

# **SUSTAINABLE DEVELOPMENT WITH CONCRETE AND CEMENT**

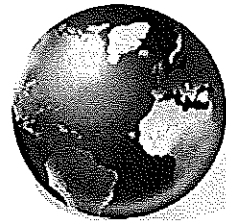
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*Texas Industries*

## **TODAY'S OUTLINE**

- Cement and Concrete: Industry Overview
- What Drives Demand?
- Sustainable Development
- Challenges of the Future
- Relieving Environmental Issues with Cement and Concrete – Examples
- Education and Partnership Opportunities
- Dates and Next Steps

- Cement is the 3<sup>rd</sup> most utilized product on earth, ranking only behind water and electricity.






- World cement demand is in excess of 2.2 billion tons. China\* produces 1.4 billion of that.



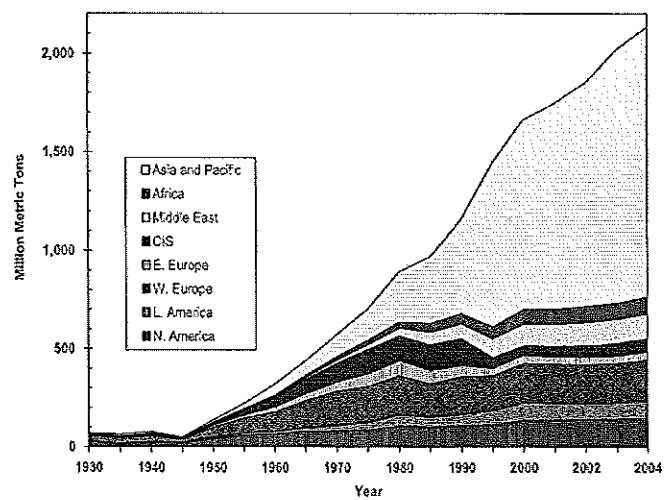
**\*Fact:** China produced about 2.5 million tons in 1950.

Source: USGS (Converted to Short Tons)

## Ranking the Top 5 Producers:

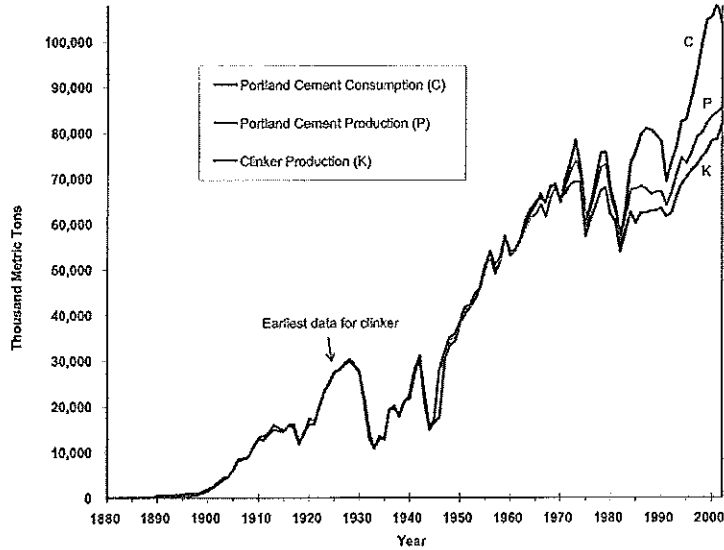
-  China
-  India
-  U.S.
-  Japan
-  Korea (South)

## World Production of Cement



Source: Courtesy of U.S. Geological Survey (USGS)

### U.S. Production & Consumption 1880 - 2006

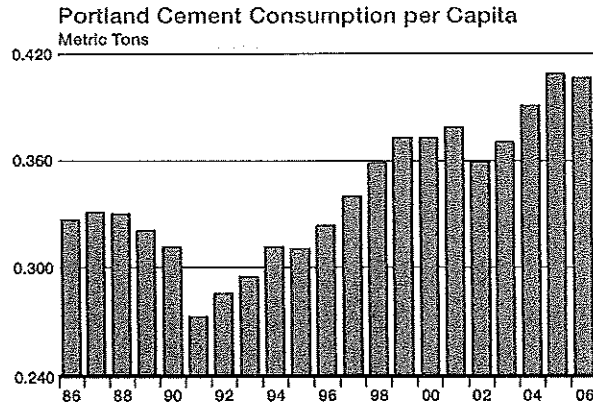


- Since 1977, U.S. Portland Cement consumption has grown an average of 5.7%\* per year.

\*Compounded annual growth rate.

Source: USGS

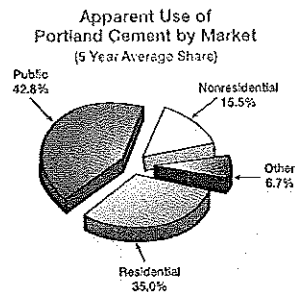
- **Portland Cement consumption per capita is currently slightly more than 0.4 metric tons in the U.S. (slightly more than 2 cubic yards of concrete per person).**



**That's also been increasing....**

Source: Portland Cement Association

- **The largest increases in cement intensity\* in the last 20 years has been in public works and residential construction.**



\*Defined as tons consumed per million dollars spent (in constant 1996 dollars).




## Portland Cement Shipped by Customer Type in 2005 (Last Year Available)

Customer Type	Quantity*	Percent of Total
Ready Mix Concrete	90,300,000	74%
Concrete Products	16,800,000	13.8%
Contractors	7,380,000	6%
Building Material Dealers	3,630,000	3%
Oil Well, Mining, Waste	2,340,000	1.9%
Govt. and Miscellaneous	1,970,000	1.67%
<b>Total</b>	<b>122,000,000</b>	

\*Metric Tons

Source: USGS

- Texas, California and Florida Consume One-Third of the Total U.S. Consumption (Short Tons).\*

 Texas	16.7 Million
 California	15.5 Million
 Florida	<u>11.4 Million</u>
<b>TOTAL</b>	<b>43.6 Million</b>

\*Based on 2006 USGS Totals

## Just In.....

- In 2007, Texas cement shipments increased by 1.4%; Florida's fell by 29%; and California fell 13.4%. That's still 31.5% of total U.S. Consumption







Texas  
17.1 Million



California      Florida  
13.43 Million    8.09 Million

Source: USGS and Texas State Tax Reports

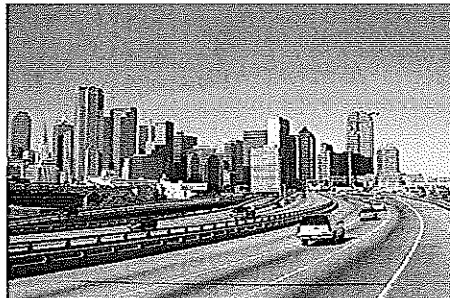
## Remember the Per Capita Consumption for 2006?

	U.S.	.41 Per Person
	Texas	.71 Per Person
	California	.36 Per Person
	Florida	.42 Per Person

- Texas' annual demand for cement is expected to rise to 24 million tons by 2030.
- Current capacity is 11 million tons with 2.4 million under construction (TXI and Cemex)



### **What Will Drive Demand in Texas?**



## Texas Will Add 10 Million New People by 2030

**Table 1. Projected U.S. and Texas Populations (Millions)**

	2005	2010	2015	2020	2025	2030
<b>U.S. Census Bureau<sup>1</sup></b>						
United States	295.5	308.9	322.4	335.8	349.4	363.6
Texas	22.9	24.6	26.6	28.6	30.9	33.3
<b>Texas State Demographer<sup>2</sup></b>						
50 Percent Immigration Scenario	22.6	24.3	26.2	28.0	29.9	31.8
100 Percent Immigration* Scenario	23.3	26.1	29.2	32.7	36.7	41.1
2000-04 Immigration Scenario	22.9	25.1	27.6	30.3	33.2	36.3
Texas State Demographer's Average	22.9	25.2	27.7	30.3	33.2	36.4
Average Increase from 2005	-	2.4	4.9	7.5	10.4	13.6

Sources: <sup>1</sup>U.S. Census Bureau, Population Division, Interim State Population Projections, 2005.

<sup>2</sup>Texas State Data Center and Office of the State Demographer, 2006 Texas Population Projections Program, "Population Projections for the State of Texas." Projections are from the 2000 Census, thus 2005 is a projected population for the 50 percent and the 100 percent scenarios.

\* Equal to 1990-2000 Rate

- **Steve Murdock (the Texas State Demographer) predicts Texas will add 5,832,161 new jobs by 2030.**
- **The U.S. Census Bureau believes it will be 4,503,418.**

**Table 3. Texas Employment Projections Based on Projected Population**

<b>U.S. Census Bureau</b>			
Year	Projected Population	Projected Number of Jobs at Average Jobs/Pop Ratio	New Jobs Added Since 2005
2005	22,928,508	9,734,808	
2010	24,648,888	10,533,620	798,811
2015	26,585,801	11,361,353	1,626,544
2020	28,634,896	12,237,027	2,502,218
2025	30,865,134	13,190,111	3,455,303
2030	33,317,744	14,238,226	4,503,418
<b>Texas State Demographer</b>			
2005	22,928,508	9,734,808	
2010	25,164,941	10,754,153	1,019,345
2015	27,650,568	11,816,377	2,081,569
2020	30,331,673	12,962,139	3,227,330
2025	33,245,883	14,207,516	4,472,708
2030	36,427,031	15,566,969	5,832,161

Sources: U.S. Census Bureau, Texas State Data Center and Office of the State Demographer

## Where in Texas are these People Going to Live?

**Table 2. Texas Metropolitan Area Population Estimates**

MSA	2005 Population (millions)	Percent of Total State Population
Austin	1.5	6.6
Dallas-Fort Worth	5.8	25.3
Houston	5.4	23.6
San Antonio	1.9	8.3
Total Four Major MSAs	14.6	63.8
Total All Texas MSAs	19.9	86.9
Texas	22.9	100.0

Source: Population Division, U.S. Census Bureau