

**Strategic study on the Egyptian Marble and Granite Sector**

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**EXECUTIVE SUMMARY****1. THE STONE MARKET: GLOBAL PRODUCTION AND CONSUMPTION**

The world stone industry has expanded since the early 1990s with production growing by over 7% per year. Such a long lasting tendency is linked the natural global development of the *building industry* parallel to the increase of the world population.

**In 2004, stone production reached the peak of some 75 million tons** (or 820 million m<sup>2</sup> equivalent), net of quarry waste. In terms of materials extracted, “granite” still accounts for less than 40% of overall production with the remaining basically represented by “marble”.

On average since the year 2000 production has increased at a growth rate of almost 8,8% a year and there are no reasons to expect reductions in the short term.

The overall increase in production and in trade activity registered in the last two years results from the excellent performance of fast growing countries like *China, India, Turkey and Brazil*, together with the progress of some outstanding recent entries like Iran and Egypt. On the other hand, the traditional leading countries represented by Italy, Spain, Portugal and some newcomers of the 90’s such as South Africa and South Korea seem to suffer the pressure of the enormous increase of export of Chinese goods. The most likely estimations based on the information retrieved through the local assessment attribute to **Egypt a production of about 3.2 millions tons in 2004**, indicating the country within the first 8 world producers of raw material.

Industry *concentration is still* very strong, the main four stone countries - China, India, Italy and Spain - representing more than 53% of the total production and accounting for 60% of the global export figure.

Concerning the application of stone elements in construction, there are twenty countries where a total consumption exceeds 1% of world market, but the first seven alone account for 52% of uses. Beside traditional stone consumption countries - USA, Italy, France, Germany, Spain - dimension stone industry is encountering favorable

conditions in those regions where the building industry is dramatically expanding, such as China, India and some Middle East countries. In terms of pro-capite consumption that is a key parameter for market screening and export aptitude, it can be noted that:

- The highest demand is found in European countries like Italy, Spain and Greece where more than **1 m<sup>2</sup> of stone products is consumed every year by each habitant**. In the Western world, average annual consumption is around 0.5 m<sup>2</sup> with the **US and the UK**, respectively at 0.24 m<sup>2</sup>/inh. and 0.18 m<sup>2</sup>/inh., **offering the largest market growth potential**.
- World average annual consumption is around 0,12 m<sup>2</sup>/inh. while the key emerging countries **China and India are still not reaching half of this figure**.
- The new entrant producers **Brazil and Turkey**, with their quite low pro-capite consumption, **have a very high aptitude for export**.

## 2. INTERNATIONAL TRADE

International trade retains a rising critical importance in the stone market involving a share of production that is estimated to have surpassed 50% in 2003. **In 2004 exchanges were at about 29.6 million tons (conventionally equivalent to about 450 million m<sup>2</sup>).**

Since 2000, average annual trade raised at a rate of about a 10.7%. However, growth has not been omogeneous through the different product groups: actually marble blocks and slabs reached a remarkable 15.8% (19.2% since 2000) while granite attained a mere 3.0% (2.5% since 2000). Concerning the geographic distribution, although dimension stones are produced in more than 50 countries, only 6 of these producers dominates 80% of export in value, i.e.:

- Italy, Spain, Turkey, Greece, China, Portugal for the marble sector
- China, Italy, India, Brazil, Spain for the granite sector

From the side of demand, the main importers are Japan, USA, China, Germany, Italy and Spain, which account for about 50% exchanges in value for both carbonate and siliceous materials.

- USA keeps being the leading market outlet, absorbing about one fifth of total exchanges in 2003 with marble contributing 44% and granite 56%.
- Japan is the second import country, mainly for finished products of granite, its market being dominated by China and, to a lesser extent, by India.

Concerning Egypt, trade exchanges for the stone sector essentially confined to marble for both raw materials and finished products. Main trade partner is China where raw materials are processed and often re-exported. According to the trade map methodology of the UNCTAD's International Trade Centre COMTRADE, **the analysis of Egypt market performance categorizes marble products as *Champions***, that is products for which the country has been able to outperform world market growth and has increased its share in world imports.

### **3. FORECAST OF INDUSTRY GROWTH**

Long-term sector prospects appear very encouraging on the ground of historical development in production, consumption and trade.

**The average annual rate of increase since 1996 has been about 7% while it has reached 8.8% in the last three years.** Moving from the last available level of 2003, and according to a projection of growth rate at 8,5%, it is reasonable to estimate the future volume of production and consumption reaching 450 million tons (5 billion m<sup>2</sup> equivalent) within the next twenty years. These figures are realistically attainable, since they are supported by an international market rapidly growing and by a strong development in technology.

Similar remarks hold also for trade. **The average annual rate of increase since 1996 has been about 8%, while it has exceeded 10% in the last three years.** Starting from the 25 million tons in 2003, three different forecast scenarios for the whole stone sector can be therefore considered:

- Conservative case: trade growth at 10-years historical average 8.0%, leading to a total 130 million tons of traded material in 2025.

- Middle case: trade growth rate at 9.1% (average between conservative and optimistic cases) leading to almost double present situation in 2010 (45 million tons) and 170 million tons in 2025.
- Optimistic case: trade growth rate at 10.7% as in the last 3 years, leading to over 220 million tons traded in 2025.

#### 4. BENCHMARKING STUDY

The comparative analysis between Egypt and **the selected benchmarking countries, Italy, Spain, Turkey, China and India**, provides an interesting outlook over the position and potential of the Egyptian industry, since those countries are key representative of the world stone industry, accounting for over half of global production and export and for about 35% of total consumption. The relative relevance of **Egypt is immediately evident, ranking fourth for quarry production and raw export, respectively with a share of 4.3% and 6.6% of total world market**, albeit representing only about 1.1% of the world population.

The role of the country is less imposing in terms of total processed materials delivered abroad representing a 3.7% share of international export and finally in terms of percentage of world consumption (only 1.5%). Total export from **Egypt, according to the local review evaluation, can be estimated at 1.5 million tons per year**: 0.9 million tons as raw materials and 0.6 as processed products. This means that Egypt can be considered the seventh exporter in the world, in terms of volume, after China, India, Italy, Spain, Turkey and Brazil.

Concerning key efficiency parameters, from the benchmarking exercise it emerges that:

- Workforce productivity varies dramatically from technologically advanced industry as in Italy and Spain to a much less developed one, as in China and India. While the estimation of direct employment may be affected by substantial uncertainties (especially for the Asian countries), the productivity gap is nevertheless in the range of one order of magnitude. Figures for Turkey and Egypt are much approach those of European countries, albeit in a level

from 30% to 50% lower, although in the case of Egypt real data are underestimated due to the presence of unofficial workers especially in the quarries.

- The comparison of key cost factors (energy and workforce), which represent about 50% of the cost structure, shows a similar picture with China and India displaying unit costs between 10 to 50 times cheaper than Italy and Spain. In this case also Turkey and Egypt have a quite competitive position in front of the two European countries with savings in the order of 5 - 15 times.
- The consideration of average trade prices for stone products highlights a very competitive positioning of Egypt according to the data of average prices for raw calcareous materials and for processed products, for which the Egyptian average price is most competitive at about 13 USD/m<sup>2</sup>. In the case of raw calcareous stone the Egyptian average price is almost the lowest, with the only exception of China. The price for processed products is also very interesting since in the other benchmarking countries it is valued from 2 (Turkey) to 3 (Italy) times higher. While these important differences are in part resulting from differences in the mix of sales and by the practice of down-valued invoices, well spread in Egypt as well in other countries, **the price competitiveness of Egyptian stones seems to be confirmed** everywhere, with a special reference to the European and American markets.
- It appears that the only country that can offer these competitive prices is China. However this national industry also enjoys other advantages such as a very strong position in the Far East area with special reference to the nearest markets (Japan and South Korea). Elsewhere, the competition is quite open and commercial success is strictly connected with quality and standardization, and therefore with know-how, professionalism and sale support.

A good reference target for Egypt is represented by the case of Turkey, a country having similar features and cultural background, whose outstanding industrial and commercial performance over the last ten years can be explained by competitive prices matched by good quality of the products.

## 5. ASSESSMENT OF EGYPTIAN PRODUCTION STRUCTURE AND LOCAL ENVIRONMENT

**The availability of a considerable wealth of geologic resources** both in terms of quantity and quality constitutes a good starting base for the Egyptian producers, but on the other hand maintaining and strengthening a top position among the world leader countries implies also the presence of a series of suitable conditions to be met or created, concerning the extraction of raw materials, the production of finished stone elements and their trade and application in the variety of possible uses.

To this purpose, **the Egyptian industry can avail of some positive factors such as the relatively low cost of labour and cheaper prices of energy**, but on the other side it is burdened by a variety of obstacles and shortcomings that should be removed or alleviated for the sake of a sounder development of the sector.

Concerning quarrying, such drawbacks include **the lack of preliminary geologic investigation in the country and the absence of adequate legislation and rules** for the general planning and control of the activity and in particular an unfavorable policy adopted by the public administration in the release of quarrying licenses.

In fact, a too small area of the granted permits for a too little time of validity (one year subject to a shorter period of approval by the military authority) discourages the investments in the development of the quarry and in the improvement of extraction methods, resulting in a poor recovery of blocks and in the build-up of huge dumps of waste. Moreover the use of traditional technologies does not promote the professional advance and a deeper involvement of manpower in the production activity.

**The lack or the inadequacy of existing infrastructures** such as suitable asphalt-paved access roads, available space specifically destined to waste rock dumps, common services for quarries (maintenance, delivery of explosives, supply of consumables, water, fuels and electric energy, communications network) in addition to the unfavourable location of the quarries with respect to dwellings and supply sources certainly represent relevant obstacles to efficient operations management and production planning.

Therefore important efforts should be done in order to eliminate the problems and to create the favourable conditions for a sounder development of the activity, including the **training of manpower**, aiming at increasing the quarry recovery that is a factor of a capital importance in controlling the production cost and the profitability of quarrying activity.

Going to the processing phase, there are some propitious conditions underlying the important achievements of the stone sector in Egypt, ranking the country within the top ten producers of raw materials and in a good position also as a manufacturer of finished and semi-finished products. Among these are **the concentration of the activity in important clusters favouring the sharing of services and of infrastructures**, the presence of some leader companies operating with European standards, capable of exerting a drag action on the entire sector and the trend to keep the opportunities offered by the demand for some niche products (mosaic compositions using waterjet, antique fashioned elements, sculpture works).

However, **many of the Egyptian factories are operating under far-from-optimal conditions** suggesting that a better competitiveness of the offer based on a suitable cost-quality combination can be attained by filling the gap with respect to the most advanced producers in the world, Italy, Spain and other industrialized countries on one side (best quality of products and accompanying services) and China, Brazil and Iran (low prices offered in the international market).

In particular one of the main unfavourable aspects that can be found in the Egyptian stone processing structure is represented by a very small area available for the optimum lay-out of the processing lines resulting also in a too crowded **and ill-managed block and product storage** zone inside the factory as well as in **insufficient safety and health conditions**.

Infrastructures are poorly developed and often inadequate; only recently the big cluster of Shaq Al-Teban near Cairo has been provided with electric energy from public network while it is still waiting for the connection to an industrial water delivery system and for the creation of common waste disposal facilities.

**At the level of individual enterprises, machinery and equipment are often badly maintained and sometimes obsolete**, lagging behind the pace of the technological progress in the field, and the average professional level of manpower is not very high, requiring some specific training with the aim of increasing the productivity level.

In this respect is worth underlining that the advantages of a well trained personnel not only affect direct cost savings but also a substantial increase in the general efficiency of the production cycle and in the improvement of product quality, as well as a better image **of reliability of Egyptian industry among the customers**.

However, in spite of some inefficiencies and inadequacies, **the average level of technology is acceptable**, thanks to import of high quality Italian tools and machines. In this segment it should be assessed the potential for further developing a national industry, especially in the manufacturing of consumable tools that are very expensive to import.

Some other measures can contribute to the progress of the stone processing structure towards better working conditions and the gain of higher competitiveness levels, such as the recovery, whenever possible, of the scraps and processing shards and of marble sawing reject dust that could be beneficiated as fillers and the adoption of rational production planning according to annual budgets. The **implementation of computer-based industrial accounting system** on which product pricing should be based is another very important issue.

Finally the commercial phase is also characterised by a mix of positive and negative factors. Among the first ones is **the abundance of port facilities although generally not very well equipped**, whereas on the side of drawbacks it is worth mentioning the lack of agreement between Egyptian producers aimed at establishing some common rules and behaviour (price and quality control) to be followed in order to increase the overall commercial strength of the sector, especially in the foreign market.

The benchmarking study and the global assessment point out that **the privileged market outlets for Egypt are the USA and South America**, Europe and Africa, being the Asian market dominated by China. Domestic market is also an important

outlet, constituting for many countries an extremely relevant area of stone demand and consumption, to the obvious main advantage of national stone operators.

Egypt's commercial objective should not necessarily follow on continuous price shrinkage to gain market shares at the expenses of very low margins. **Sector strategy should preferably count on the optimisation of the quality/price trade-off and on favouring the commercialization of more added-value products in front of export of unprocessed crude material.**

**Development of national research and specialised training for the stone industry** is still far from European performances. However a number of initiatives are now in progress, particularly the start up of the newly established Marble and Granite Technological Center. Institutional support and sector association should also be build up and fortified as high profile marketing and promotion emerges as key tool in penetrating in the main mature and demanding consumption markets (USA, Germany, Middle East).

As far as external environment is concerned, Egyptian currency weakness together with high interest rates is a critical factor in finding financial resources required for the necessary investments in foreigner technologies. Operating costs are affected as well, since also consumable tools are still massively imported at present.

## **6. BEST STRATEGY AND ACTIONS PLAN**

The simulation results of the implementation of the strategic options identified for the optimum development of the stone sector in Egypt point out that the best strategy consists in a **well balanced growth between the extraction of blocks in the quarries and the production of processed materials in the factories accompanied by a substantial improvement of the industrial structure.**

The **increase in production at both the stages of the industrial chain** can take place at the rate of up to 10% per year through the opening of new quarries and the erection of new factories.

A further increase in production can be achieved by **changing the technology in the quarries** (from traditional methods using explosives to the advanced methods based on mechanisation) as well as by **exploiting the full capacity of the factories**, passing from a today's average saturation factor of less than 70% to at least 90% through a better organisation and the replacement of obsolete machines. An additional advantage of a larger margin of profit per unit of product can also be obtained with modernisation. This process of improvement can take place over the next five years involving each year 20% of the producing units.

This will imply **huge overall investments** for the companies that can be quantified in the range of 1 to 5 million LE per each of the 700 quarries according to size and location, including the site investigation, and of 0.5 to 2 million LE for each of the 300 factories. Moreover the opening of new producing units will imply investments of up to 10 millions of LE for each of the additional 350 quarries with advanced technology and up to 40 millions of LE per each of the 150 new factories with modern standards.

The **availability of the financial resources** for sustaining such a big process of development can be a problem that must be solved by more favourable attitude towards the sector by the banking system as well as by the attraction of private investors, availing of the backing measures issued by the Egyptian Government in order to route the foreign money for the development of SMEs.

Of course the development can take place at a slower pace (for instance at a growth rate of 5% per year) without changing the choice of the optimum strategy since only the absolute results will be affected.

In the case of an **unbalanced growth between quarrying and processing** some drawbacks can be encountered, eventually resulting in the long term in a weaker position of the sector in the international market.

In fact if the expansion in the quarrying activity is not accompanied by a parallel growth of the factory production, the Egyptian processed products will find more and more difficulties in competing in the international market with the similar materials

produced abroad from exported Egyptian blocks. Moreover the added value and the employment will not increase substantially.

On the other side, should the development of the processing activity be faster than that of quarrying, the factories will be in troubles for a possible shortage of raw materials, unless resort is made to imported blocks or else raw export quantities are reduced to such a poor level as to make the quarrying enterprises to suffer from the loss of share in the export market of blocks.

However the achievement of the performance made possible with the optimum strategy devised implies the construction of an improved scenario consisting in filling the gaps presently faced by the Egyptian stone industry, in order to create the conditions for the onset of a **virtuous cycle triggered by suitable actions at the meso- and macro-economic levels**, i.e. by the representative institutions and by the government structure.

The development of a virtuous cycle may also promote the **inception of industrial initiatives of support to the industry**, capable of strengthening the sector as a whole, enabling to overcome the economic burdens linked to a massive import of technology.

The optimum strategy consisting in a **parallel growth of the quarrying and processing activities at a rate of up to 10% per year, supported by improved technology and better organisation**, will allow to maximise:

- the production value made possible by the consistency of the available resources
- the added value
- the overall employment
- the profitability of the sector

while reducing the import of raw materials and maintaining a significant level of export of blocks and especially of processed products.

Once the sector has gained the necessary strength brought about by the implementation of the optimum strategy, an additional net benefit can derive from the

gradual increase of the selling price that are presently depressed compared to those imposed by the traditional leader countries.

Finally, it is worth considering that any **delay in fulfilling the action plan** will inevitably postpone the time needed for the achievement of the expected results, although the obtainment of the ultimate goal would not be impaired. However, the success will be put at risk if some of the actions will be missed at all.

**If the virtuous cycle is not started the optimum strategy cannot be pursued** and the sector will grow only by just increasing the number of producing units: the performance will be limited to the achievements of the mix of strategic options labelled 1010 in the Matrix for the development of the stone sector in Egypt.

Consequently, the development of the sector according to the conditions of the past period will be characterised by poor profitability of the enterprises, especially in the processing stage and by a lower added value.

In particular, compared to the results achievable with the full implementation of the optimum strategy, the production of blocks in the quarries will be around 11% lower with a total loss of about 365 million LE in terms of value. Moreover, the quarrying cost for the unit volume of commercial block will be about 17 % higher thus reducing the average profit of the quarrying activity by the same factor. Transportation cost from the quarries to the factories has been estimated to be 100 % higher if the recommended new connecting roads will not be constructed, making the overall cost until the factory about 22% higher.

Concerning the processing stage, the production of manufactured goods in the factories will be around 23% lower with a total loss of about 1,291 million LE in terms of value. Moreover, the processing cost for the unit surface area of finished product will be about 12 % higher thus reducing the average profit of the processing activity by the same factor.

At the same time the export of blocks could increase by about 50% on the assumption of no increase in the raw import due to a lower demand from the local factories, while

the present level of 900 thousand tons will be maintained in the case of full implementation of the optimum strategy.

On the other side the export of finished product will be about 33% lower with respect to the target of the optimum strategy for which a sacrifice in the export of blocks will be highly compensated by a boost in the total export of finished products (+1,291 million LE in terms of value).

The added value will be lower by 23%, corresponding to the loss in the production value of finished products.

Only the employment will not suffer since it is not linked to the improvement in technology but simply on the increase in number of production units.