

January 20, 2010



Study on Construction Trends

(Final Report)



January 20, 2010

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Research Design

Research Design

Objectives To have an insight of the construction sector of Pakistan

Methodology The study has been completed by employing two pronged methodology i.e. secondary research and expert interviews. The detail of each method is as under:

Secondary research was conducted to have data and information on the macro-economic factors and the state of construction industry. The information collected through secondary was incorporated to determine overall structure construction sector in Pakistan.

All relevant sources were explored for the required information. The following sources were found useful:

1. General internet search
2. Statistical Yearbook of Pakistan
3. Monthly Statistical Bulletins
4. Economic Survey of Pakistan
5. Yellow pages and trade directories
6. Any other source of value

A number of expert interviews/discussions were conducted to have information and opinion of related persons like brick producers & dealers, architects and builders. The information and opinion gathered through expert interviews also reinforced and explicated the findings of secondary research.

State of Construction Sector

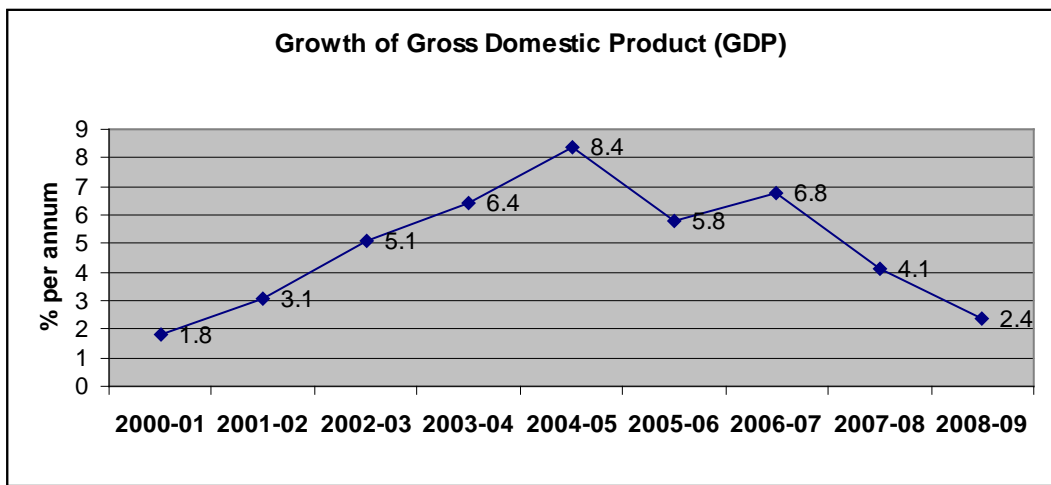
State of Construction Sector

Growth of economy

The growth of Pakistan's economy during the current decade has been as under:

GDP growth (%)								
2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
1.8	3.1	5.1	6.4	8.4	5.8	6.8	4.1	2.4

[Source: Economic Survey of Pakistan]



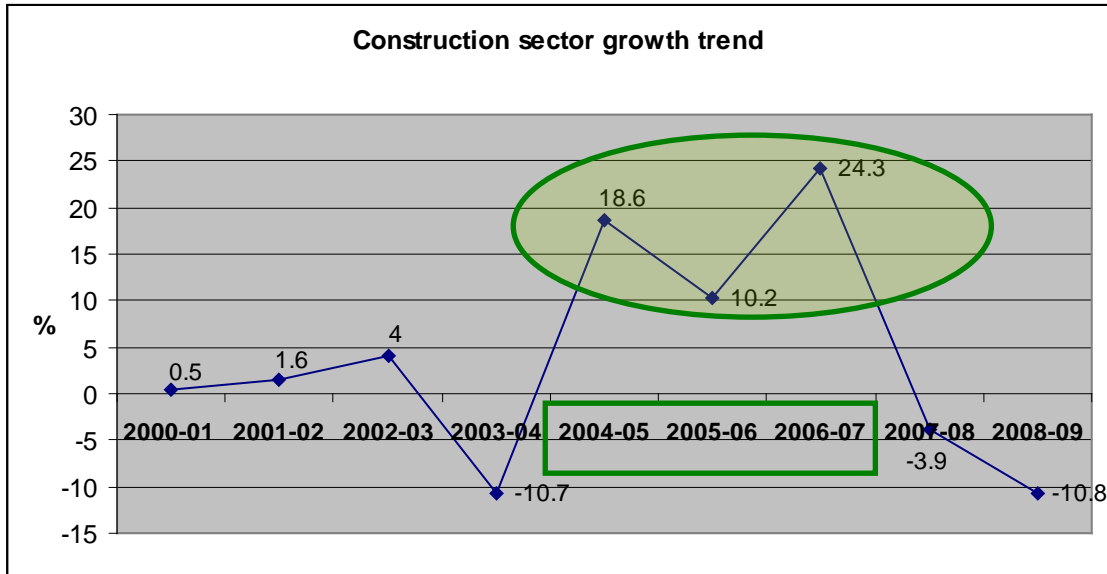
- The economy of Pakistan recorded excellent growth during 2002-03 to 2006-07 but it had to face decline afterwards, chiefly because of political uncertainty.
- The political instability and the resultant economic slowdown that started in 2007-08 are still going on and putting negative impact on different sectors including construction.

Growth of construction sector

The growth of construction sector during the current decade has been as under:

Construction sector growth (%)								
2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
0.5	1.6	4.0	-10.7	18.6	10.2	24.3	-3.9	-10.8

[Source: Economic Survey of Pakistan]



The construction sector of Pakistan had an average growth of 1.2% during 2000-01 to 2003-04. But the sector experienced a great boom grew during 2004-05 to 2006-07 when it grew at an average rate of 18% per annum. The growth was mainly because of construction activities generated by large public and private projects. Dozens of mega housing schemes were launched and developed in urban areas, like Lahore, Rawalpindi/Islamabad, Faisalabad, Hyderabad, Multan, Gujranwala, Sialkot and Sargodha, etc. All these projects, except those in Karachi, caused tremendous demand for bricks, while the projects in Karachi consumed cemented blocks. Similarly, dozens of highrise commercial buildings were also established during the same period. The volume of civil works in public sector, chiefly by the local governments was also immense during the same period.

The major housing projects launched, developed or partially executed during that period in Lahore include Bahria Town, Eden Villas, DHA (New phases), Green Forts, Izmir, Sukh Chayn, EME, Valencia, Central Park, Askari Villas and Saudi-Pak, etc. While the projects in Rawalpindi/Islamabad include Bahria Town, DHA (New phases), Canyon View, Highlands, Anchorage, Chak Shahzad, Soan Gardens, and Al-Haram City, etc.

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Growth of construction sector (Contd.)



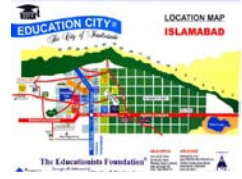
Sukh Chayn, Lahore



Lake City, Lahore



Paragon City, Lahore



Education City, Isbd.



Eden Projects, Lahore



The Centaurus, Islamabad



Creek Vistas, Karachi



Pace Circle, Lahore



Designs of ready-villas in Upscale housing projects in Lahore and Rwdi/Isbd

After the 3-year boom in real estate market, the pace of construction sector slowed down mainly because of political turmoil that was initiated by the assassination of a national leader. The political instability is still going on and the economic recession persists. Hence, the sector faced a negative growth of 3.9% and 10.8% per annum during 2007-08 and 2008-09, respectively.

[Source: Market sources]

Know-how of stake-holders

The stakeholders of construction industry like architects, consultants, builders and suppliers have reported to have less knowledge about the technical aspects of traditional and modern construction materials like bricks, cement, sand, stone crush, steel bars, tiles, sanitary wares, pipes and fittings, marble, granite, glass, PU panels and doors & windows, etc. They determine the quality and specification of construction material through brands, product sheets, manual tests, general observation and sometimes lab tests. However, the role of supplier is much important in decision process for construction products. In absence of complete knowledge, the builders and end-users rely, to much extent, on the information and the products supplied by the producers and suppliers.

In case of bricks, architects and builders know about the specification like dimension, uniformity, color, water absorbency and PSI, etc. The architects believes that the attributes of a good brick are as under:

Attribute	Benefits	Testing method
Red color	shows good quality of clay and right baking	Observation
Accurate dimensions, no broken edges and no de-shaping	Ensures good finish to walls and controlled quantity of mortar for masonry/plaster	Observation, manual measurement
No extra baking	Brittleness makes masonry difficult	Observation of shape and color, striking sound
No under baking	Softness reduces durability	Observation of shape and color, striking sound
Right strength / PSI	Ensures load-bearing and overall durability (PSI should be in the range of 2000-3000)	Striking/breaking, PSI lab test
Water absorbency	Ensures good quality of bricks (A brick should absorb water equal to 20% of its weight)	Manual water test

[Source: Builders/architects/dealers]

All these factors are judged by them through observation or manual tests like sound test, striking and breaking. There's no general practice of lab test in case of bricks. However, some projects require lab test for measuring strength. In such case Pound per Inch² (PSI) is conducted through UTS (Ultimate Tensile Strength) machine that is available at PCSIR, PSQC/Pitac, Engineering universities and some private sector metal or ceramic industries. However, the widespread practice is just manual tests like observation, striking, sound testing, etc. The builders and masons are experienced enough to judge the quality of bricks through this practice.

Only a few brick producers have their printed material and websites that includes company profile and product catalogue. Such material contains only the images and dimension of products, while other specifications are not printed there. Such producers include Niazi Bricks, Butt Brothers and Shabbir Enterprises.

[Source: Builders/architects/dealers]

Position of end-users

The end users are becoming more and more inclined to modern construction techniques and materials. They prefer luxury and prestige. The launch and success of lifestyle communities and expensive flats & penthouses in major cities is the reflection of acceptance of modern means of living among the tenants. The know how of end users about construction materials is quite low, hence they seek the services of architects, consultants and designers to select the best available material to satisfy their sense of independence and prestige.

Factors affecting real estate sector

Political stability and law-and order: Political stability reinforces macro-economic indicators that result in significant investment in large infrastructure and real estate projects. The political stability during 2003 to 2006 contributed to the outstanding growth of real estate sector and emergence of mega housing societies and highrise commercial projects. On the other hand the country is experiencing economic recession and sluggish real estate growth for the last 2-3 years, chiefly because of ongoing political crises and security situation. The political uncertainty is likely to sustain and the real estate, construction and bricks sectors are projected to maintain slow growth in near future.

Economic growth: Good economic growth during 2003 to 2006 increased the affordability of people and they were in better position of expanding their businesses and improving lifestyles. That created a hike in demand of commercial and residential property during that period and the construction sector too grew notably. However, the economic deterioration in and after 2007 discouraged investments in all sectors including real estate and construction. The GDP of Pakistan stood at just 2.4% in 2008-09 that is among the lowest in the history. As the economic slowdown is projected to go on, the real estate and construction sectors are not expected to revive in the years to come.

Foreign remittances: The bigger the foreign remittances, the more money is available for investment. The huge remittances received after 9/11 were mostly directed towards real estate business causing a genuine boom in this sector during 2003 to 2005. However, after saturation in 2006, the investments were diverted to other sectors like stock market, telecom and media.

Government policies: The government policies also influence the demand and prices of real estate. For instance, when the interest rate on fixed deposits was reduced to the extent of 3-4% in 2002, the depositors withdrew their money and invested in other areas, especially real estate sector. This became one of the reasons of market boom. Liberal policy towards housing financing is also a contributor towards demand of capital goods and real estate. The present high interest rates make the real estate sector less attractive for investors.

[Source: Market sources]

Future developments

The present situation of commercial and residential development is not encouraging. A number of commercial and residential projects are under construction in Lahore and Islamabad, but the construction of them is either halted or going on with slow pace. Such projects include Zaid Centre, I-Max Complex, Pace Circle, Pace Towers, Alamgir Towers, IT Tower and Tricon Corporate Centre in Lahore, while Gold Crest, Centaurus, Highlands and Canyon Views in Islamabad. Almost same is the situation of dozens of housing societies in these cities. However, the tempo of development and construction in Karachi is relatively fast.

Different investors have announced the establishment of more mega highrise projects in Lahore and Islamabad. Such upcoming projects include Chaman Mall, Classic Tower, Kalma Tower, Parco Tower, Sarrc Tower, LDA Tower, Liberty Mall, JW Marriot Hotel, Lahore Regency Hotel and Raddison Hotel. The launch of these projects has been halted for some years owing to unfavorable state of economy and real estate growth.

The sluggish pace of the under-construction projects and delays in launch of new projects reflect slow growth of real estate and construction sectors. However, the growth can be fast if the political stability and security situation in the country improves.

[Source: Market sources]

State of Bricks Market

State of Bricks Market

Size of bricks market

As per Nielsen's Study on Bricks Market, there are around 12000 brick kilns in Pakistan that produce almost 53 billion bricks per annum. The value of bricks market is estimated at Rs. 130 billion. The market of bricks has grown at the rate of 7% per annum during the last 5 years.

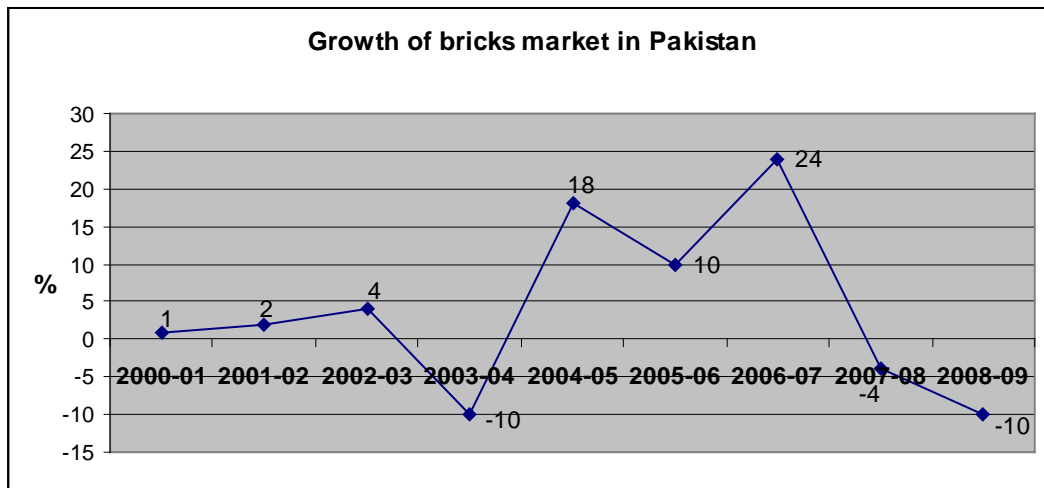
[Source: Nielsen's Analysis of Bricks Market]

Growth of bricks market

As per the market sources, the growth of bricks market is closely associated with the growth of construction sector. Hence, the tentative growth of bricks market is as under:

	Growth (%)								
	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Construction sector	0.5	1.6	4.0	-10.7	18.6	10.2	24.3	-3.9	-10.8
Bricks market	1	2	4	-10	18	10	24	-4	-10

[Source: Economic Survey of Pakistan/Market sources]

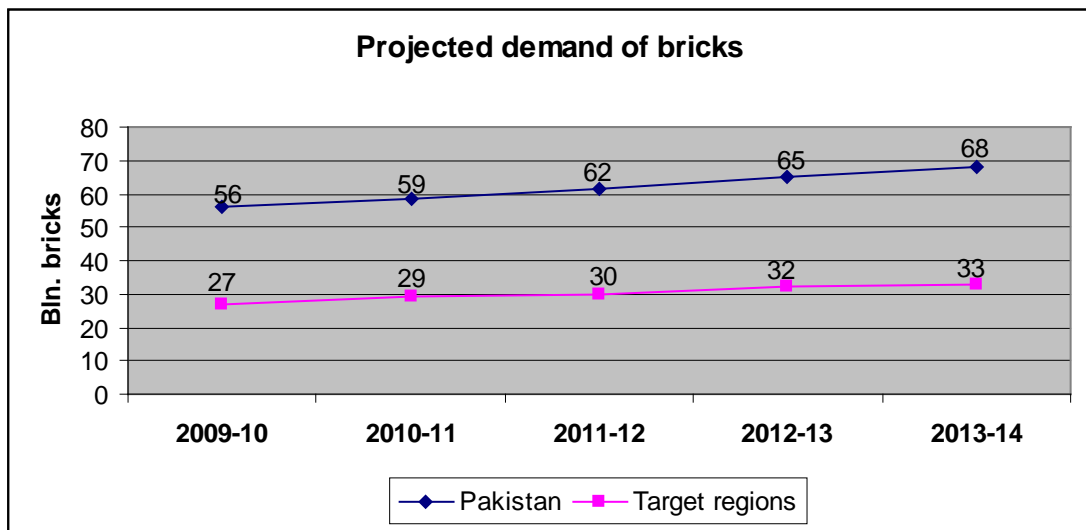


Projected demand of bricks

As per the market sources, the market for bricks is less likely to regain its position of 2004 to 2007 in the near future owing to the ongoing law-and order situation, political uncertainty and economic slow-down. The market might grow in the range of 3 to 7% for different years making the average growth at 5% during the next five years. The estimated average growth and respective market size are exhibited as under:

		2009-10	2010-11	2011-12	2012-13	2013-14
Pakistan	Av. growth	5%	5%	5%	5%	5%
	Market size (bln. bricks)	56	58	61	64	68

[Source: Market estimates]



The national market of fired bricks in Pakistan is projected to reach the level of 68 billion, while that of the target regions to 33 billion per annum by 2013-14.

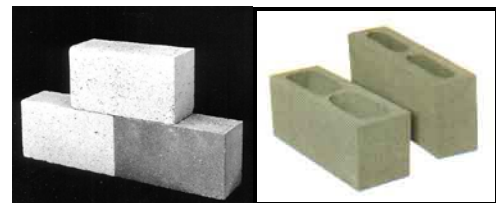
Substitute of bricks

Different substitutes of bricks exist in Pakistan. These include:

Product	Consumption areas	Intensity
Cemented blocks	Widely in Karachi, while rarely in other cities	100% substitute of fired bricks in Karachi. Meager use in other areas of the country
Pre-cast walls/roofs	Throughout Pakistan	Significantly used in industrial buildings and agricultural/industrial boundary walls
Chiseled stones	Mountainous areas	Widely used in mountainous areas
PU Sandwich panels	Urban and industrial areas	Newly introduced concept. Presently, rare usage in large retail and industrial projects.

[Source: Industry/market sources]

- Due to non-existence of fired bricks industry in Karachi, cemented blocks are used there for decades. Also, post earthquake constructions in mountainous areas have preferred the use of lighter materials including hollow cement blocks.



Cement blocks

- As the weight and cost of hollow cement block (HCB) is lighter than bricks, their usage in external and internal partition walls of building structure reduces the weight and total cost of the structure.
- cement blocks are perceived as cost effective but less durable as compared to the fired bricks. Though some builders in Lahore, Rwdi/Isbd. and Faisalabad have also used blocks in commercial projects, but the concept has not been welcome and the fired bricks remain the top choice of property owners, architects and builders in these cities.
- Mainly produced in cottage sector, the blocks are available in different sizes and compositions. The most common sizes are 15x7.5x3.5, 15x7.5x5.5 and 15x7.5x7.5 inch, etc. The majority of cement block producers exist in unorganized sector, however the organized sector suppliers include Izhar (Lahore-Karachi) , National Builders (Lahore), Pak Dream (Hattar), Prime (Lahore), Envicrete (Karachi), Caracrete (Karachi), Hubcrete (Karachi), Magnacrete (Karachi) and Amcon Corporation (Islamabad), etc. Some builders in Karachi and Lahore install a temporary unit of block manufacturing at the site and produce the required block as the construction goes on. The usage of blocks is projected to grow phenomenally in Karachi, but penetration in rest of Pakistan is not expected. Hence, cemented blocks are not going to put any negative impact on current market of bricks.

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**Substitute of bricks
(Contd.)**

- Pre-cast roofs were introduced 20-25 years back and have now got good penetration, especially in industrial projects. On the other hand, pre-cast slabs and pillars are relatively newer introduction and have been used by some builders to build boundary walls of industrial units, farms, warehouses and housing societies. The aspects of fast erection and portability/re-usage are contributing to the acceptability of pre-cast roofs and walls. Though these products have got considerable penetration, the share in overall construction is still insignificant. Hence, pre-cast roofs are not likely to put any significant impact on bricks market in Pakistan.
- Non-existence of brick kilns in elevated mountainous areas and difficult transportation of the same makes chiseled stones the basis construction material in elevated mountainous areas and people have been using stone masonry even before bricks were introduced there. Stones are readily available there and are cost effective. However, bricks are becoming substitute of stones in these areas; still the conversion is quite slow. The consumption of stones is projected to decline due to high urbanization and the preference for seismic risk proof materials in these areas.
- Polyurethane Sandwich Panels are imported into the country to be installed in large industrial buildings, warehouses and retail stores. Fast erection and low thermo-conductivity are the factors that make it preferable for some entrepreneurs. No major supplier of PU panels exists in Pakistan; rather these are mostly imported directly by the projects owners or builders. Though the current usage of these panels is very low, a high growth in their demand is projected by the market players.
- Despite the existence and growing penetration of substitute products, fired bricks remain the most preferred building material because of their strength, durability, easy availability, affordable rates and cultural association of users.

[Source: Industry/market sources]

Trend of urbanization

The share of the urban population in Pakistan has grown from 17% in 1951 to 32% in 1998 and further to 35% in 2009. The level of urbanization in Pakistan is now the highest in South Asia. The urban population contributes about three quarters of Pakistan's GDP and almost all of the government revenue.

[Source: United Nations Population Fund]

The following table exhibits the trend of urbanization in the country.

(Figures in million)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009 [Estd.]
Overall population	139	142	145	148	151	154	157	160	163	167
Urban population	46	47	48	49	51	52	54	56	57	60
Urbanization	33%	33%	33%	33%	34%	34%	34%	35%	35%	36%

[Source: Economic Survey of Pakistan]

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Trend of urbanization (Contd.)

As per the UN Population Fund, Pakistan's urban population is likely to be equal to its rural population by 2030. An expected positive consequence of the increasing urbanization of society will be the creation of over 100 million strong middle class by 2030. This large urban population will create increased construction activity giving further boost to the demand of bricks in the country.

[Source: UN Population Fund]

Brick prices

The present ex-kiln price of A-grade bricks in the target regions stands in the range of Rs. 2700 to 3800, while that of B-grade in the range of Rs. 1800-2200 per 1000 bricks. Due to strong demand in large consuming centres like Lahore, Rawalpindi, Islamabad and Faisalabad, the brick prices there are 10-20% higher than in small cities and towns.

The growth in prices of bricks has been reflected by the following index numbers over the years:

(Base year 2000-01 = 100)

	Index No. of average price during the year						
	2000-01	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Index No.	100	102.5	104.8	122.7	129	111.6	119.3
Growth per annum	-	-	2%	17%	5%	-13	7%

[Source: Statistical Yearbook of Pakistan / FBS Monthly Statistical Bulletin]

The average growth in brick prices has been recorded as 8% per annum.

The pricing of bricks is highly affected by supply and demand situation and the obligation for the kilns to be run on full capacity. During 2005 to 2007, the construction sector experienced tremendous growth. The launch of mega projects in private and public sector created huge demand for bricks and the growth in prices was highest, i.e. 17% in 2005-06. But the growth rate again came down the next year to 11% as a number of new kilns had added into the supply and neutralized the strong demand with large supplies.

The position of brick industry further worsened by the sudden deterioration of law-and-order and political situation in the country in December 2007. This unfavorable condition badly damaged the construction sector and squeezed the demand of bricks causing further decrease in profit margins of brick producers. As the kilns are bound to be run on full capacity, almost all the kilns had to bear heavy production losses, while many of them were forced to shut the operations. However, the closure of some brick units put a positive impact on the operational units as the demand and supply balance improved and the prices again got better.

Presently, the operational kilns are reporting to have good profit margins. But, the demand and supply situation is again likely to be disturbed and the brick prices might again come down as the closed units are preparing to resume their operations.

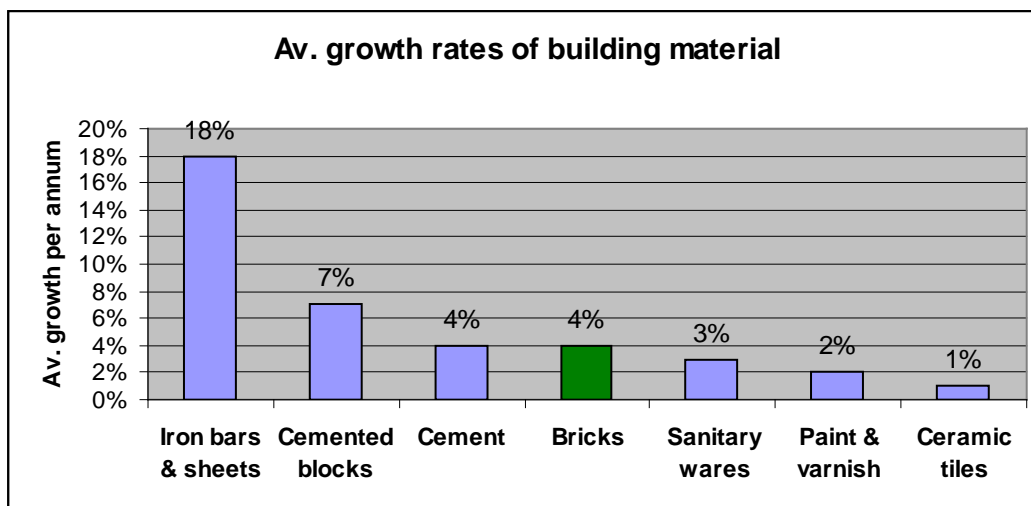
[Source: Market/industry sources]

Comparative growth of prices

The comparative growth in prices of bricks and other construction material is as under:

Product	Index No. of average price during the year							Av. Growth per annum
	2000-01	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	
Iron bars & sheets	100	147	177	166	175	233	319	18%
Cemented blocks	100	109	113	114	117	120	151	7%
Bricks	100	102.5	104.8	122.7	129	111.6	119.3	8%
Cement	100	102.5	105	123	129	112	119	4%
Sanitary wares	100	107	109	112	115	118	125	3%
Paint & varnish	100	115	113	107	107	110	128	2%
Ceramic tiles	100	96	98	98	101	105	99	1%

[Source: Statistical Yearbook of Pakistan / FBS Monthly Statistical Bulletin]



- The prices of bricks have been increasing at an average rate of 4% during the current decade, while those of iron bars and cemented blocks at 18% and 7% per annum, respectively.
- The growth in prices of cement remained equivalent to that of bricks, while the growth in case of sanitary wares, paint & varnish and ceramic tiles was relatively lower.

Stakeholders

Stakeholders

Government agencies

The government bodies related to housing and construction include:

1	Ministry of Housing
2	Works Department
3	Pakistan Housing Authority
4	City Development Authorities (CDA, KDA, LDA, RDA, FDA, etc.)
5	Karachi Building Control Authority (KBCA)
6	House Building Finance Corporation

[Source: Secondary sources/ market information]

Major builders & developers

The real estate boom during 2004 to 2007 attracted a good number of builders and developers from international market. These developers launched mega projects like Creek Marina (Karachi), Creek Vistas (Karachi), Crescent Bay (Karachi), Zaid Centre (Lahore), Pace Circle (Lahore), Sports City (Lahore), Gold Crest (Islamabad) and Centaurus (Islamabad), etc. The international builders & developers that are engaged in real estate projects in the country are:

International Builders/Developers	
1	Abu Dhabi Group (UAE)
2	Al-Ghurair Giga Pakistan (Pvt.) Ltd. (UAE)
3	Al-Tamimi Group (UAE)
4	Bukhatir Group (UAE)
5	Creek Marina (Pvt.) Ltd. (Singapore)
6	Crescent Standard Group (Singapore)
7	Emaar Pakistan (UAE)
8	Barka Group

A number of prestigious projects have also been launched and completed by domestic developers. The major players in different cities are listed below:

Domestic Builders/Developers in Karachi	
1	Amberco (Pvt.) Ltd.
2	Associated Constructors Ltd.
3	Builders & Developers (Pvt.) Ltd.
4	Chapal Builders (Pvt.) Ltd.
5	Defence Housing Authorities (DHA)
6	Fine Arch Builders & Developers
7	Kawish Builders & Real Estate
8	Lakhani Builders Ltd.
9	Orient Group of Companies
10	Pak Gulf Construction Ltd.
11	Rabi Builders Ltd.
12	Rufi Builders & Developers
13	Saima Developers (Pvt.) Ltd.
14	Sasi Real Estate (Pvt.) Ltd.
15	Taloo Builders & Developers
16	Zohra Builders Ltd.

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**Major builders
& developers
(Contd.)**

Domestic Builders/Developers in Lahore	
1	Abid Group
2	Ahad Developers Ltd.
3	Alamgir Developers Ltd.
4	Bahria Developers
5	Defence Housing Authority (DHA)
6	Eden Developers
7	Lake City Holding
8	Pace Properties Ltd.
9	Rafi Group
10	Tricon Developers
11	Urban Builders & Developers

Domestic Builders/Developers in Islamabad	
1	Bahria Developers Ltd.
2	Defence Housing Authority (DHA)
3	Kingcrete (Pvt.) Ltd.
4	Sam Builders Ltd.
5	Sardar Builders (Pvt.) Ltd.
6	SunCity Pakistan (Pvt.) Ltd

[Source: Secondary sources/ market information]

**Major
architects &
consultants**

International Consultants	
1	Areaa Construction (Turkey)
2	Chan Tse Ann (Singapore)
3	China State Construction Engineering Corporation (CSCEC)
4	GOCG (China)
5	Halcrow Group Limited (UK)
6	Hirche Bedner (USA)
7	IVCC Bachy (UK)
8	Kaston Singapore
9	Meinhardt (Singapore)
10	TAK Management (Malaysia)
11	WS Atkins Plc. (UK)

Domestic Consultants	
1	Associated Contractors Ltd.
2	Builders Associates Ltd.
3	Habib Rafiq (Pvt.) Ltd.
4	Tammar Associates (Pvt.) Ltd.
5	Supercon (Pvt.) Ltd.

[Source: Secondary sources/ market information]

Trade associations

- Association of Builders and Developers (ABAD) is the central representative body of Pakistani builders & developers.
- All Pakistan Brick Kilns Association (APBKA) represents the nationwide brick producers, while provincial, regional and district associations/unions also exist in bricks sector.

[Source: Secondary sources/ market information]

NGOs

A number of international agencies and NGOs have been reported to be engaged in rehabilitation and reconstruction activities in Pakistan. Such bodies include UNHCR, USAID, Agha Khan Foundation, Human Development Organization, Al-Khidmat, Khidmat-e-Khalq Foundation and Azad Kashmir Fund for Earthquake Relief.

[Source: Secondary sources/ market information]

Environment agencies

Pakistan Environment Protection Agency (Pak-EPA) is the chief regulatory authority on environment in the country.

[Source: Secondary sources/ market information]

Recommendations

Recommendations

- The present concern of brick producers, builders, architects/engineers, end-users and general public towards environment is quite low. They don't consider brick industry as a large pollutant as kilns mostly exist away from urban population, while peri-urban and rural population is also not so affected because of very high chimneys of these units. They report that other pollutants like road transport, railways, chemical factories, cement factories, crushers, open drains and solid waste pose rather serious threat to environment and human health. If the people are less conscious about these larger sources of pollution, brick kilns don't come under any of their concerns. The builder and architects/engineers think that environment friendliness might be an important aspect in decision of brick selection, but it will not impact the decision process so seriously as the bricks used in Pakistan are harmless to health, no matter these are produced in a pollution generating unit. Hence, EEBP will need to launch a campaign to generate awareness among regulatory agencies, builders/architects, end users and general public. In this way, awareness programs can be launched in collaboration with Pakistan Environment Protection Agency.
- Cost effectiveness of VSBK should be chiefly highlighted as the increasing cost of fuel, labor transport has reduced the profit margins of brick producers and many of them have been severely affected by this. The main focus of the marketing VSBKs should be cost, and not the environment friendliness.
- The control on production volume at VSBK through multiple shafts is another advantage that can appeal the existing kiln owners and new entrepreneurs. In conventional kilns, the owner is bound to carry on with its full production no matter the market demand and cash-flow situation allows it or not. Hence, the kilns are to be run even during market recession and so bricks be sold on lower rates that cause losses to the owners. The kiln owners have no choice of controlling the volume of brick production. On the other hand, the VSBK owners will be able to control the production volume by running or closing any shaft of the kiln. This aspect is also recommended to be highlighted.
- More pilot VSBKs should also be developed in other areas like Lahore, Sialkot, Sargodha and Faisalabad. The clusters of kilns in these areas will be able to observe the VSBK technology once it is in operation near them. In this connection, PR should be developed with the opinion leaders of this industry (i.e. union office bearers).
- As VSBKs require a large investment, some partnership with government agencies or banks should be developed to ensure easy and economical access towards financing options for entrepreneurs. In this connection, Small & Medium Enterprise Development Authority (SMEDA) can be of much help.
- Further to this desk research, quantitative and qualitative surveys are suggested for in-depth analysis of production and consumption patterns in the country. In such surveys, concepts should be properly tested through detailed concept cards and demonstrations.