

Chapter 24

MANUFACTURING AND MINERAL SECTORS

The industrial sector is a major driver for economic growth since it generates higher income, enhances better-paid employment opportunities, absorbs modern technologies and creates a base for diversified and value-added exports. Due to divergent reasons, the global demand for our industrial products is unstable, and resultantly, we are losing our share in the international market. The policies, creating a rent-based inefficient industrial structure, need to be reviewed for improving productivity and competitiveness.

Manufacturing sector

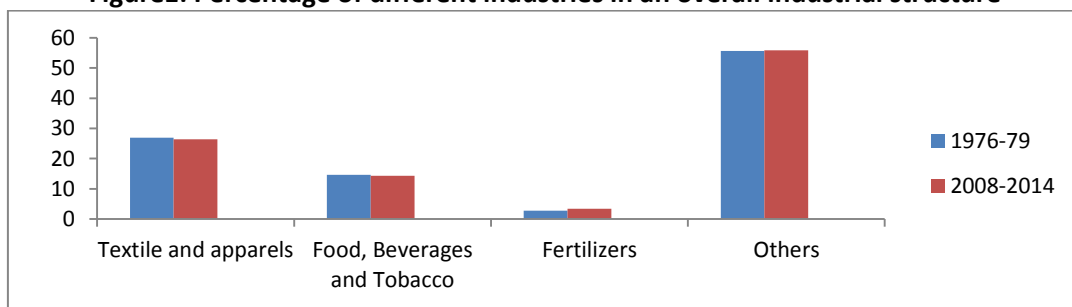
This sector accounts for 13.5 per cent of the GDP and 13.8 per cent of the total employed labour force. The Large Scale Manufacturing (LSM) – at 10.6 per cent of the GDP – dominates the sector since it accounts for 81 per cent of the sectoral share, while the Small Scale Manufacturing (SSM) – at 1.6 per cent of the GDP – has 11.8 per cent share.

Situational analysis

After a brisk start in the 1960s, performance of the manufacturing sector has been disappointing in the later decades. In the 1970s, contribution of this sector to the GDP hovered around 16 percent, and presently, it is around 14 percent.¹

Also, the structure of this sector did not opt for more dynamic elements since the industrial structure of Pakistan is generally similar to that of the developing countries in their novice stages of the industrialisation – it is dominated by industries producing textiles, beverages, food, and a few types of construction material. Unfortunately, this has not changed substantially over the last two decades. The following figure shows share of top three manufacturing industries remained almost the same over the last four decades, except fertilizers improved to a little extent.

Figure1: Percentage of different industries in an overall industrial structure



Source: Pakistan Economic Survey (various issues)

Others include automobiles, pharmaceuticals, chemicals, engineering products, and etc.

¹ Ginning was previously part of the LSM, but now it is included in agriculture.

This suggests that the country requires a pragmatic, but vigorously-practised policy to diversify its industrial base if it has to gain significant results within an acceptable time frame. The need for such a policy is more urgent because of rapidly increasing globalisation, and progress made by some of the neighbouring countries. Pakistan's prosperity would be seriously compromised if some concerted efforts were not made to secure its due share from the international market.

Deindustrialisation can be attributed to multiple divergent factors, which include: flawed economic policies, deteriorating energy situation, failure to diversify industrial production due to rent-seeking incentive structure, devastating floods, severe droughts and war on terror. Consequently, food, beverages and textiles averaged at about 49 percent of value-added in manufacturing between 1980 and 1989, and currently, their contribution is still at 48 percent. There is a lack of innovation and technological up-gradation in these industries that inhibit the growth of labour productivity and Pakistan's ability to climb up the technology ladder.

Exports

Structure of any industry determines its quantity of exports. Adverse effects of negligible diversification are compounded because key manufacturing exports tend to be such products, which are not dynamic in terms of the growth of world demand. The world trade in food, beverages and textiles – account for more than 70 percent of Pakistan's total exports – are growing much more slowly than trade in electronics, automotives, engineering products and chemicals. Thus, Pakistan's industrial structure acts as a hurdle to the growth of exports. Table 1 shows the loss of Pakistan share in the world's exports between 1980 and 2011.

Table 1: Pakistan's share in world exports – 1980-2013 (percent)

	1980	1990	2000	2013*
India	0.43	0.57	0.70	1.71
Malaysia	0.74	0.94	1.61	1.25
Thailand	0.37	0.74	1.13	1.24
Pakistan	0.15	0.18	0.15	0.13

Source: *Biller and Sanchez-Triana (2013)*; *WTO statistics

Furthermore, the range of exported products is narrow and the value-addition is relatively low. Only a small proportion of the exports, mainly chemicals, has good international prospects. The international demand for pharmaceuticals is rising, but Pakistan's share in exports is declining. Generally speaking, a large number of exports comprise products whose share is declining in the world market.

The Plan strategy for enhancing export competitiveness is to increase the number of products in the export-base and decrease dependence on two major sectors, that is, textiles and rice, presently which account for 70 percent of exports.

Industrial productivity

Manufacturing growth has been driven predominantly by growth of inputs, that is, labour and capital. The contribution of total factor productivity in aggregate manufacturing growth has remained low though it was impressive only in the 1980s, and then to a lesser extent in 2001-05. The policy framework for industry, during the Plan period, seeks to improve total factor productivity by encouraging more efficient use of resources.

In the recent years, larger firms have registered higher productivity relatively to medium and small-sized firms. Larger firms not only enjoy scale economies, but also have access to relatively modern and efficient production techniques resulting in the productivity differential. Various firm-level productivity constraints are:

- Inadequate up-gradation of technology
- Longer shipping and higher freight costs – inadequate logistical support
- Too expensive electricity and its inconsistent supply – infrastructure constraint
- Scarcity of trained workers, technicians and engineers hampering productivity
- Non-integrated Mills, Small and Medium Enterprises (SMEs) limited access to finances
- Weak allied and supporting industry
- Low productivity – Inadequate upgrading of technology
- Non-compliance to requisite certification measures
- Inadequate system of quality assurance and health safety standards
- Insufficient testing facilities and scattered small farms
- Non-availability of skilled workers to shift to more mechanised, precision-based and robotic production technology

The Plan seeks to identify opportunities for public and private initiatives for addressing the above-mentioned productivity bottlenecks.

Strategy

The Plan aims to achieve industrial growth by improving the industrial competitiveness. In order to improve industrial competitiveness, the strategy addresses three critical areas of reforms. First, the industrial policy would be formulated, and the previous incentives regime, which has created the rent-based, inefficient and low value-added industrial structure, would be reformed. This requires paying particular attention to weeding out Statutory Regulatory Orders (SROs) that discriminate in favour of particular sectors or enterprises. Second, the Plan aims to move out of a protectionist industrial regime and target export-led industrial growth. Third, economic competitiveness would be improved by investing in the economic infrastructure, and human and technological resources that would enable our firms to compete in international markets.

Improving competitiveness

Pakistan currently does not have a very bright outlook of its economic competitiveness. The Global Competitiveness Index (GCI) 2013-14 ranks Pakistan at 133rd out of 148 countries, and its dismal performance continues in some of the most critical areas of competitiveness, which include economic infrastructure, human resource and technological resources. It is estimated that the opportunity cost of poor transport facility and electricity outages is more than Rs500 billion annually. Similarly, the country is also lagging behind many developing countries in technology and human resources development. According to the GCI, Pakistan is ranked at 137th and 118th in education and in leveraging information and communication technologies (ICT) respectively.

Addressing the issue of economic infrastructure is a key priority of the Plan, and this would be of particular benefit to the manufacturing sector. The Plan aims at improving transport and logistics by investing in physical infrastructure such as rails, road transport, intra-city transport and sea freight, and services such as packaging, delivery, storage, and trade logistics. Similarly, on the energy front, the Plan is not only focused on meeting the supply-demand gap for uninterrupted provision of electricity, but it also ensures affordable and secure energy. The share of cheap and less expensive heads of energy such as coal, hydro, and renewable sources would be increased in the overall generation of electricity.

However, today the industrial competitiveness needs adequate infrastructure, skilled labour and liberal economic policies. It requires a stable base of human and technological resources, which must support enterprises in handling, adapting and improving on new technologies and selling the output to the demanding global markets. The Plan realises the importance of human resource capital and technology. To have a vibrant and competitive workforce, the Plan commits additional allocation of resources towards education and technology.

Apart from the industrial policy, we would also strengthen our institutional structure for creating a business-friendly environment in Pakistan. The successful market economy depends heavily on institutional structure that provides secure property rights, efficient judicial system, enforcement of contracts and business-friendly regulatory system. This Plan aims at making Pakistan a business-friendly country so that it would ensure high returns on investment and become an attractive place for private sector development.

The World Bank's Ease of Doing Business Ranking (based on the average of 10 sub-indices) covers regulations on yearly basis in 189 economies, and Pakistan was ranked at 128 in 2014. The Plan seeks proactive government interventions, policy actions and public-private partnerships to improve Pakistan's ranking.

Industrial policy

An absence of a clear strategy for manufacturing and discrete policies over several decades has generated a patchwork of incentives, a haphazard distribution of import protection and sporadic subsidies. Without the articulation and implementation of a clear strategy, the country's industrial sector would remain mired in the production of items that sit low on the value-chain and not moving into more sophisticated products.

An industrial policy can either be *Laissez-Faire* or 'Picking the Winners'. Both these concepts have shortcomings. Nevertheless, there is seldom a stark choice between pristine models of *Laissez-Faire* and picking winners — a middle way is possible. One approach would be to provide a generally level playing field to all firms within a given industry and furnish some strictly time-bound incentives to industries towards which it is desired to tilt the industrial structure. Many of the directions in which the government could encourage industry would not, in fact, bear an untoward amount of risk. Measures would include moving up the value-chain in textiles, supporting the development of the dairy industry, strengthening the engineering sector to produce the equipment required by a more mechanised agriculture, building the machinery required by many of the SMEs; manufacturing a substantially larger number of the requirements for the motorcycle, automobile, and truck industries, and fabricating components required by the energy sector — particularly those used in the production of electricity from coal. It would be worthwhile taking the rather small risk of adopting this mixed, but deliberate approach to industrial policy, because it is likely that the much slower growth of incomes and

employment resulting from a policy of ‘business as before’ would impose far greater economic and social costs on the country.

Export-oriented industrialisation

Competing with international firms would be the best way through which we can enhance our industrial competitiveness. So far our industrial planning remained highly protectionist. It gave incentives to produce for the domestic use rather than for the international market. Due to the absence of international competition and the presence of high Effective Rate of Protection (ERP), Pakistani firms did not find sufficient incentives to improve their efficiency and competitiveness. In Pakistan, import-substituting industries – tobacco, beverages, motor vehicles and accessories, and vegetable oils and fats – show very high ERPs. Much of the protection is provided by exemptions and high duties on inputs. A World Bank study elaborates: “Sectors with high ERPs tend to have low value-added, or conversely there is a higher incentive to produce low value-added goods. That sectors with higher ERP’s tend to be domestically-oriented demonstrates the inherent bias against export-competing sectors.”²

The Plan’s growth strategy will correct the policy bias against export-oriented industries to improve their competitiveness. Furthermore, the Plan ensures a competitive exchange rate policy that strengthens competitiveness of the country’s tradable sector.

Small and Medium Enterprises

Pakistan's firms, on average, are very small by international standards. About 95 percent of the 3.5 million economic establishments in Pakistan employ between one and five persons each, while another four percent employ 6–50 each. Manufacturing establishments show a slightly higher employment size, but even in this sector, over 90 percent of the establishments employ one to five persons each, nine percent recruit six to 50 persons each, and only 1122 firms employ over 50 workers.³

The low-level of productivity of smaller firms is primarily a consequence of financial constraints. Smaller firms are credit-rationed due to the lack of available collateral and information asymmetry present in the formal credit market (commercial banks). Micro enterprises and SMEs thus find it difficult to grow in size and scale, and enjoy access to improved technologies for higher productivity.

The challenges to the micro and cottage sectors are: (i) limited financial penetration, (ii) inadequate human resources, especially, management capacity (at the senior, middle and field levels), (iii) sustainability problems because of limited outreach, and (iv) low efficiency, resulting in high operational costs. The Plan aims a more focussed effort to develop strategies for addressing these problems, including a more conducive State Bank regulatory framework.

Action plan

- Sufficient availability as well as an easy access to finance for entrepreneurial activities
- Business development services

²Reis *et al* (2013).

³Investment Climate Assessment II, 2007

- Strategic initiatives and infrastructure development, like industrial estates, parks, industrial zones, trade corridors, and others
- Institution building and networking
- Promotion of entrepreneurship through advisory services

Mineral sector

The nature has endowed Pakistan with vast natural resources of economic significance, and mining is an important industry in Pakistan, which has a number of mining zones hosting metallic minerals, industrial minerals, and precious stones. Some of these are explored and mined, while some are still unexplored. Pakistan has deposits of several minerals including coal, copper, gold, chromites, mineral salt, bauxite and several other minerals. A variety of precious and semi-precious minerals are also mined. These include peridot, aquamarine, topaz, ruby, emerald, rare-earth minerals bastnaesite and xenotime, sphene, tourmaline, and many varieties and types of quartz.

Currently, around 56 minerals are mined and processed in Pakistan (details are at Annexure-I). Balochistan is the richest province in mineral resources, while the Khyber Pakhtunkhwa is rich in terms of gems and Sindh in the coal deposits. Coal is found in very large quantities in Thar, Chamalang, Quetta and other sites. Thar reserves are estimated to be 850 trillion cubic feet. In Reko Diq (Balochistan), deposits of copper and gold are present in large quantities. According to a report of the Geological Survey of Pakistan (GSP) 'Mineral Potential of Pakistan', Reko Diq has reserves of more than five billion tonnes, which includes 0.54 per cent copper content and 0.24 gram per metric tonne of gold.

There are also copper deposits in Daht-e-Kuhn, Nokundi, located in Chaghi district of Balochistan. Iron ore is found in various regions of Pakistan including Nokundi and Chiniot, while the largest deposits are in Kalabagh, Haripur and Northern Areas. A number of precious stones are mined and polished for local as well as export purposes. The centre point of this operation is the Khyber Pakhtunkhwa. The variety of precious stones mined include actinolite, hessonite, rodingite, agate, idocrase, rutile, aquamarine, jadeite, ruby, amazonite, kunzite, serpentine, azurite, kyanite, spessartine (garnet), beryl, marganite, spinel, emerald, moonstone, topaz, epidote, pargasite, tourmaline, garnet (almandine), peridot, turquoise, grossular, quartz (citrine and others) and vesuvianite.

Situational analysis

Though on a small scale, currently around 52 minerals are under exploration. Major production is of coal, rock salt, and other industrial and construction minerals. Value-addition in the mineral sector is mainly concentrated on five principal minerals, that is, limestone, coal, gypsum, sulphur, crude oil and natural gas. Realising the vast potential of major reserves, there is a great opportunity for multinational companies to invest in this sector, which will be beneficial for the economy and the investors in the long-run. Furthermore, exploration of new gold and crude oil fields in Pakistan has got the attention of many foreign multinational companies. Production of lead and zinc concentrates is expected to increase gradually. Development and mining of coal resources in Thar and in other areas of Sindh is expected to proceed. Mining of metallic minerals, including bauxite, chromites, copper and iron ore, is also showing an upward trend. The country produced lead and zinc concentrates for the first time in 2009, which was from the Duddar Mine, Balochistan.

Policy action

The government has announced the National Mineral Policy (NMP-2013) to pave the way for expansion of the mining activity and improve investment. This new policy serves as a clear and detailed representation of country's objective of improving the international competitiveness of our mineral sector. The NMP-2013 seeks to provide the basis for addressing challenges faced by the sector and respond to important government priorities and commitments. For example, policy provisions to cater for research and development enhancement, human resource development, promotion and marketing etc. The NMP provides government with the direction and decision-making tools that will help generate growth in the mineral industry. The Policy seeks to address main challenges, which revolve around following four broad themes to ensure:

- Enhanced economic contribution of the mining sector to Pakistan's economy through more private investment
- Competitive economic environment to attract foreign investment in this sector
- Smooth operational and effective coordination between federal and provincial institutions in the implementation of the regulatory and legislative regime for the mining sector
- Exploration, development and production of Pakistan's mineral resources are environmentally sustainable and encourage small scale mining and local private participation

Issues

- Law and order situation is eroding foreign direct investment in the mineral sector also. The Foreign Direct Investment (FDI) has a key role in the growth of this sector since most of the mining activities are carried out by foreign companies, and these companies are shying away from down-country fields, which is hampering the growth prospect of this sector. To harness fully the mining potential, we must ensure a secure and stable economic environment.
- Due to the lack of release of the operational funds for public sector organisations, the new field projects could not be started. Long delays in the release of funds results in extension of implementation period of projects.
- Inconsistency in policies, rules and procedures further aggravate the situation.

The mineral sector also suffers from lack of investment in machinery, skills and processes resulting in poor efficiencies and substandard products. This is more visible in the marble sub-sector where primitive methods lead to large wastage, smaller size blocks and poor quality material.

Strategy

- Large amount of iron ore is imported for the local industry, such as the Pakistan Steel Mills (PSM), which increases the cost of production. Since iron ore is rife in Nokundi and Dilband area of Balochistan, indigenous iron ore will be preferred and utilised for the PSM and other local industries, which will not only decrease the cost of production, but will also play its due role in growth of the economy.

- Industry and academia linkages will be developed to foster innovations and to develop industrial products and processes.
- Improved storage and warehousing facilities for minerals will be developed in various regions of Pakistan.
- Local manpower would be trained in creating innovation and value addition in mining processes, so that the value-added final goods could be exported for higher foreign exchange earnings.
- Feasibility study for commercial mining would be conducted to ascertain production targets from the mines as per market demand, since unplanned mining activities result in the erratic and unsustainable supply of minerals to the industry and market.
- Capacity-building of the public mining institutions will be integrated in a broader framework.
- To enhance productivity and production of the existing coal mines, mine equipment renting, leasing and selling shops will be established to reduce dependence on obtaining loans for capital goods from financial institutions.
- Public Private Partnership (PPP) and joint venture between local and foreign partners will be encouraged.
- Physical infrastructure, roads, rails, telecommunications, utilities etc. in the mineral producing and mineral bearing areas will be established.
- Necessary control and treatment of effluents resulting from underground coal mining and surface mining of natural stones and limestone will be encouraged.

Action plan

- Attracting foreign direct investment
- Capacity-building of the institutions in remote sensing (RS), geographic information system (GIS) and satellite data.
- Revising curricula of the technical institutions
- Conducting jobs-specific trainings
- Extracting commercially-viable stones
- Encouraging the private sector
- Disseminating the scientific data
- Developing the infrastructure
- Establishing the Export Processing Zones
- Engaging relevant communities for sustainable development
- Exporting Pakistan branded stones

Table 4: Five-year projections of the federal PSDP and provincial ADP

(Rs million)

Mineral sector	Projections					Total Five Years
	2013-14	2014-15	2015-16	2016-17	2017-18	
Federal PSDP	20	20	130	200	300	670
Provincial ADP	2,500	2,519	2,906	3,396	3,784	15,105
Total national development outlay	2,520	2,539	3,036	3,596	4,084	15,775

Annexure-I

Projected mineral production

(Units in metric tonnes)

Sr. No	Mineral	2013-14	2014-15	2015-16	2016-17	2017-18
1	Antimony	90	99	109	120	132
2	Argillaceous Clay	4,965,188	5,461,707	6,007,788	6,608,666	7,269,532
3	Ball Clay	313	344	379	417	458
4	Barytes	128,360	25,672	28,239	31,063	34,169
5	Basalt	228	251	276	304	334
6	Bauxite	23,633	4,726	5,199	5,719	6,291
7	Bentonite	28,160	30,976	34,073	37,480	41,228
8	Brine	54,656	10,922	12,014	13,216	14,537
9	Calcite	616	677	745	819	1,715
10	Chalk	891	980	1,078	1,185	1,304
11	Coal	3,012,128	602,425	662,668	728,935	801,828
12	Chromite	129,685	142,654	285,305	288,158	316,974
13	Conglomerate	94	104	114	125	138
14	China Clay	22,925	25,217	27,739	30,513	33,564
15	Clay	6,059	6,665	7,332	8,065	8,872
16	Copper Blister	10,038	11,042	12,146	13,361	14,697
17	Dolomite	226,000	248,600	273,460	300,806	330,887
18	Diorite	6,527	7,180	7,898	8,687	9,556
19	Feldspar	736,494	743,858	818,244	900,069	990,076
20	Fire Clay	50,216	55,237	60,761	66,837	73,521
21	Fluorite	14,655	16,120	17,732	19,506	21,456
22	Fuller's earth	4,684	5,153	5,668	6,235	6,859
23	Gabbro	143	157	173	190	209
24	Granite	29,327	32,259	35,485	39,034	42,937
25	Gypsum	1,379,363	32,259	35,485	39,034	42,937
26	Graphite	8,676	9,544	10,498	11,548	12,703
27	Gneiss	63	70	77	84	93
28	Gravel	457,053	914,106	1,005,517	1,106,068	1,216,675
29	Haematite	495	544	598	658	724
30	Iron Ore	427,941	470,735	517,808	569,589	626,548
31	Laterite	364,453	400,898	440,988	485,087	533,595
32	Lime stone	43,428,676	47,771,544	52,548,698	57,803,568	63,583,925
33	Lead	141	156	171	188	207
34	Lake salt	32,675	65,350	71,885	79,073	86,981
35	Marble Onyx	57,937	63,730	70,103	77,114	84,825
36	Marble Ordinary	2,325,096	2,557,605	2,813,366	3,094,702	3,404,173
37	Magnesite	772	849	934	1,027	827
38	Manganese	495	544	598	658	724
39	Ordinary stone	3,624	3,986	4,824	5,306	5,837
40	Ochres	41,545	45,700	50,270	55,297	60,827
41	Pumice	1,082	1,190	1,309	1,440	1,584

42	Phosphate	144,047	158,451	174,297	191,726	210,898
43	Quartz	73,811	81,192	89,311	98,242	19,648
44	Quartzite	84	93	102	112	124
45	Red Oxide	3,709	4,080	4,488	4,936	54,306
46	Rock Salt	1,175,714	1,293,285	1,422,614	1,564,875	1,721,363
47	Rhyolite	45	49	54	60	66
48	Shale	1,553,644	3,109,009	3,419,910	3,761,901	4,138,091
49	Shale Clay	2,023,369	2,225,706	2,448,277	2,448,277	2,693,105
50	Sand Stone	123,962	136,358	149,994	164,993	181,493
51	Silica Sand	394,944	434,438	477,882	525,670	578,237
52	Slatestone	446,585	491,244	540,368	594,405	653,846
53	Soapstone	117,187	128,906	141,796	155,976	171,574
54	Serpentine	1,597	1,756	1,932	2,125	2,338
55	Trona	66	72	79	87	96
56	Reti/Bajri	2,035	2,238	2,462	2,708	2,979

Source: Ministry of Petroleum & Natural Resources (Mineral Wing)