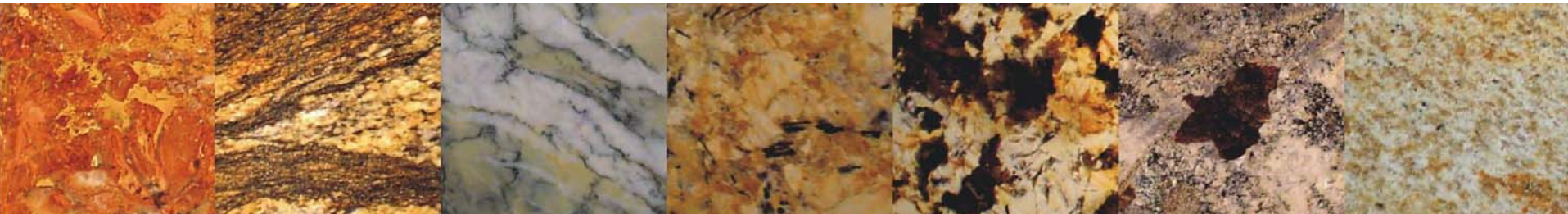


# SEMINAR ON NORM MANAGEMENT IN BRAZIL

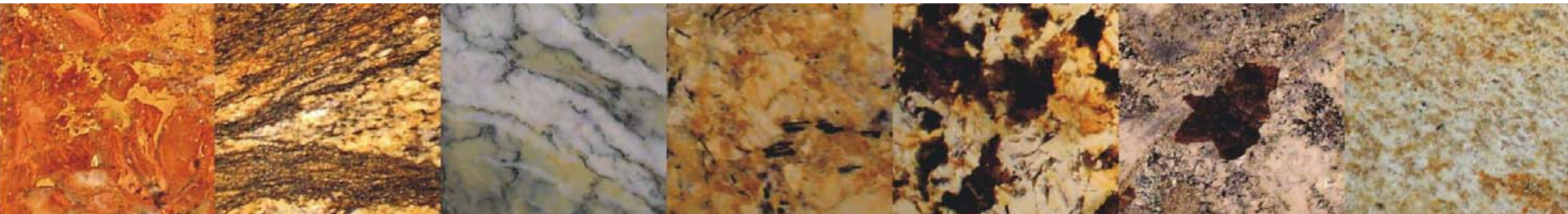
## NORM IN THE DIMENSION STONE INDUSTRY: RADON RELATED TO GRANITE COUNTERTOPS

Geol. Cid Chiodi Filho – ABIROCHAS



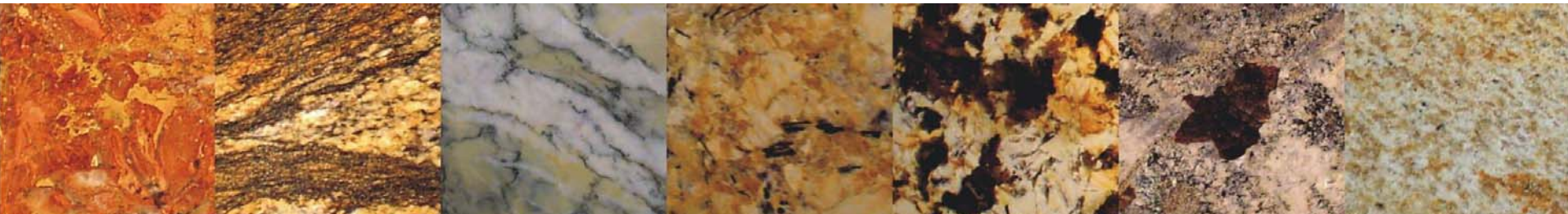
# THE INTERNATIONAL MARKET OF DIMENSION STONES

Taking together direct trading in the international market and the domestic markets of consumer countries, as well as the sales of machinery, equipment, inputs and services, it is estimated that the stone fabricating industry presently generates from US\$ 80 to US\$ 100 billion in revenues annually.



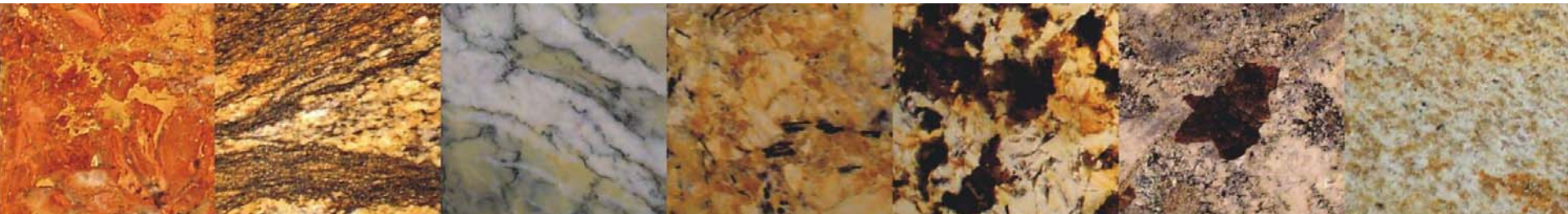
## BRAZILIAN DIMENSION STONES TRADE

Between domestic and export business, it is estimated that the Brazilian dimension stone industry generated trade of US\$ 4.5 billion in 2007.



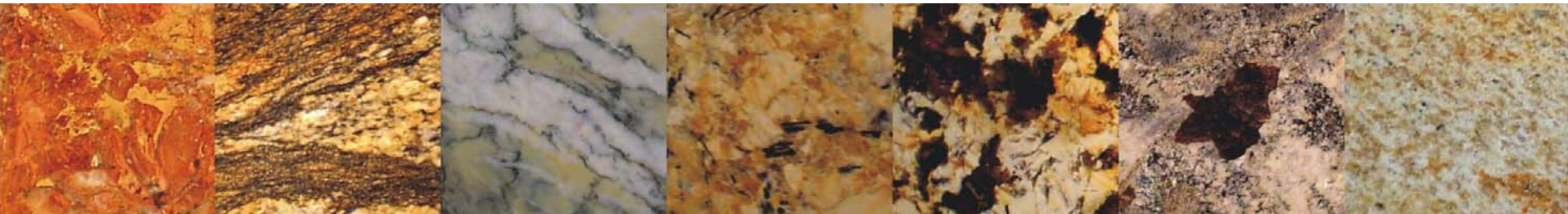
# THE DIMENSION OF THE BRAZILIAN STONE SECTOR 2007

- 8.0 million tons of dimension stones produced.
- 1,200 commercial varieties of rocks sold in the domestic and overseas markets.
- 1,800 dimension stone quarries.
- 11,300 companies operating in the production chain.



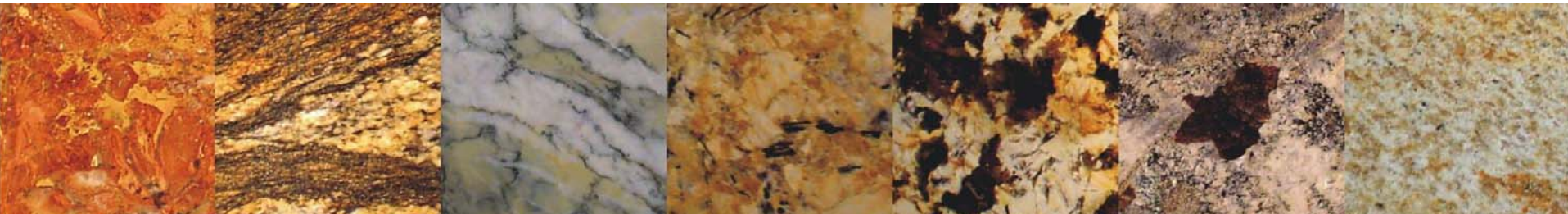
# THE DIMENSION OF THE BRAZILIAN STONE SECTOR 2007

- 140,000 direct and 420,000 indirect jobs in the sector.
- Production capacity of 70 million m<sup>2</sup> a year of special processed stones and 50 million m<sup>2</sup> of simple finished products.
- Domestic consumption of 58.3 million m<sup>2</sup>, including special and simple processed stones.
- US\$ 1.093 billion and 2.5 million tons exported.



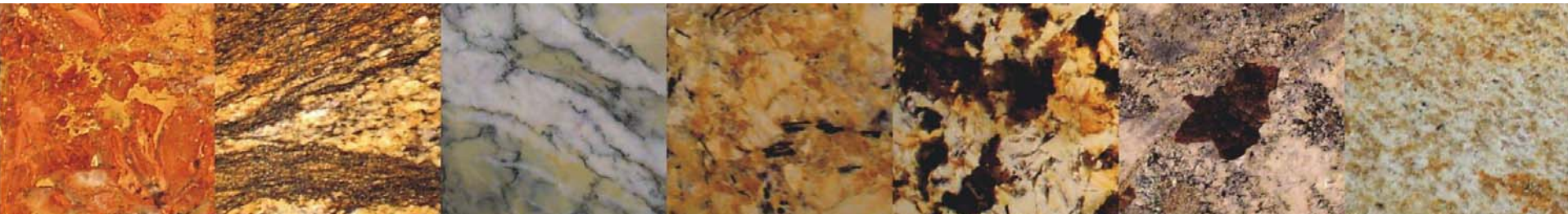
# THE DIMENSION OF THE BRAZILIAN STONE SECTOR 2007

- Growth of 4.6% in value of exports over 2006.
- Exports of 16.8 million m<sup>2</sup> equivalent of granite, marble and other types of stone slabs (2 cm thick).
- About 600 exporting companies (overseas sales to 120 countries).
- US\$ 4.5 billion of commercial transactions in the internal and external markets.



# BRAZIL AND THE RECENT EVOLUTION OF DIMENSION STONES

As of the 1990s, Brazil underwent noteworthy growth in production and exports of dimension stones, with increase in activities throughout the production chain. In addition, the main recent advances in quarrying and processing were due to the increase in exports.

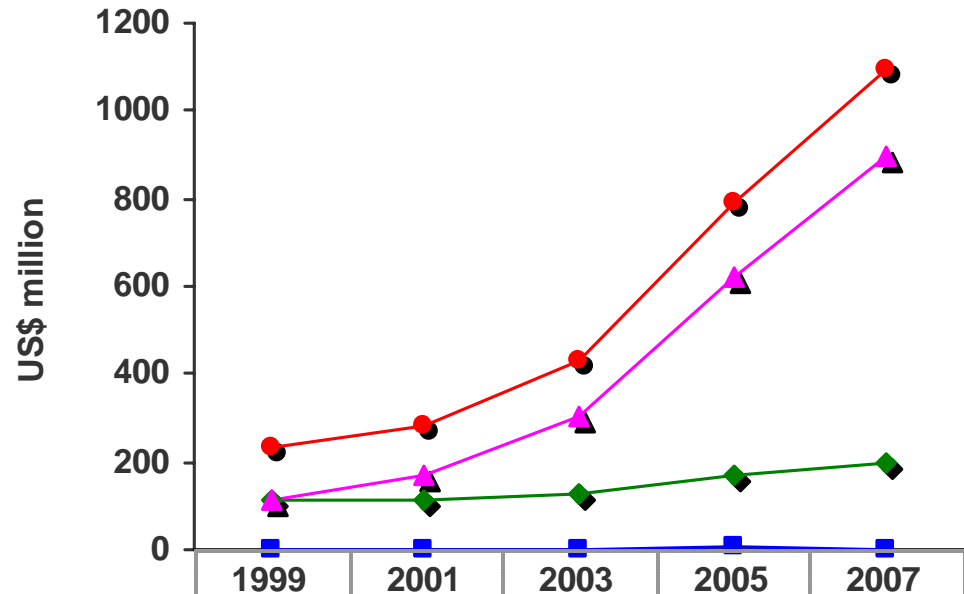


## BRAZILIAN EXPORTS OF DIMENSION STONES

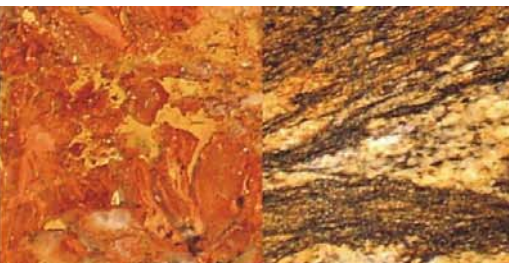
**RSB – raw siliceous products (mainly granite blocks);**

**RCB – raw calcareous products;**

**RP – finished products (simple and special).**

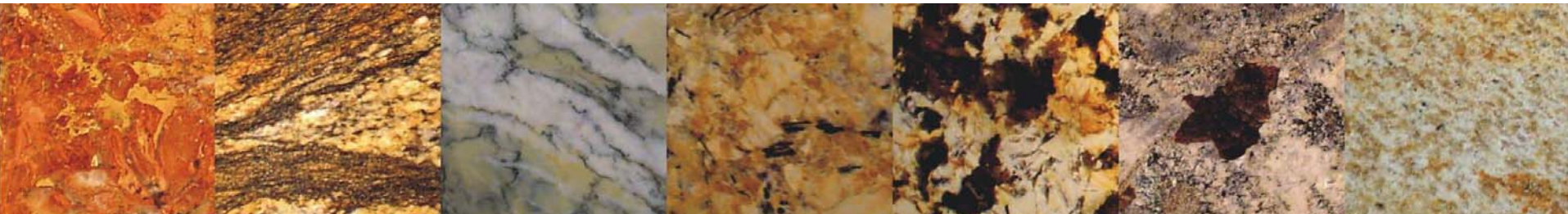


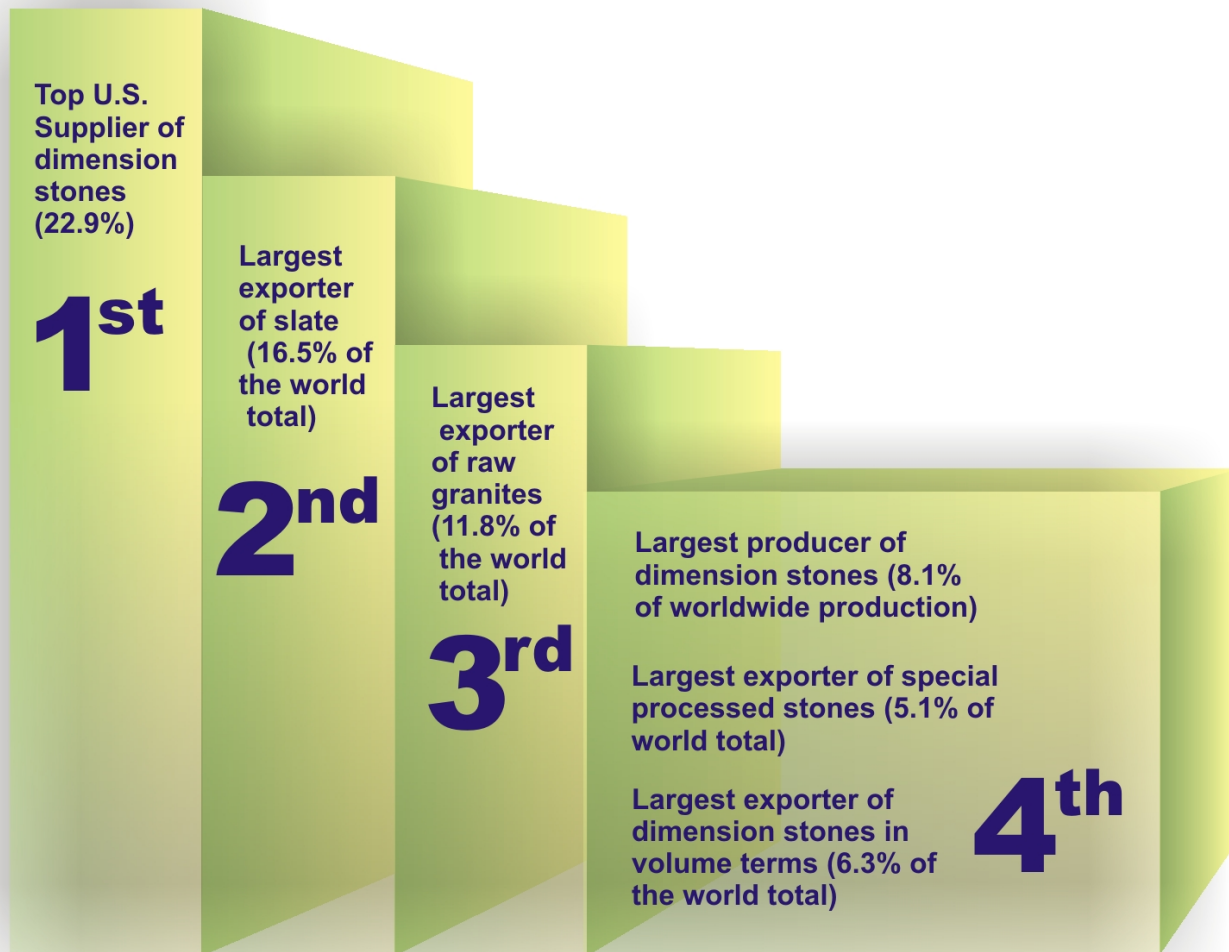
◆ RSB	115	110	126	167	196
■ RCB	1	1	2	4	1,1
▲ RP	116	169	301	619	897
● TOTAL	232	280	429	790	1093



# BRAZIL IN THE INTERNATIONAL MARKET OF DIMENSION STONES

Presently, Brazil is already included in the group of major producers and worldwide exporters, acting as an effective global player.





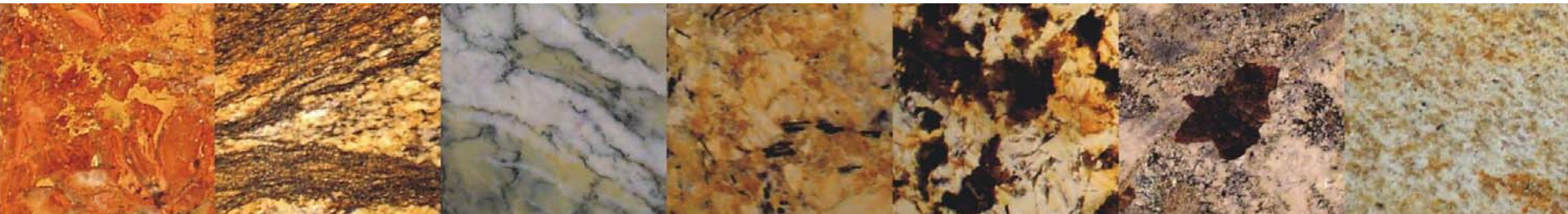
**Brazil in the International Stone Market - 2006**

# MAIN EXPORTED PRODUCTS IN 2007

Description	Revenue (US\$ million)	Growth (2007/2006)	Participation in the Brazilian Stone Exports
<b>Processed granite slabs and finished products</b>	<b>729.5</b>	<b>+6.0%</b>	<b>66.7%</b>
<b>Blocks and rough granite slabs</b>	<b>194.0</b>	<b>-3.0%</b>	<b>18.7%</b>
<b>Slates</b>	<b>98.4</b>	<b>+16.3%</b>	<b>9.0%</b>
<b>Simple finished stones</b>	<b>40.3</b>	<b>+22.9%</b>	<b>3.7%</b>
<b>Soapstone</b>	<b>15.4</b>	<b>+18.8%</b>	<b>1.7%</b>
<b>Others</b>	<b>15.4</b>	<b>-35.8%</b>	<b>1.7%</b>
<b>Total</b>	<b>1,093.0</b>	<b>+4.6%</b>	<b>100%</b>

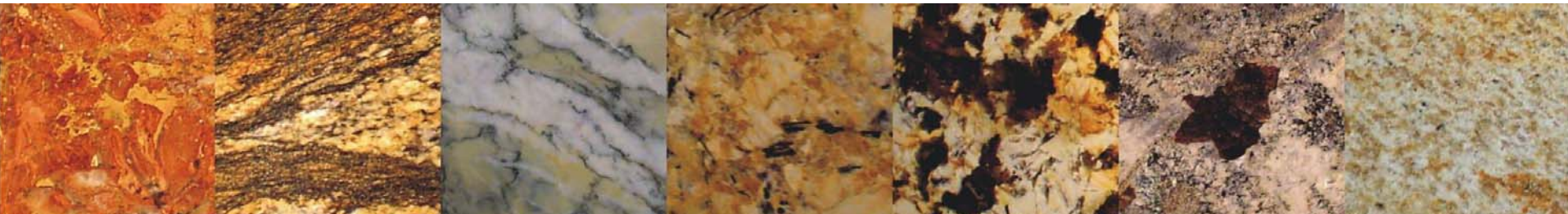
# BRAZILIAN EXPORTS OF DIMENSION STONES

The four main countries of destination for Brazilian stone exports in order of revenues are USA, Italy, China, Spain and United Kingdom. The three main markets in South America are Argentina, Chile and Venezuela.



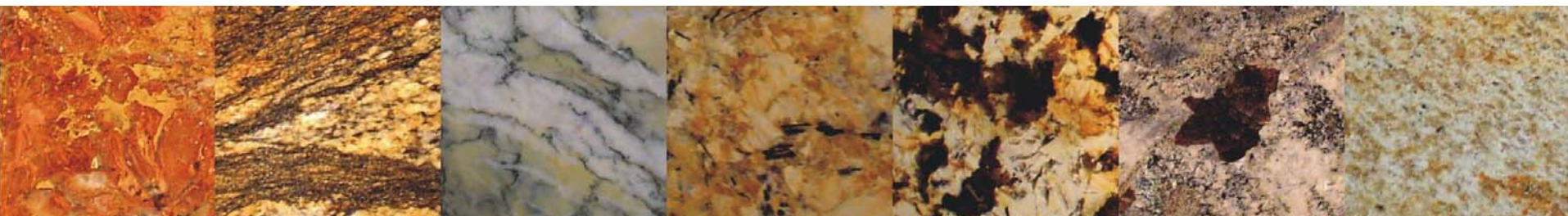
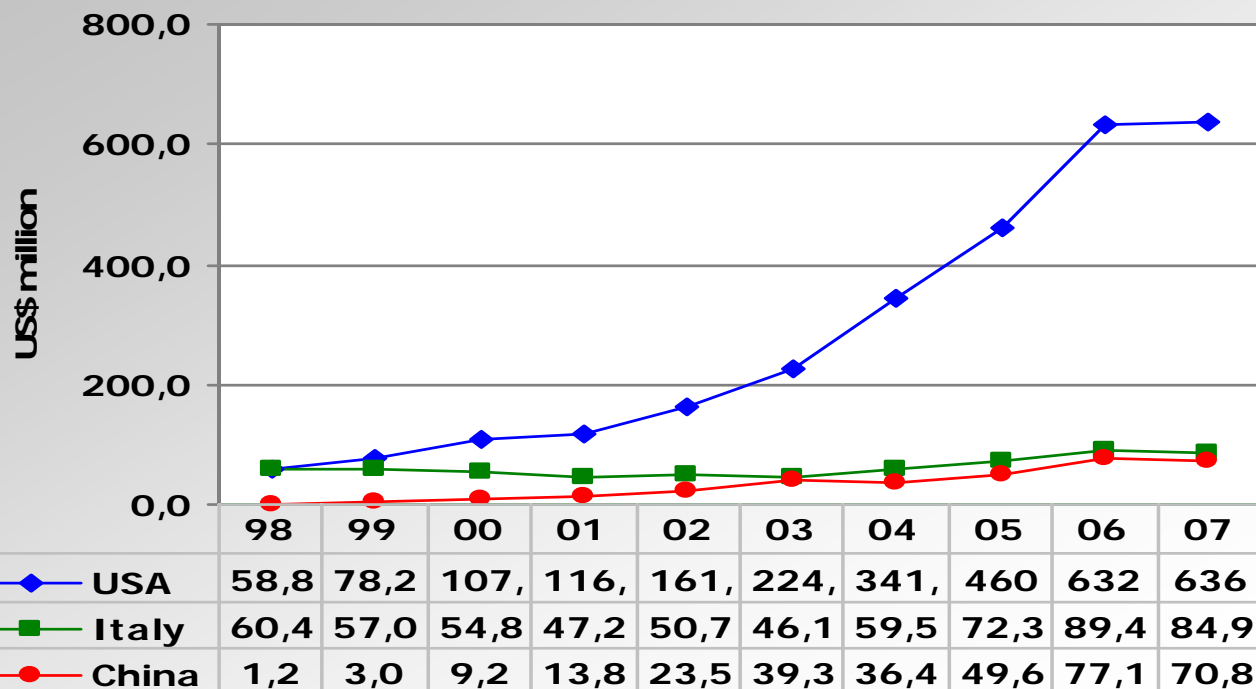
# BRAZILIAN EXPORTS OF DIMENSION STONES

<b>MAIN COUNTRIES OF DESTINY OF THE BRAZILIAN DIMENSION STONES EXPORTS IN 2007</b>			
<b>Destiny</b>	<b>Revenue (US\$ million)</b>	<b>Average Prices US\$/t</b>	<b>Participation in the Brazilian Stone Exports</b>
<b>USA</b>	<b>636.1</b>	<b>832.5</b>	<b>58.2%</b>
<b>Italy</b>	<b>84.9</b>	<b>227.3</b>	<b>7.8%</b>
<b>China</b>	<b>70.8</b>	<b>143.5</b>	<b>6.5%</b>
<b>Spain</b>	<b>37.5</b>	<b>262.1</b>	<b>3.4%</b>
<b>Total</b>	<b>829.3</b>		<b>75.8%</b>



## BRAZILIAN EXPORTS OF DIMENSION STONES

EVOLUTION OF THE BRAZILIAN DIMENSION STONES  
EXPORTS TO USA, ITALY AND CHINA



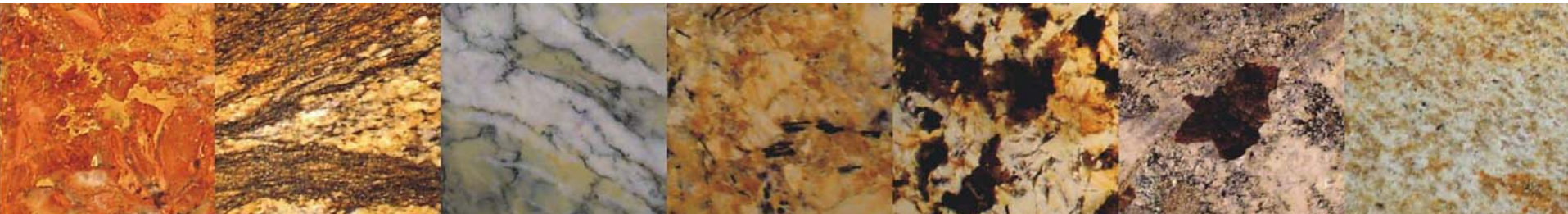
# BRAZILIAN EXPORTS TO US MARKET IN 2008

JANUARY – JULY

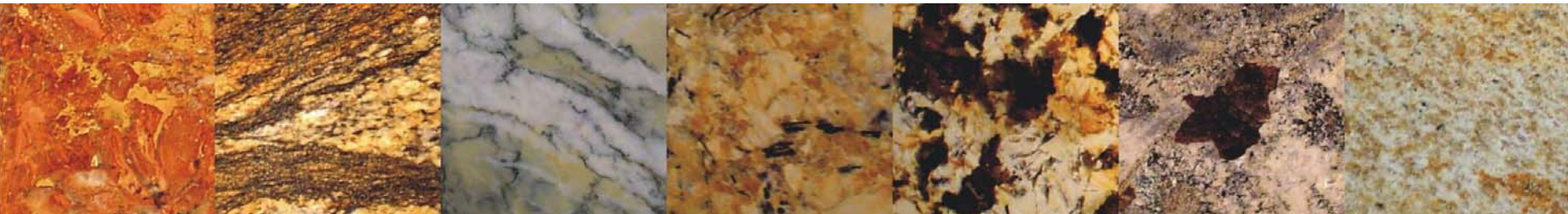
**US\$ 301.2 million – Total Exports**

**-19.21% in revenue**

**-24.46% in physical volume**



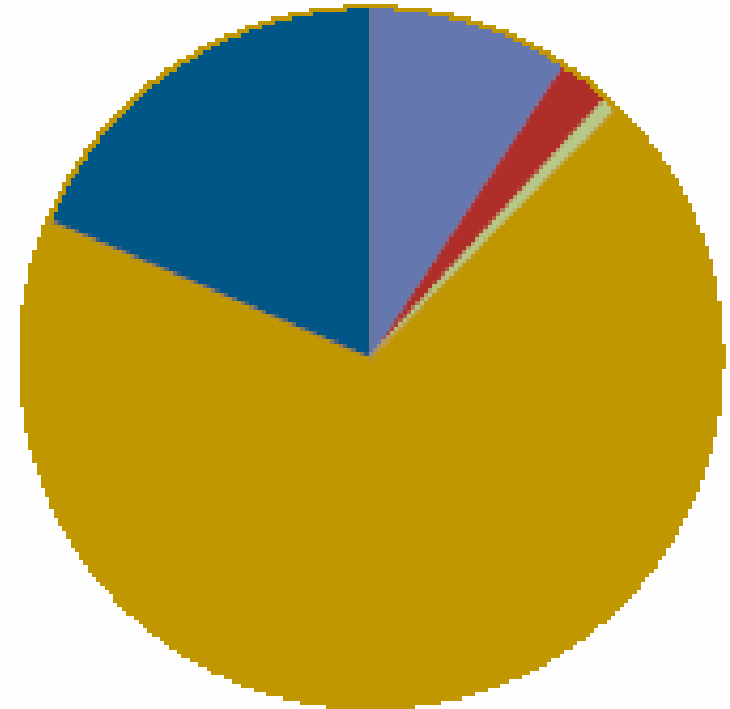
# NORM IN THE DIMENSION STONE INDUSTRY: RADON RELATED TO GRANITE COUNTERTOPS



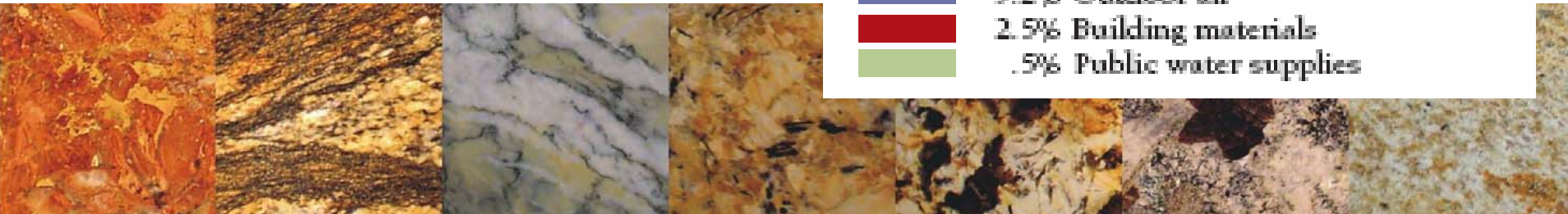


Source: *The Truth About Granite and Radon/Radiation*  
Marble Institute of America

## Typical Contributions to Radon Content of Indoor Air (pCi/L)



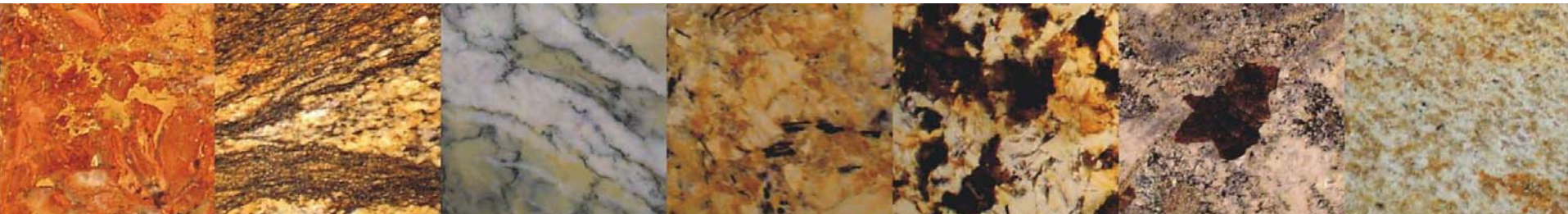
69.3%	Soil around house
18.5%	Well water
9.2%	Outdoor air
2.5%	Building materials
.5%	Public water supplies



# QUESTION ABOUT RADON IN GRANITE COUNTERTOPS

Does the EPA believe there is a danger of radon gas or associated radiation being emitted from granite countertops?

**...EPA does not believe sufficient data exist to conclude that the types of granite commonly used in countertops are significantly increasing indoor radon levels.**



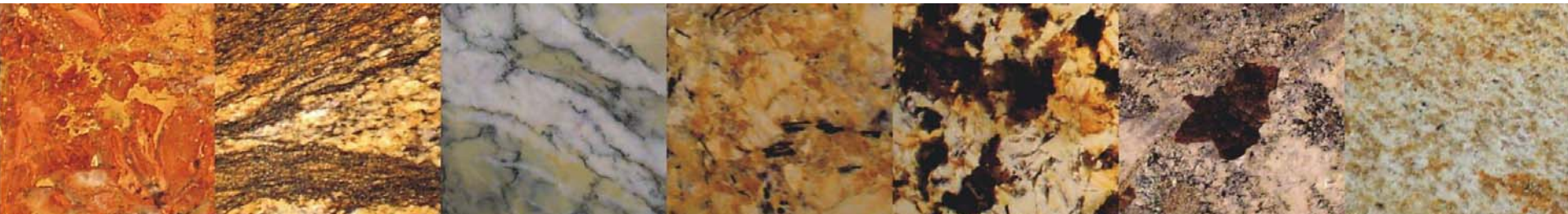
## Home & Garden

### What's Lurking in Your Countertop?

By KATE MURPHY

Published: July 24, 2008

**SHORTLY** before Lynn Sugarman of Teaneck, N.J., bought her summer home in Lake George, N.Y., two years ago, a routine inspection revealed it had elevated levels of radon, a radioactive gas that can cause lung cancer. So she called a radon measurement and mitigation technician to find the source. **His Geiger counter indicated that the granite countertop in the kitchen was emitting radiation at levels 10 times higher than those he had measured elsewhere in the house.**



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