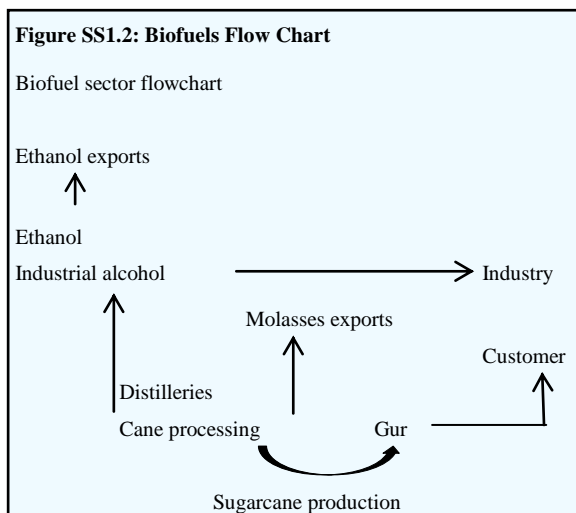
protection the industry is enjoying (see **Box SS1.1**). In specific terms, domestic production covers 78 percent of domestic demand for automotive parts while the rest is met through imports. Moreover, given the target CAGR of 20 percent in automotive industry for the next five years, the auto vendor industry's contribution to GDP is projected to increase from 2.8 percent in FY06 to 5.6 percent by FY11.⁵

The domestic industries can also benefit from *product diversification* of those products whose actual and expected demand is seen to have emerged. For instance, domestic cement industry presently offers quite a narrow range of (only four) products compared with a wide range of (almost twenty) products in demand worldwide. Specifically, 90 percent capacity of domestic cement companies can produce Portland cement alone. On the contrary, forecasts for global cement demand by 2015 suggest that the international demand for non-blended pozzolanic cements, masonry cement and blended cement are expected to record strongest gains due to their cost and environmental advantage as well as due to their

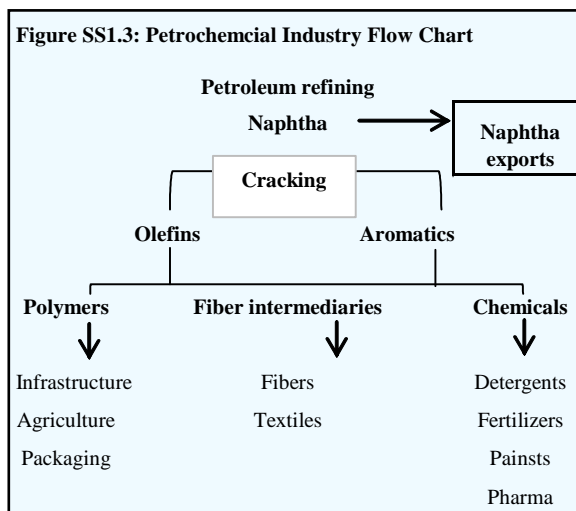
⁵ The Automotive Parts Sector in Pakistan, European Commission Trade Related Technical Assistance Programme (TRTA) for Pakistan, September 2007.

superior performance over the ordinary Portland cement in selected applications.⁶ Indeed, the widening of product range in domestic cement industry can further benefit the recent initiation of cement exports.

Vertical integration & supply chains may prove to be an attractive strategy for the industrial firms, if the benefits of low transaction costs and increased market power outweigh its costs.⁷ At present, the sector where vertical integration can deliver results appears to be the sugar industry; and the product in question is ethanol (see **Figure SS1.2**). Bio ethanol, a direct by-product of sugar production, is produced entirely from molasses.



Capitalizing on the worldwide trend of use of ethanol, domestic sugar industries have already invested in setting up distilleries for molasses-to-ethanol conversion (see **Box SS1.3**).⁸ The bulk of ethanol produced in these distilleries is being exported, mainly to Japan and EU⁹. The sugar industry, therefore, must also need to focus on backward integration whereby the



⁶ World Cement to 2010-2015, Fredonia Group, June 2006.

⁷ Vertical integration can be defined as the number of activities along the value chain that are performed within a single company. Costs of vertical integration may include managing several value chain activities within a single organization.

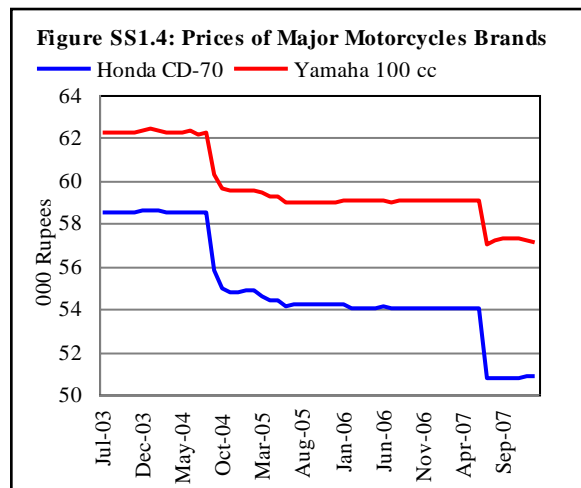
⁸ At present, almost 21 distilleries produce industrial alcohol in the country.

⁹ Within EU, Italy is the single largest recipient.

availability of sufficient raw materials can be ensured.

Chemical industries can also benefit from efficiency gains that accrue from vertical integration. Production of naphtha is a case in point. Produced in oil refineries, naphtha can be further processed to create a large number of chemicals and pharmaceuticals (see **Figure SS1.3**). To achieve this, naphtha cracking plants need to be set up in the country. Domestic production of chemicals generated from naphtha will not only help meet local needs but will be exported to a growing international market.¹⁰ Today, India is the only south Asian country to have Naphtha cracking facilities.

Likewise, there is an immense potential for expansion for the industries that have *the economies of scale* to compete globally. The motorcycle industry is one such example. In particular, with the entrance of non-Japanese OEMs in motorcycle assembling in Pakistan, the competition in the industry has increased manifold.¹¹ Due to the competitive price structure, the Japan made motorcycles



too witnessed continuous price reductions in last five years (see **Figure SS1.4**). Thus, with the economies of scale available, the motorcycle industry should also be able to export. In order to tap international market, the largest motorcycle manufacturer in the country, Atlas Honda, has already setup a new world class production facility near Lahore which can assemble a motorcycle in 35 seconds. This is regarded as one of the most modern Honda plants worldwide. According to the Competitiveness Support Fund, Pakistan should aim to export motorcycles to Bangladesh, Afghanistan, Sri Lanka, and Central Asian Republics as well as to East African countries.¹²

¹⁰ Including, ethylene, propylene, butadiene, butylenes and aromatic hydrocarbons.

¹¹ The new entrants were using critical parts and components imported from China and thus brought in a competitive price difference.

¹² Policy Analysis on the Competitive Advantage of the Motorcycle Industry in Pakistan; Problems and Prospects December 12, 2006, Competitive Support Fund.

Box SS1.2: Transforming growth spurts into sustainable growth: Industrial Perspective

Economic literature provides sufficient examples of the phenomenon that growth spurts in industrial sector are often followed by a flat growth in subsequent years. Evidence shows that this happens due to absence of: (1) expansion in financial markets resulting into financial deepening; (2) resource abundance; (3) trade expansion; and/or (4) foreign capital inflows. This is the reason why the pre-industrial revolution growth spurts in UK (18th century), Italy (15th century), China (1680-1780), Netherlands (1550-1650), Spain & Portugal (15th to 16th century), etc could not last for long and eventually followed by a long period of stagnation. The reasons often cited for this un-sustained growth are: political economy factors (wars, vested interests, etc.), the diminishing returns associated with trade and/or low level of the skill-technology. The industrial revolution is known to be the growth spurt that became permanent. This permanency was driven largely by the human capital, technology and institutional change (the triple engine of growth). Mokyr 2002 suggests that in modern economies, investments in applied technology become increasingly significant which has enhanced the role of human capital. More and more complex applied technologies are developed once a certain threshold of knowledge base is surpassed. As such, the growth spurts became permanent features of the economy.

In more practical terms, the developing economies have to accomplish following things for a sustainable industrial development:

1. Competitive economy, which includes formulating and implementing such industrial policies that provide an enabling framework so that private industrial sector can operate with full efficiency, promote innovative and appropriate technologies for commercial applications, improve management of enterprises and gain cost effective access to highly specialized economic inputs; and
2. Productive employment, which is at the core of industrial competitiveness. Policy makers must be able to identify the required technical and managerial skills to expand and offer training programs that expand the available technical, managerial and entrepreneurial skills,

References

1. Monteiro, Goncalo and Periera S. Alvaro (2006), "*From Growth Spurts to Sustained Growth: The Nature of Growth and Unified Growth Theory*", presented at Dynamics, Economic Growth, and International Trade (DEGIT XI), Jerusalem.
2. Sustainable industrial development, UNIDO position, United Nations Industrial Development Organization.
3. Mokyr, Joel (2002), *The Gifts of Athena, Historical Origins of the Knowledge Economy*, Princeton University Press, Princeton and Oxford.

Box SS1.3: Prospects for Ethanol in Domestic Sugar Industry

Ethanol can be used as an automotive fuel by itself or can be mixed with gasoline to form what has been called "gasohol" FUEL ETHANOL- the most common blends contain 10% ethanol and 85% ethanol mixed with gasoline. Over 1 billion gallons of ethanol are blended with gasoline every year in the United States alone. Because ethanol molecule contains oxygen, it allows the engine to combust the fuel more completely, resulting in fewer emissions. Since ethanol is produced from plants that harness solar power, ethanol is also considered a renewable fuel.

Over the past few years, prospects of fuel ethanol use have grown around the world. Once confined to a few countries, production and consumption of ethanol have now spread to all corners of the globe. According to our 2003 survey, around 61% of world ethanol production is being done from sugar crops, be it sugar beet, sugarcane or molasses, while the remainder is being produced from grains—basically maize and corn .

With the advent of high crude oil prices in the global market, dependence on ethanol is on the increase and major sugar producing countries like Brazil, India, China and Thailand have started fuel ethanol programs. Brazil, the pioneer in optimum utilization of substitute fuel ethanol program, uses 45% of sugar crops for sugar production and 55% for the production of ethanol directly from sugarcane juice. This gives the sugar industry in Brazil an additional flexibility to adjust its sugar production keeping in view the sugar price in the international market as nearly 40% of the sugar output is exported. Brazil is working towards producing enough ethanol to substitute 10 percent of the gasoline consumed worldwide within 18 years. That would mean increasing its current production of 17.3 billion litres a year by a factor of 12, without sacrificing forests, protected areas or food cultivation.

From sustainable development perspective, the aggressive production of bio-fuels raised serious concerns. While molasses is a direct by-product of sugarcane crushing, ethanol can also be produced from maize, corn, rice, wood pulp, etc., although the opportunity cost of producing bio-ethanol is substantially lower in case of sugarcane. Unlike other countries, therefore, the production of ethanol is not likely to bring displacement of food crops or cause deforestation. Specifically, up till now, there is a large untapped potential of converting molasses to ethanol in Pakistan. The concern would arise if ethanol production takes off on a large scale and would require higher volume of sugarcane. The sugarcane, in turn, is a water intensive crop and the yield of sugarcane in Pakistan is quite low compared with other countries. To make things worse, the area under sugarcane cultivation may not be increased as the empirical evidence shows that Pakistan must grow sugarcane only to develop self sufficiency and not for exports purpose. In this scenario, Pakistan can focus on: (1) increasing yield of sugarcane; and (2) intercropping sugar beet along with the sugarcane as sugar beet is not only a less water-intensive crop but has a higher molasses-to-ethanol conversion ratio.

References:

Viewing biofuel (ethanol) prospects in Pakistan through a sustainable development prism, SDPI Research & News Bulletin, Vol. 14, No. 3, Jul-Sep 2007.

The above analysis suggests that after a strong CAGR of 8.3 percent in industrial production and 12.1 percent in LSM in last five years, the sector has immense potential for further expansion. However, factors like deteriorating competitiveness amid liberal trade regime may set obstacles in achieving desirable rate of industrial expansion.

Recent global financial crisis, especially in the US, also does not bode well for the export demand of various domestic products. Moreover, the impact of corporate margins and cash flows on the performance of manufacturing firms will be another variable to be viewed carefully. This is because unlike the recent past,

flow of credit from banking sector will neither be smooth nor cheap due to the rising interest rates and growing number of non-performing loans.

Thus, improving competitiveness of domestic products will although remain a key in determining the industrial expansion going forward, the direction of monetary policy and global economic outlook will also significantly influence the sector's performance. What the sector requires is better infrastructure, improved corporate governance, regulatory structure, removing structural bottlenecks, reduction in cost of doing business, availability of infrastructure including credible energy supply at reasonable prices etc., key to promote investments in the country.