



# ***2008 EMD Market Review and Forecast***

**Li Tongqing  
CITIC Dameng Mining Industries Ltd.**

**IMI's 6th EPD Conference  
2009 International Forum on Electrolytic Mn Products  
March 29, 2009, Guangzhou, China**



**DAMENG**

# 2008 Global EMD Market Review

- The EMD manufacturers suffered seriously from the substantial increase of the prices of Mn ore, sulfur, etc in the first three quarters of 2008.
- Pressured by continuous cost increase, EMD price has been rising since 3rd quarter of 2008.
- Anti-dumping actions run wild in global major EMD markets. The subjected AD duties are as follows:
  - Feb 13 2008 – 17.1% for EMD from Delta South Africa imposed by EC.
  - Jun 14 2008 – 29.3%, 34.3-46.6%, 14.5% and 14% for EMD from Australia, China, South Africa and Spain respectively imposed by Japan.
  - Aug 14–18 2008 – 83.66% and 149.92% for EMD from Australia and China respectively imposed by US.
- As a result, EMD manufacturers of Europe, Japan and USA enjoy the benefits from having vast home country markets.
- Delta, South Africa improved its financial situation significantly in 2008. Selling price increased by 20% at the beginning of the year and 60% during April 2008. With all product and stocks sold, a profit of R150.4 m was announced for 2008 in sharp contrast with a loss of R 68.72 m for 2007.
- Unfortunately, Chinese EMD manufacturers experienced the opposite situation in 2008.



DAMENG

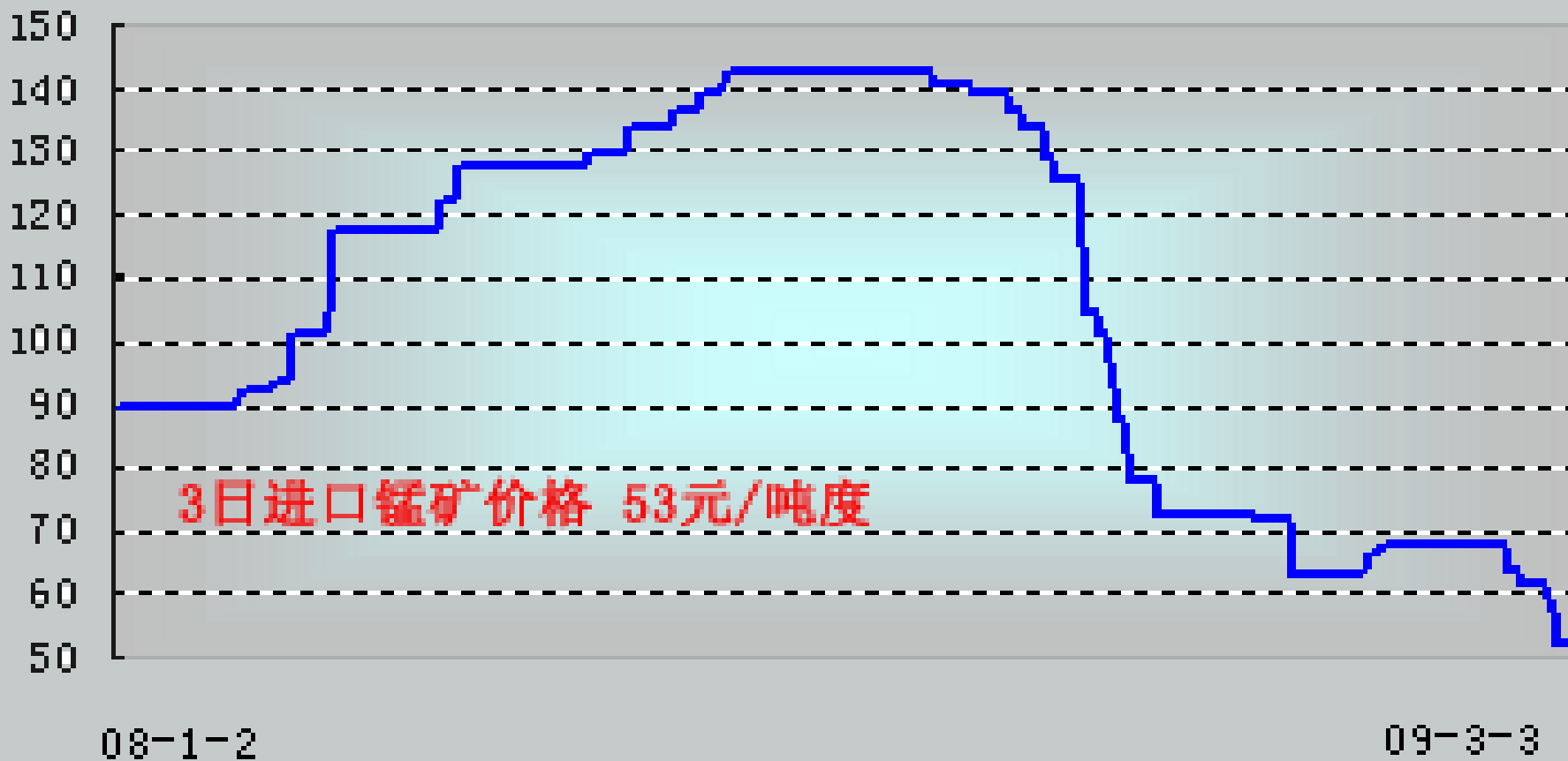
# Price Curve for Mn Ore (46% Mn) from Australia

China Main Port RMB/mtu

2008.01.02 – 2009.03.03

## 澳大利亚46%锰矿价格走势

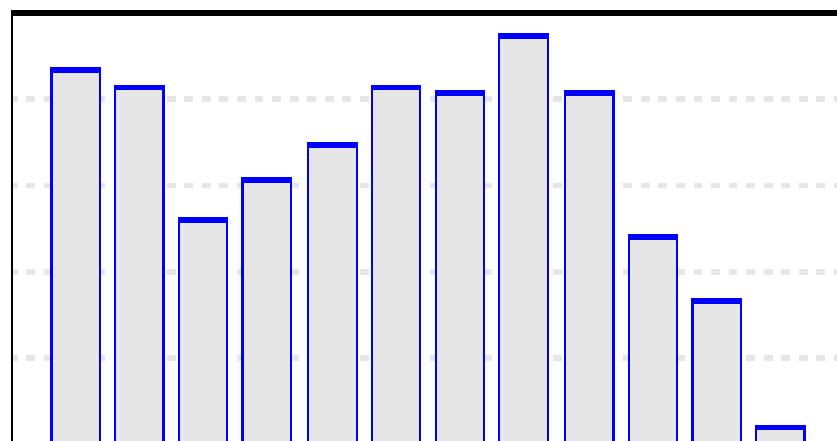
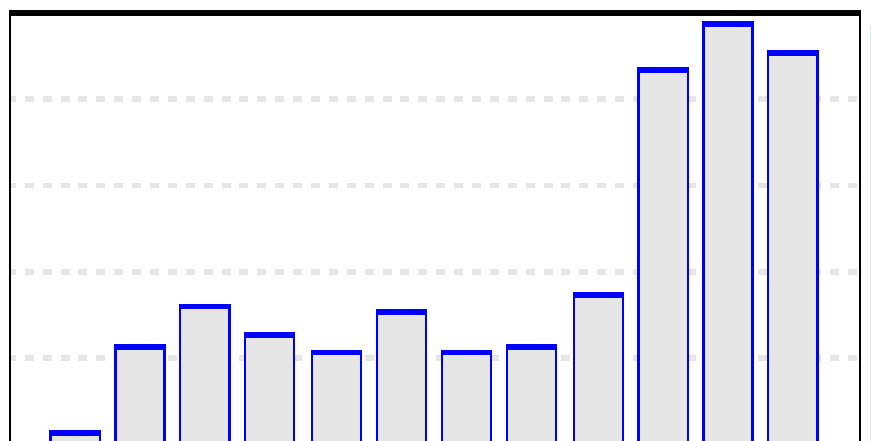
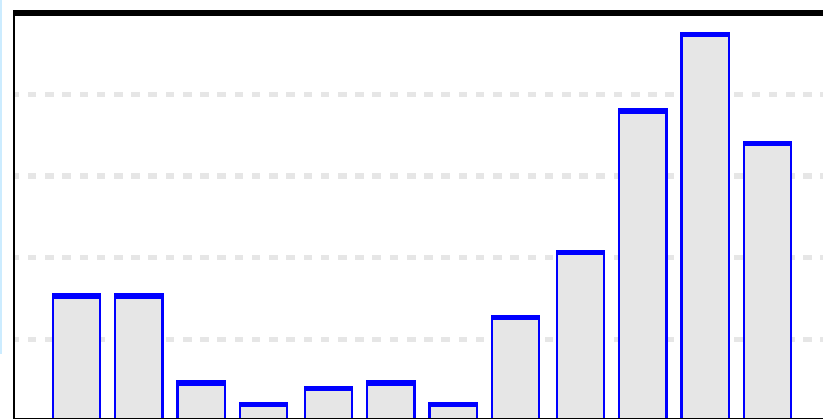
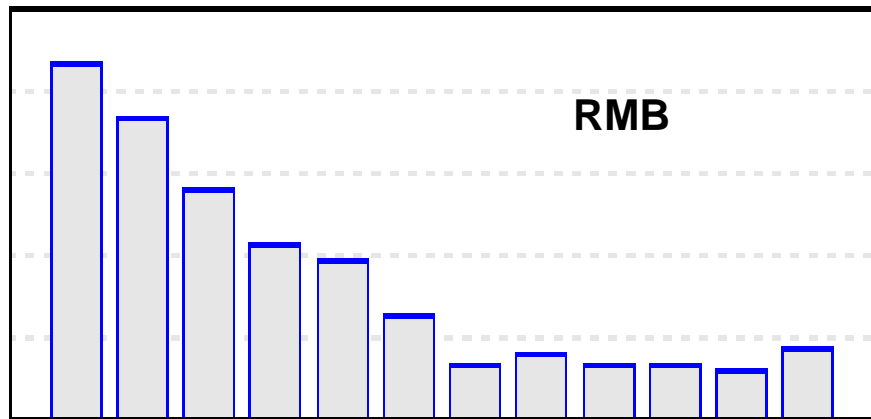
单位：元/吨度





DAMENG

# Selected Foreign Exchange Rate against US Dollar Trends in 2008





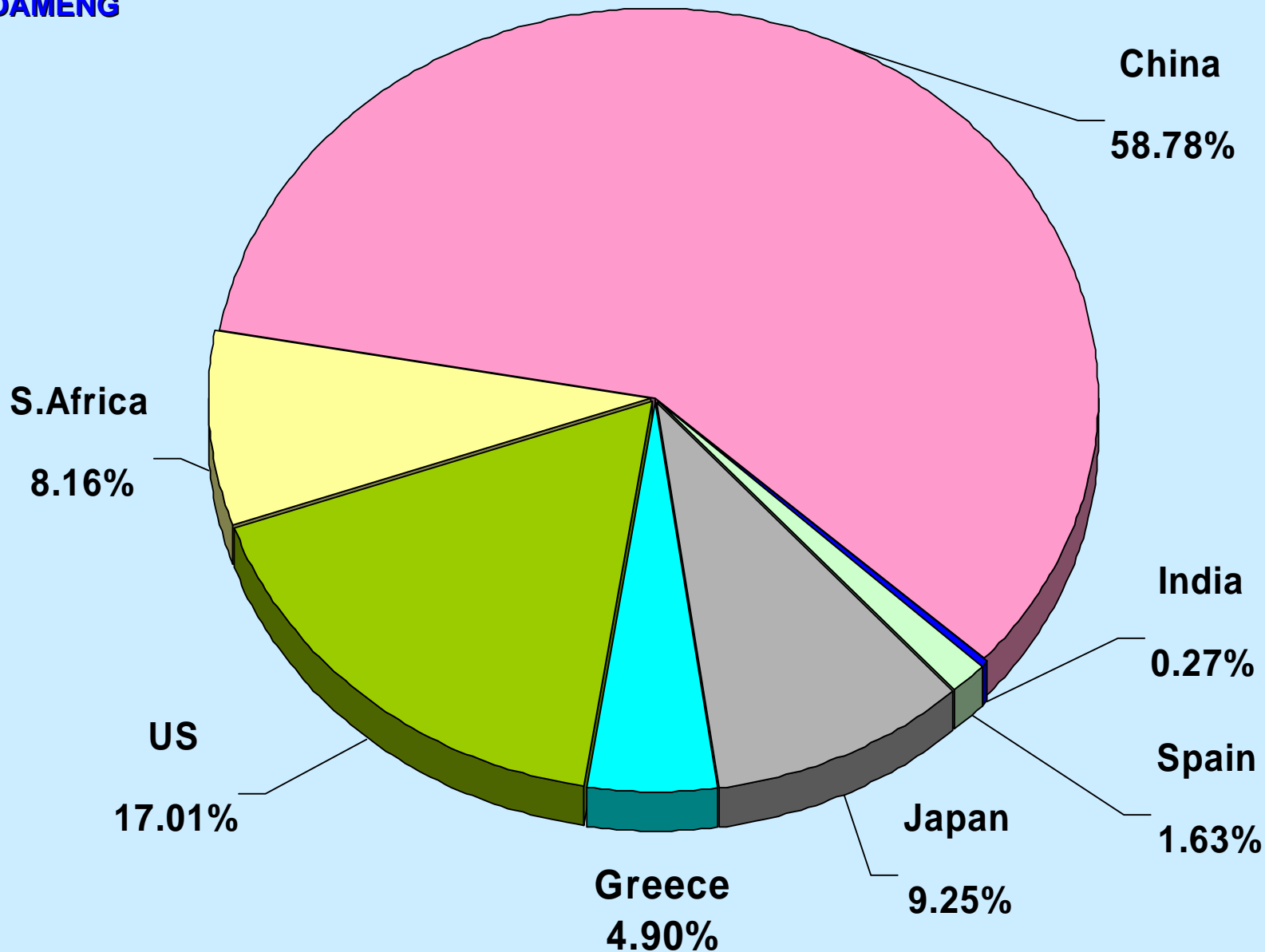
DAMENG

## 2008 World EMD Production Capacity

| Country | Company | MT/Y    | Country      | Company  | MT/Y   |
|---------|---------|---------|--------------|----------|--------|
| China   | 14 家    | 216,000 | U S          | Erachem  | 24,000 |
| Japan   | Tosoh   | 34,000  | U S          | Eveready | 12,000 |
| Greece  | Tosoh   | 18,000  | South Africa | Delta    | 30,000 |
| Spain   | Cegasa  | 6,000   | India        | Moil     | 1,000  |
| U S     | Tronox  | 26,500  | Total        | 367,500  |        |



# 2008 World EMD Production Capacity





# Major EMD Exports by Country

Unit: MT

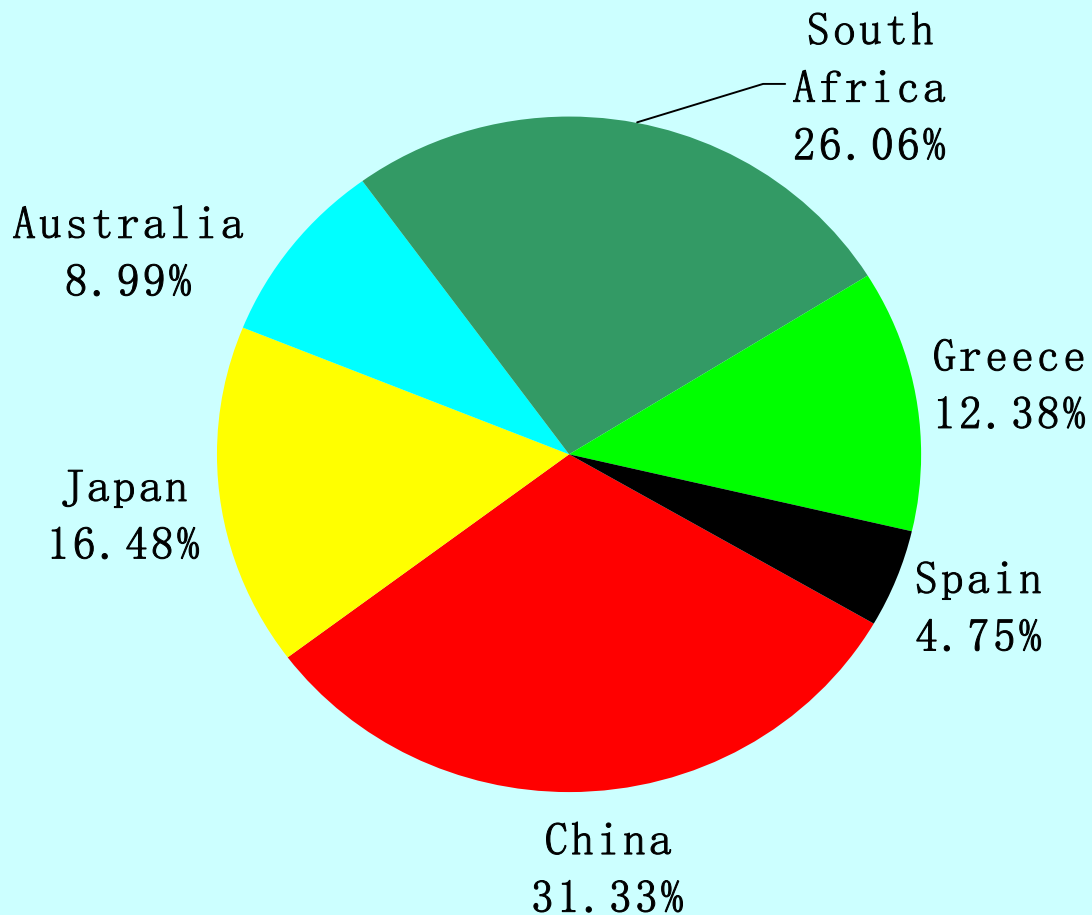
| <b>Country</b>         | <b>2006</b>               | <b>2007</b>    | <b>2008</b>    |
|------------------------|---------------------------|----------------|----------------|
| <b>China</b>           | <b>52,758</b>             | <b>47,057</b>  | <b>38,947</b>  |
| <b>Japan</b>           | <b>29,341</b>             | <b>24,138</b>  | <b>20,485</b>  |
| <b>Australia</b>       | <b>24,000<sup>e</sup></b> | <b>26,053</b>  | <b>11,181</b>  |
| <b>South Africa</b>    | <b>25,696</b>             | <b>22,085</b>  | <b>32,398</b>  |
| <b>Greece</b>          | <b>9,700<sup>e</sup></b>  | <b>13,872</b>  | <b>15,393</b>  |
| <b>Spain</b>           | <b>5,307</b>              | <b>6,716</b>   | <b>5,903</b>   |
| <b>Total</b>           | <b>2,601*</b>             |                |                |
| <b>Country</b>         | <b>149,403</b>            | <b>139,921</b> | <b>124,307</b> |
| <sup>e</sup> Estimated |                           |                |                |



# 2008 Major EMD Exports by Country

Unit: MT

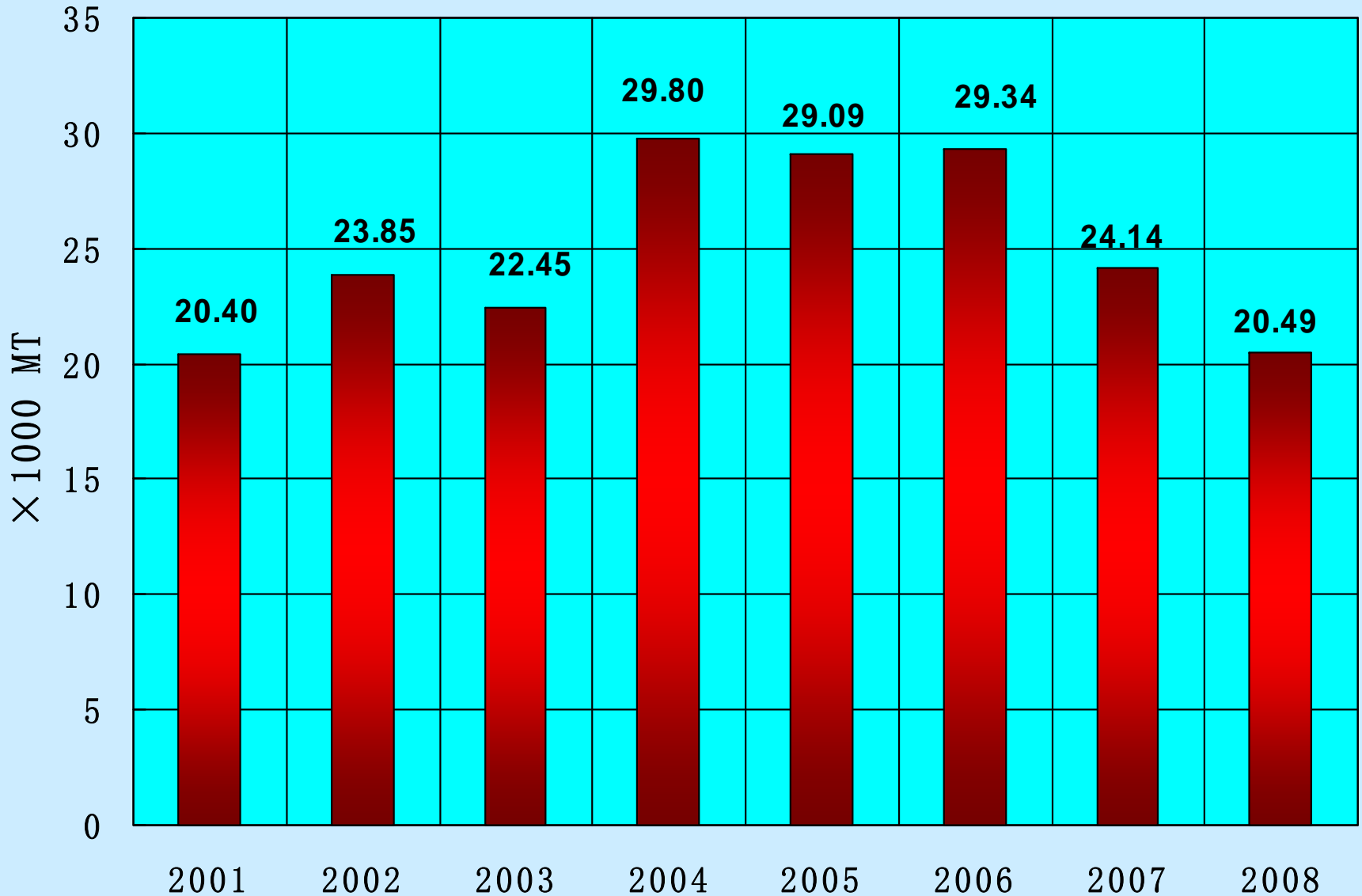
Total: 124,307 MT





**DAMENG**

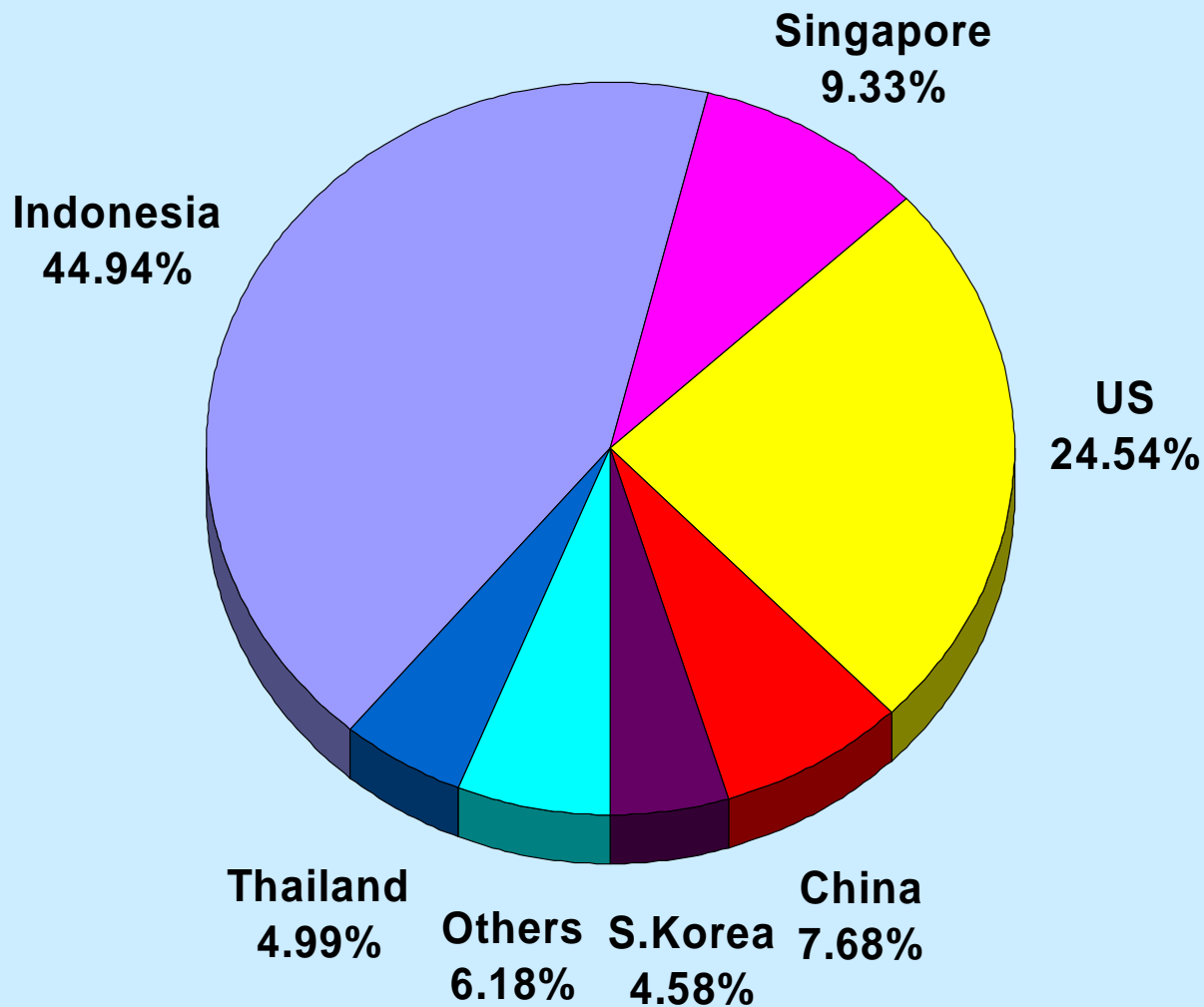
# 2001-2008 Japan EMD exports





# 2008 Japan EMD Exports by Country

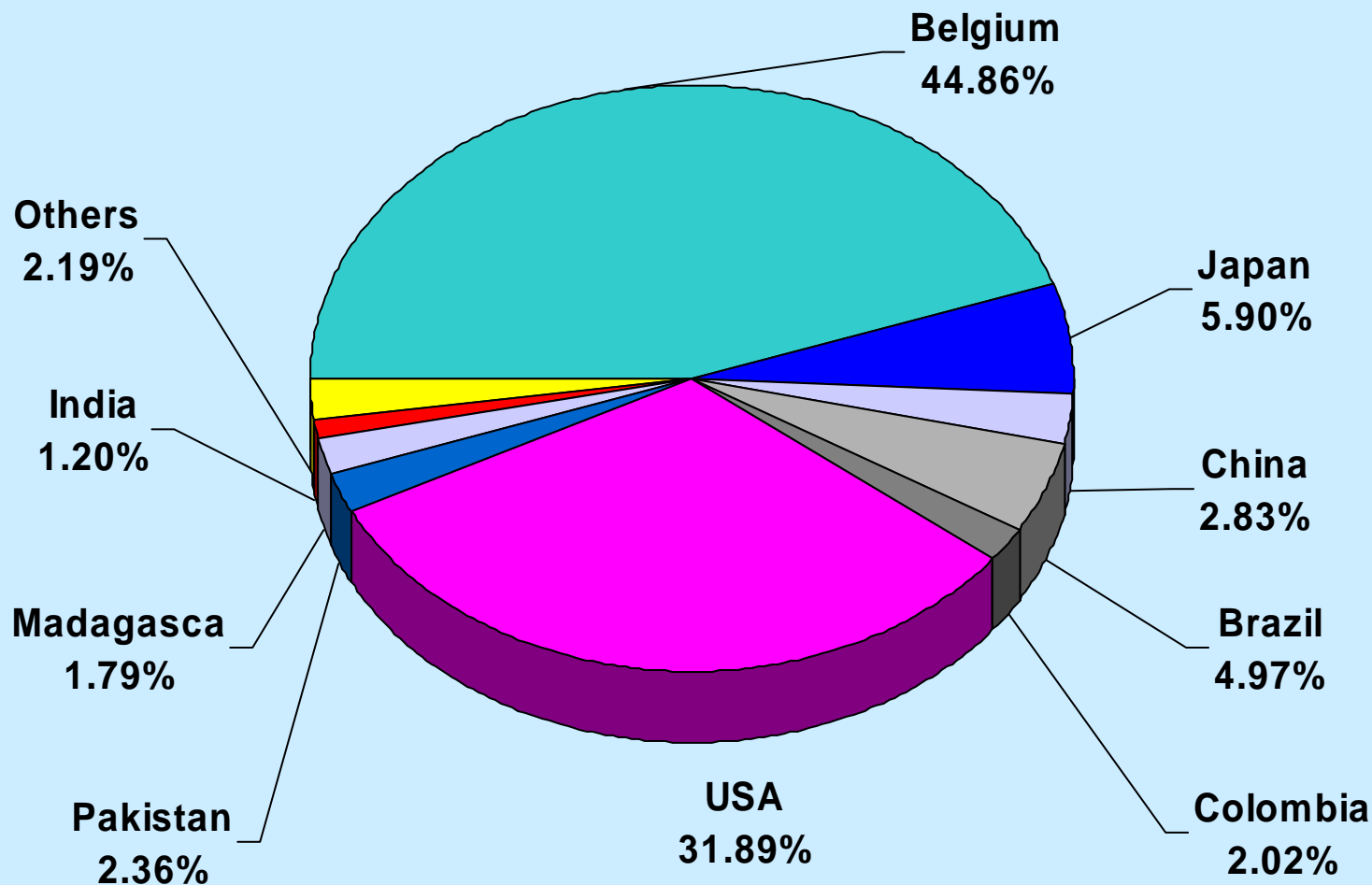
Total:20,485 MT





# 2008 S. Africa EMD Exports by Country

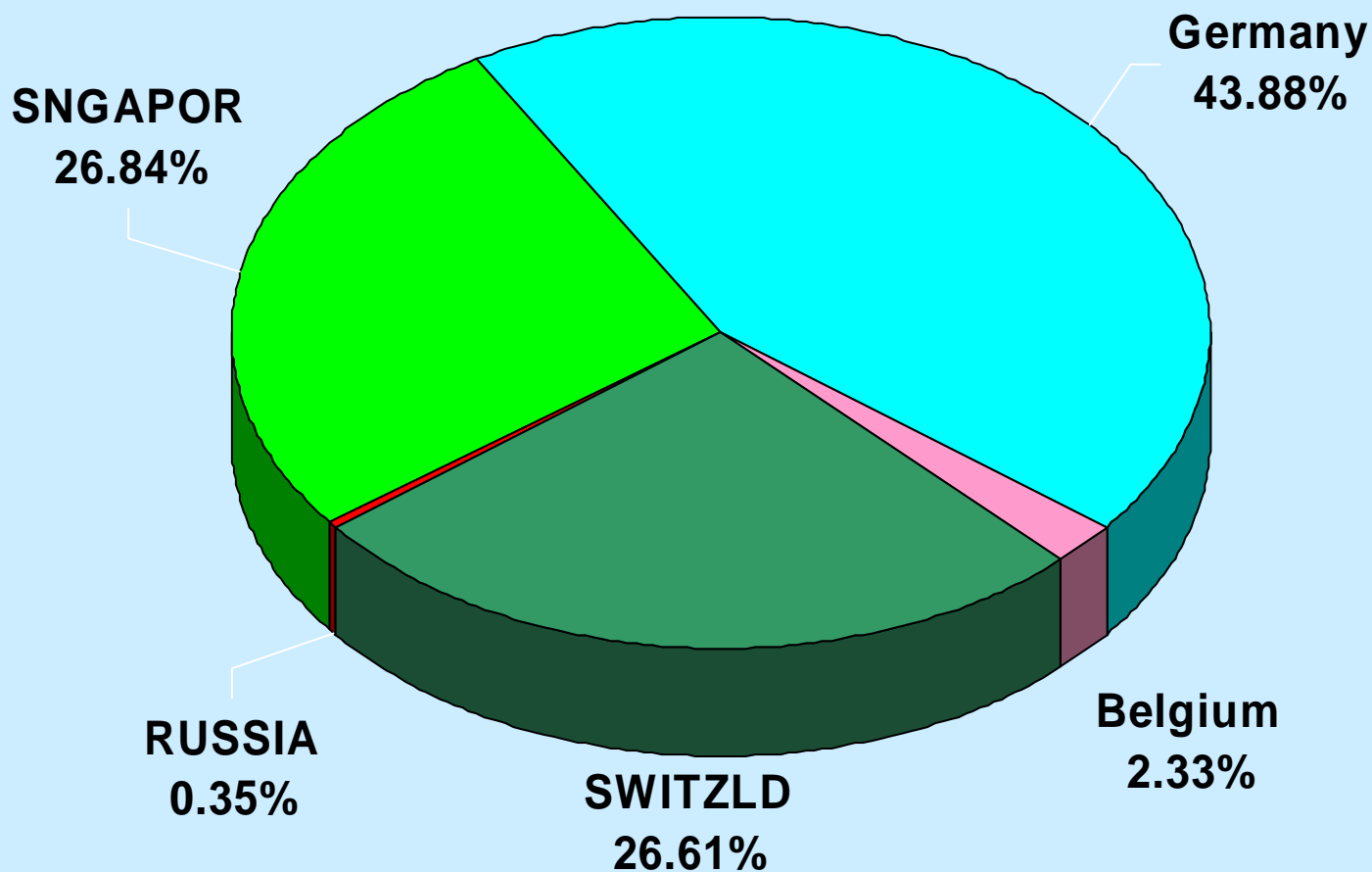
Total: 32.398 MT





# 2008 Greece EMD Exports by Country

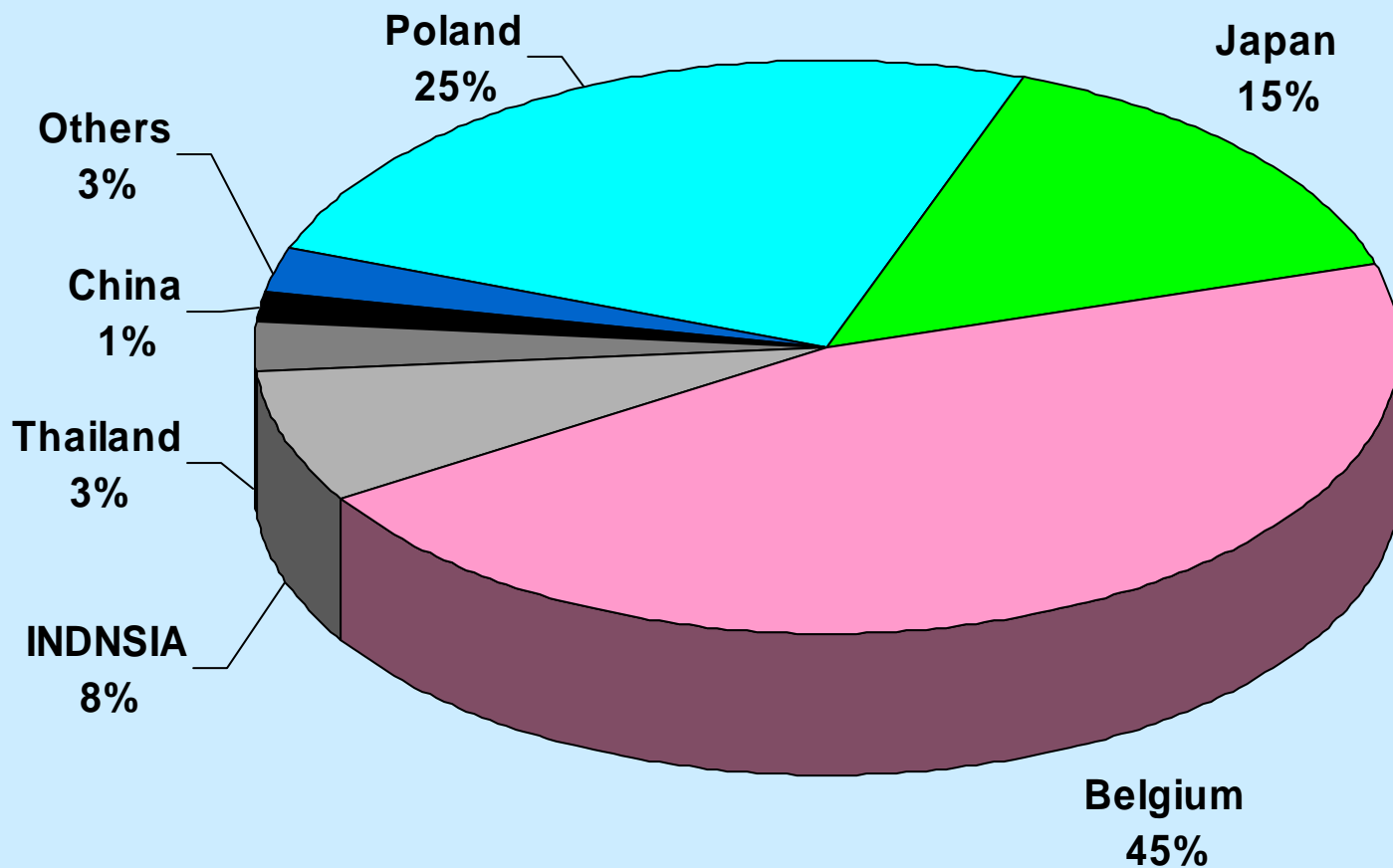
Total: 15,393 MT





# 2008 EMD Imports from Spain by Country

Total: 5,903 MT





## 2006-2008 Major EMD Imports by Country

Unit: MT

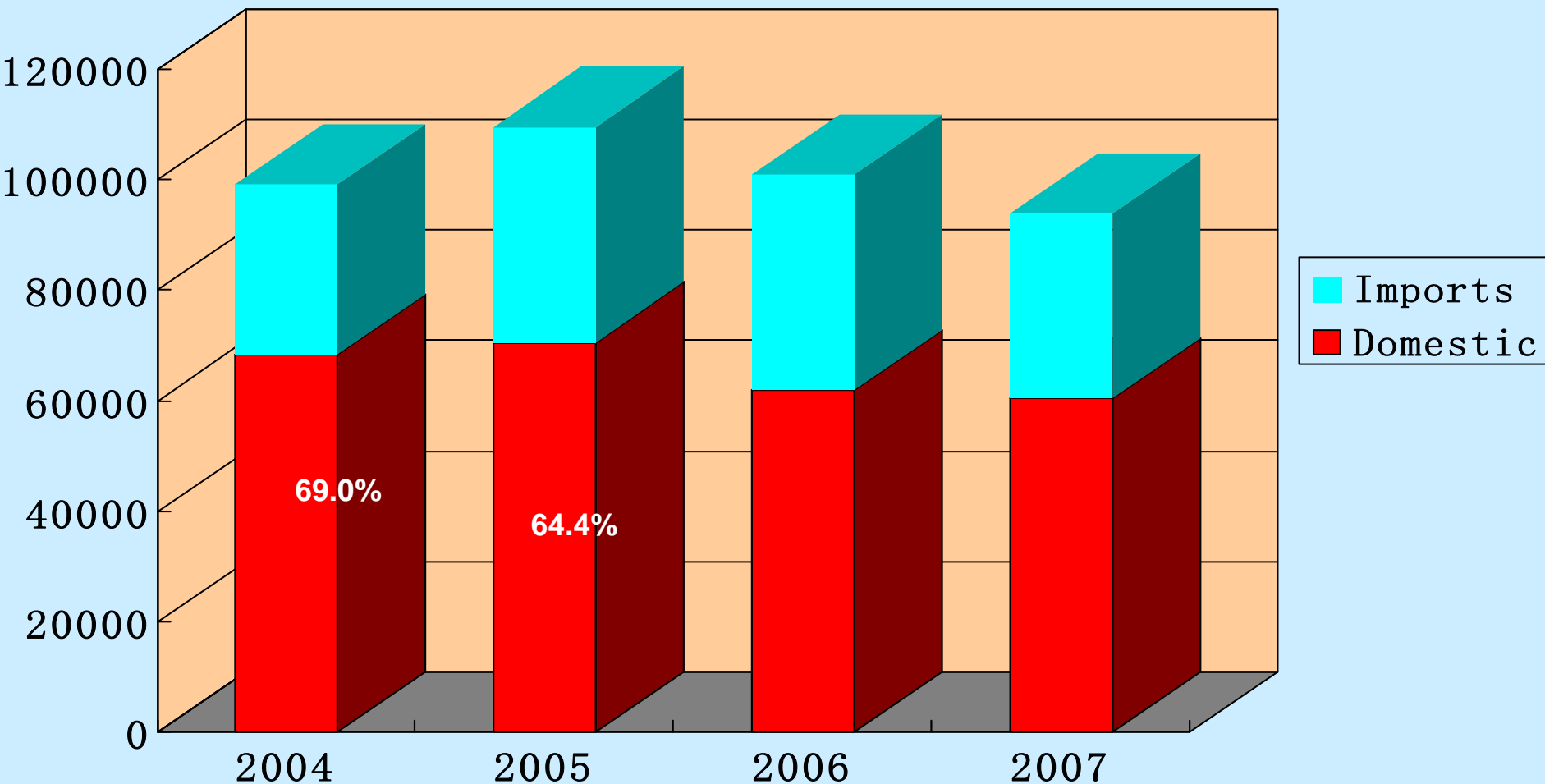
DAMENG

| Country     | 2006    | 2007    | 2008    |
|-------------|---------|---------|---------|
| U S         | 36,861  | 30,118  | 20,440  |
| Belgium     | 24,798  | 27,152  | 25,122  |
| Indonesia   | 21,760  | 19,841  | 22,132  |
| Japan       | 14,050  | 18,300  | 8,386   |
| Germany     | 11,019  | 11,078  | 10,467  |
| Singapore   | 5,742   | 7,243   | 6,269   |
| China       | 7,942   | 6,161   | 2,999   |
| India       | 8,966   | 6,730   | 5,129   |
| South Korea | 4,000   | 2,985   | 2,805   |
| Switzerland | 3,065   | 3,824   | 4,309   |
| Thailand    | 2,981   | 3,451   | 5,376   |
| Poland      | 2,146   | 2,763   | 1,883   |
| Malaysia    | 934     | 1,788   |         |
| Total       | 144,501 | 141,434 | 115,317 |



# 2004 – 2007 US EMD Consumption

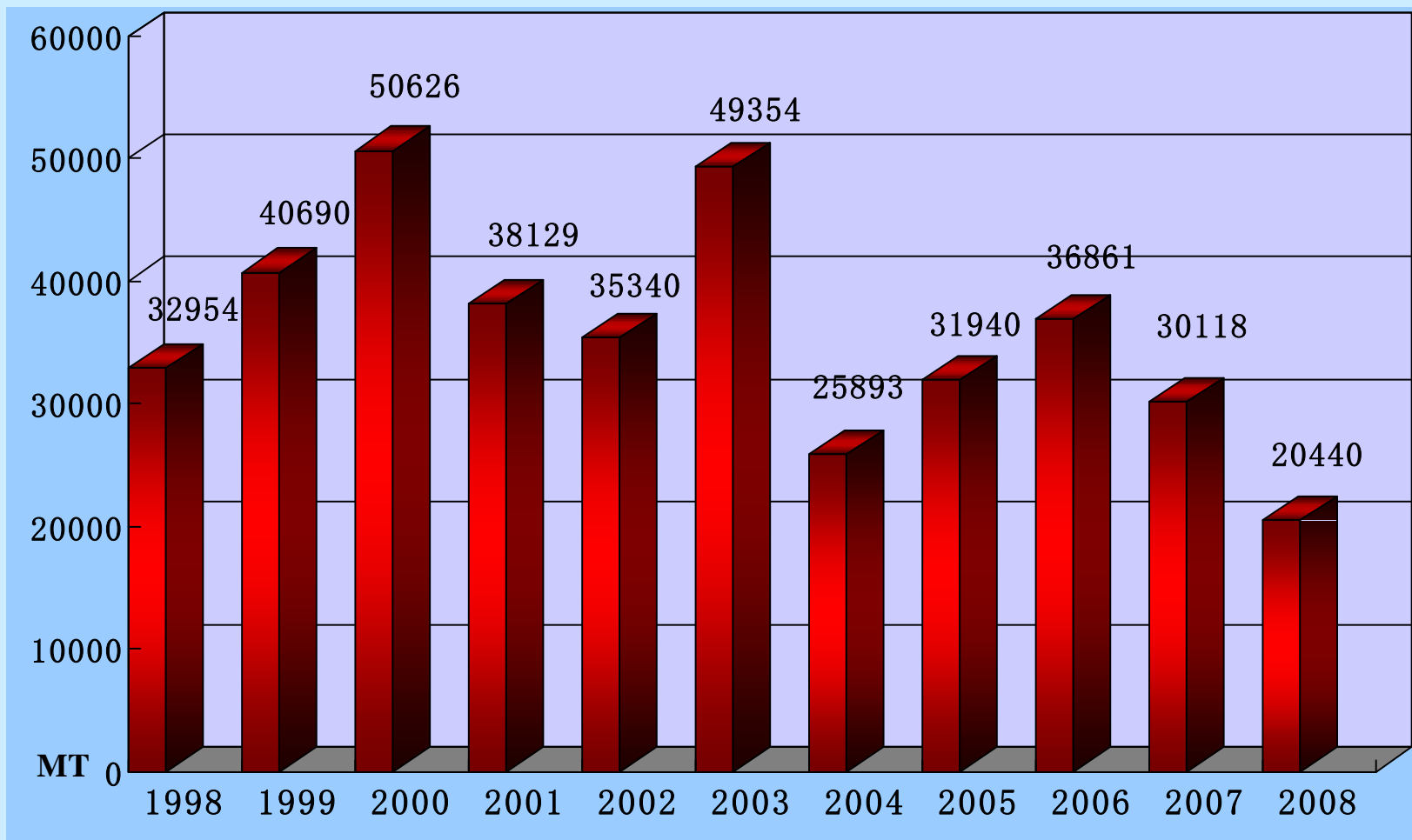
Unit: MT





# 1998 – 2008 US Imports of EMD

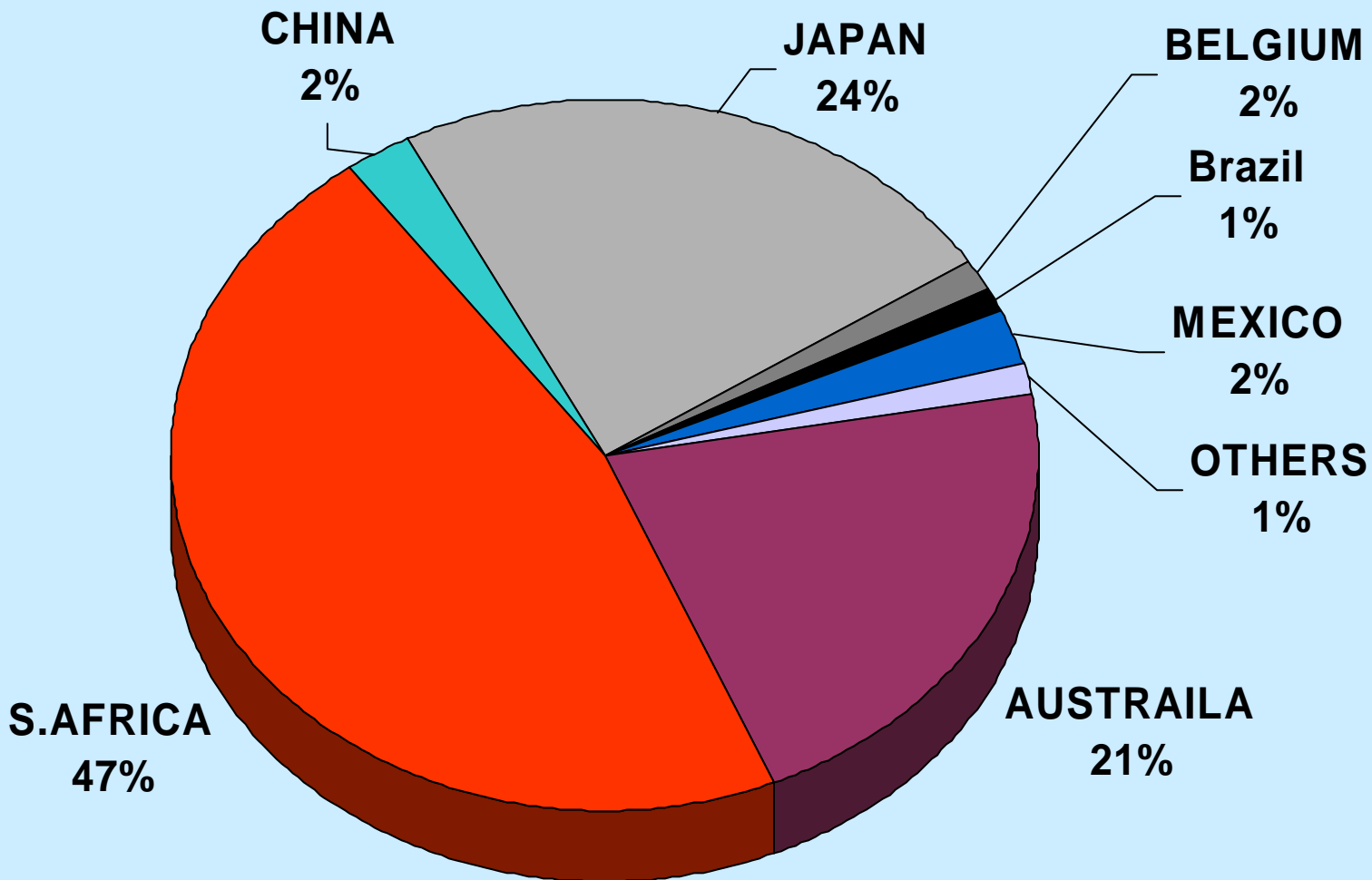
Unit: MT





# 2008 US EMD Imports by Country

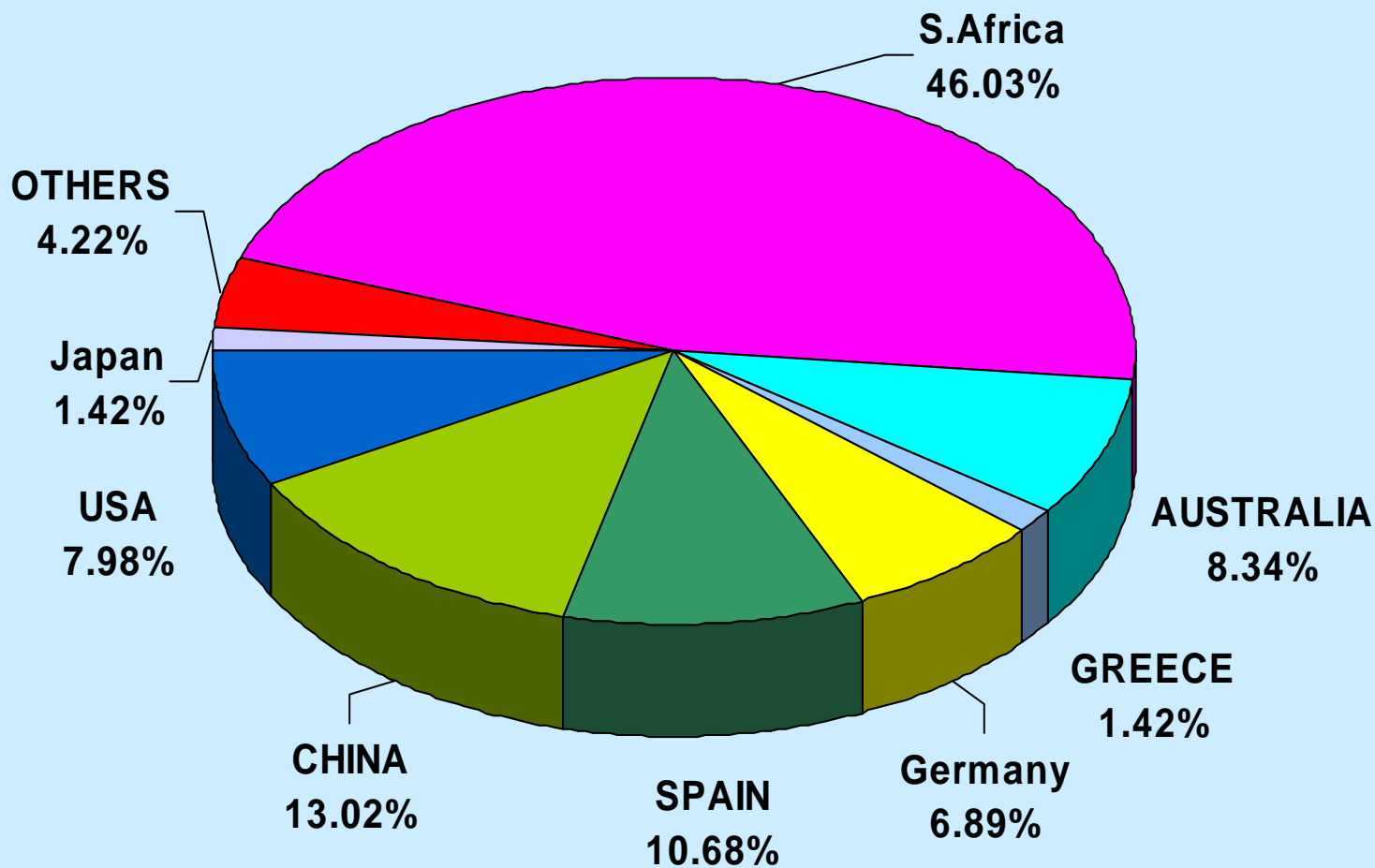
Total: 20,440 MT





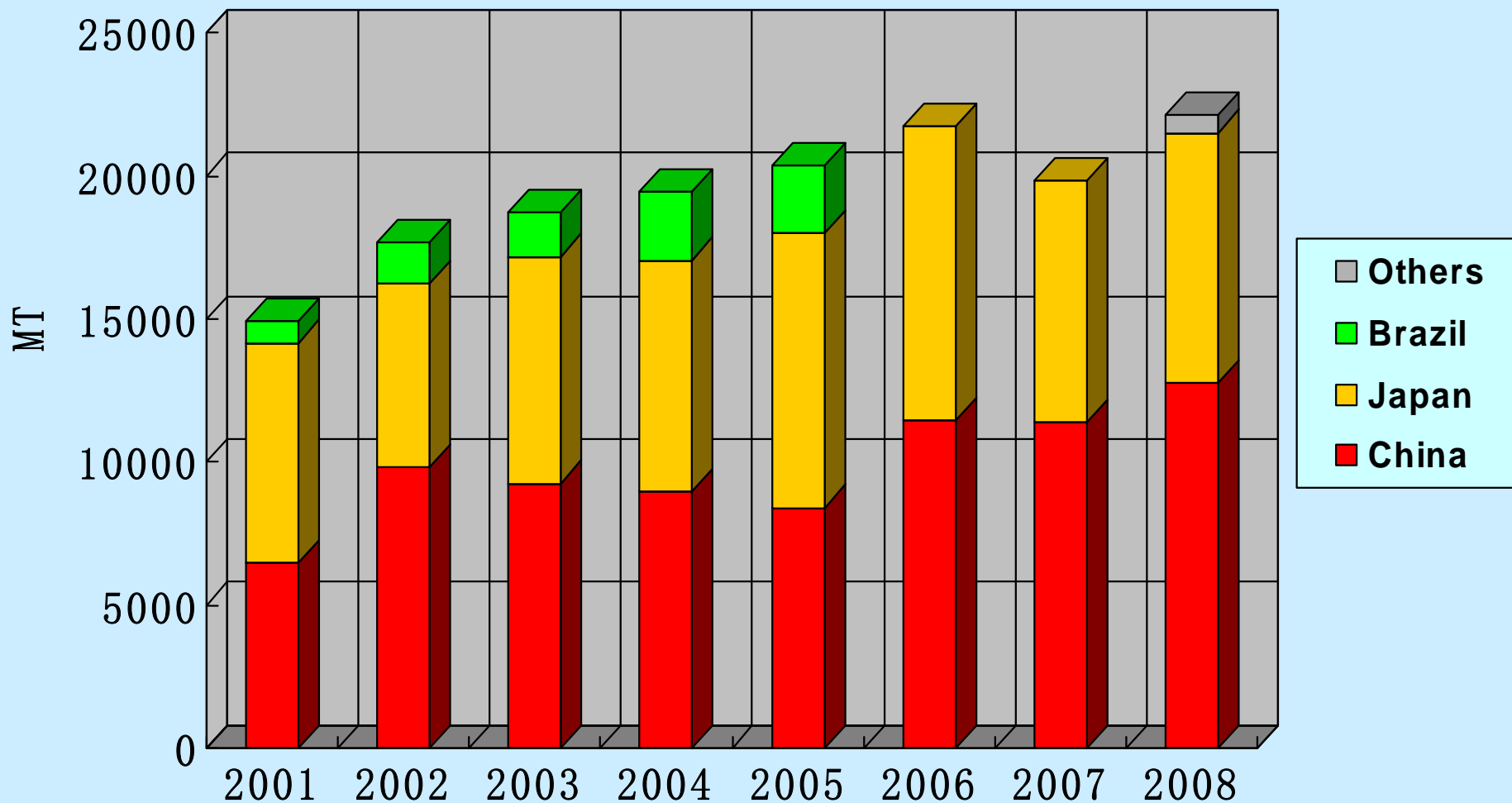
# 2008 Belgium EMD Imports by Country

**Total: 25,122 MT**





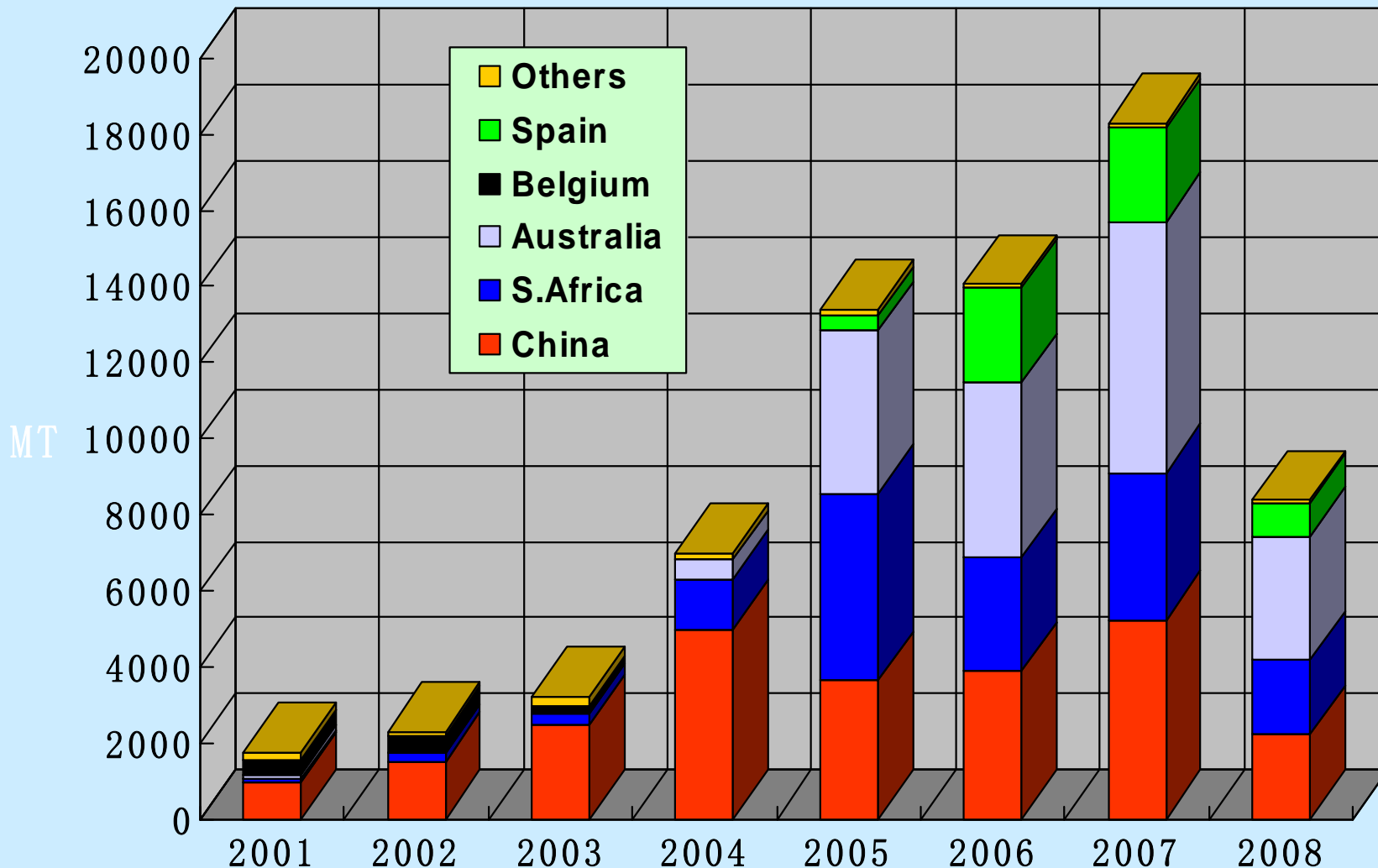
# Indonesia EMD Imports by Country 2001 – 2008



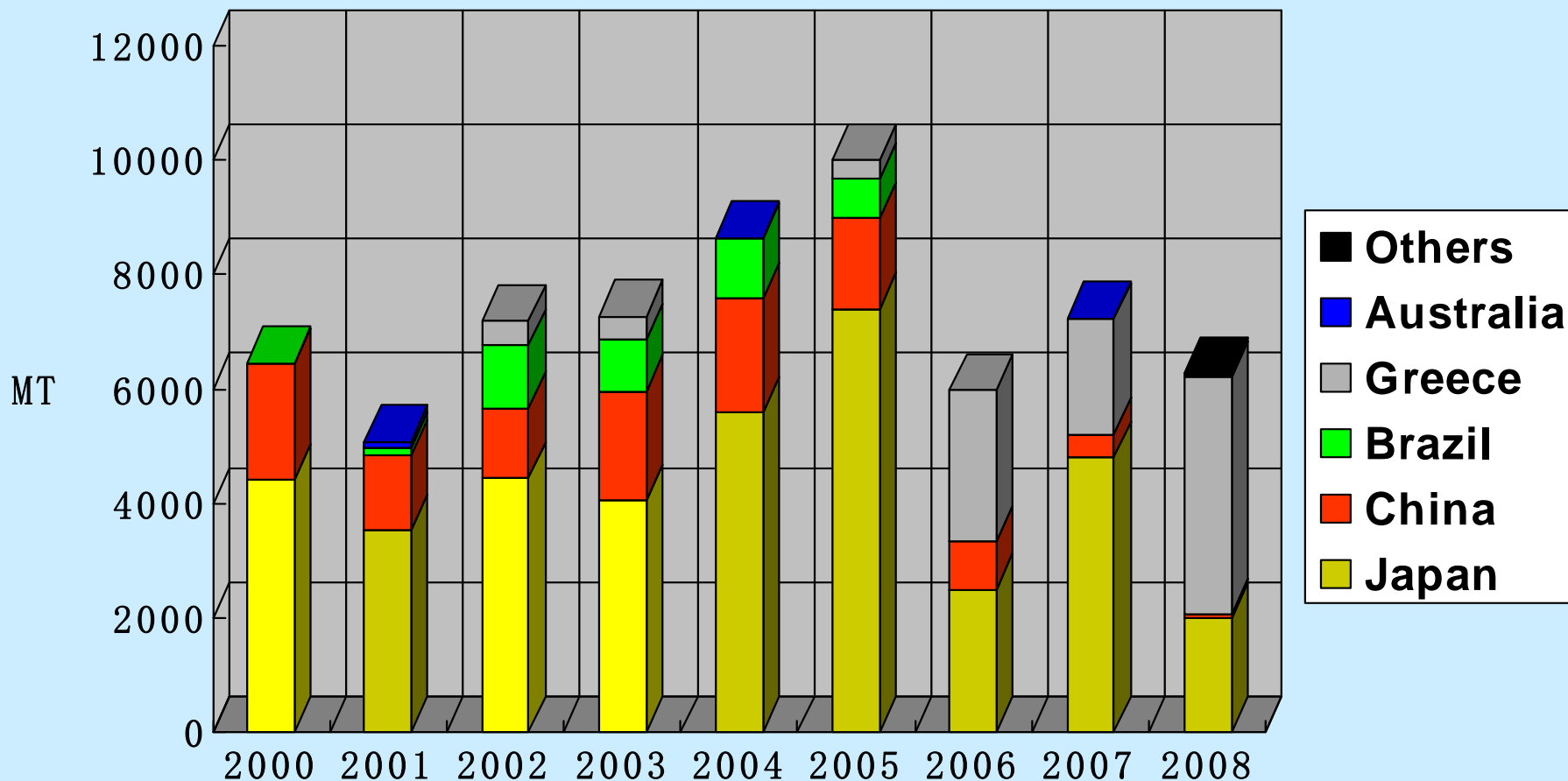
*Indonesia is the third largest EMD import country in the world.*

# Japan EMD Imports by Country

## 2001 - 2008

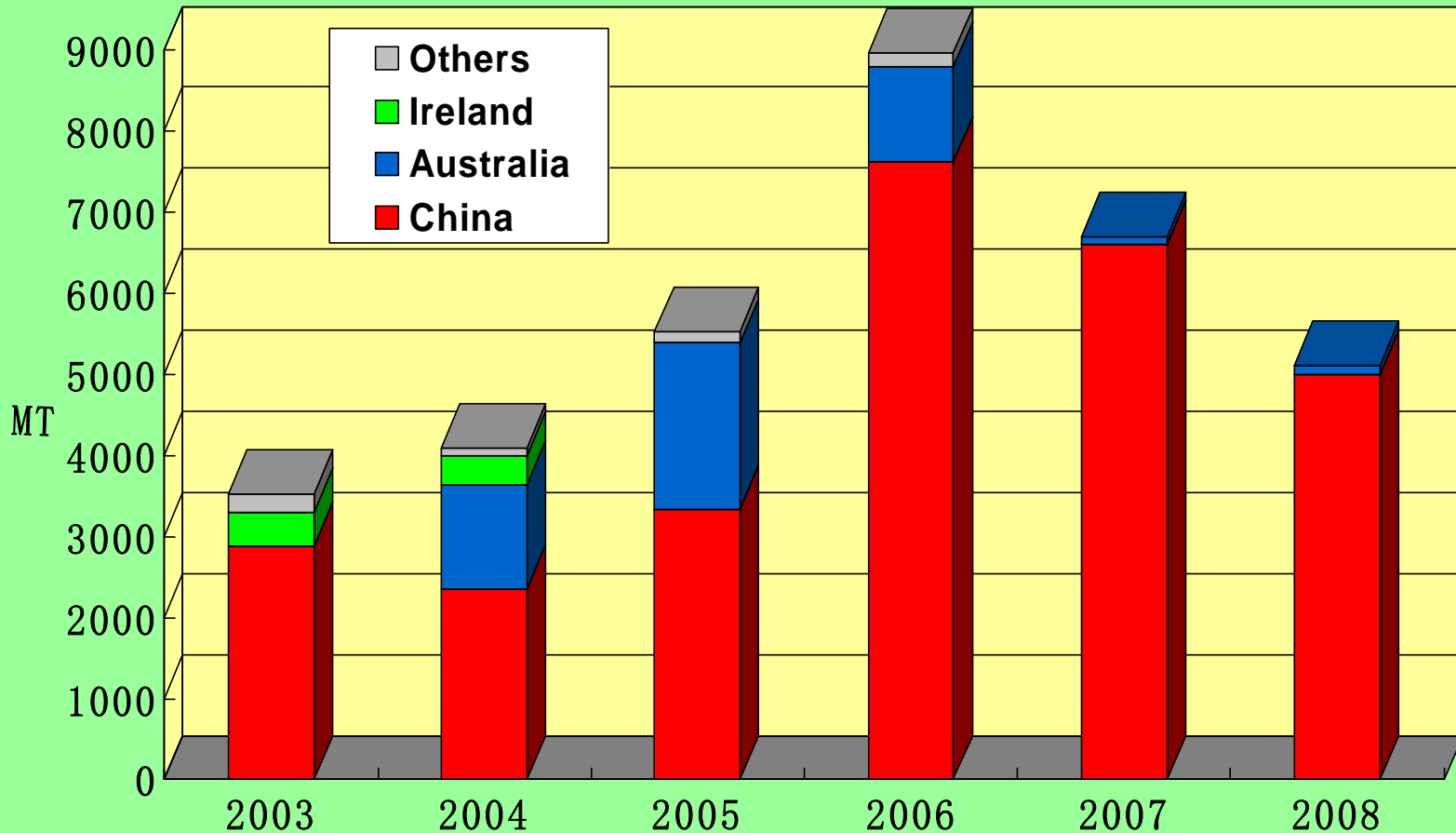


# Singapore EMD Imports by Country 2000 – 2008





# India EMD Imports by Country 2003 - 2008



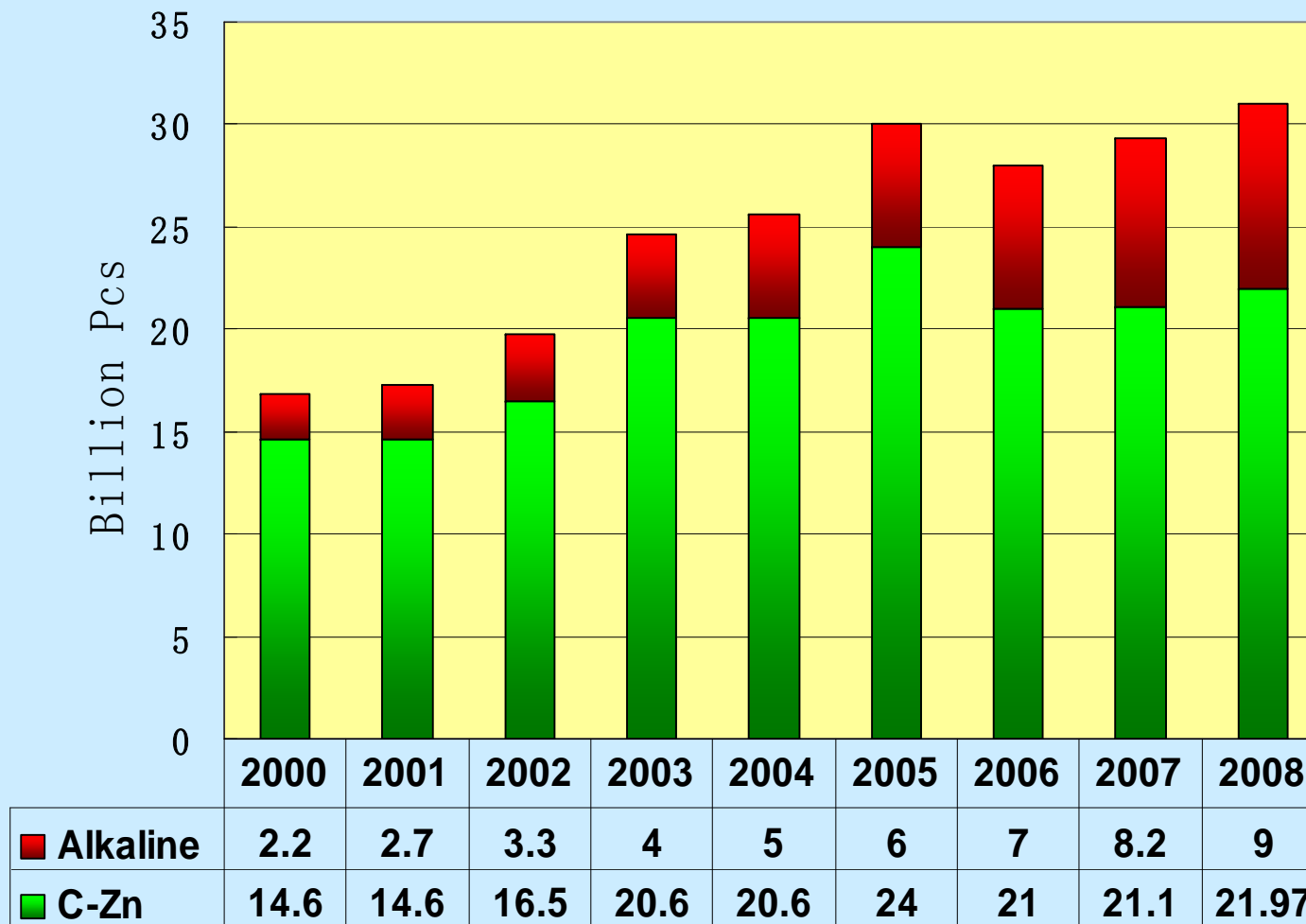


**DAMENG**

# 2008 China EMD Market Review

- The following tables show the basic statistic data on Dry Battery and EMD business in China.
- In 2008, China EMD production maintained the same level with the previous two years but with continued declining exportation decreased by 17% year to year.
- The price for low grade  $MnCO_3$  ore used by most China EMD manufacturers has been closely linked with the market trends of China EMM industry but not directly linked with the price of high grade Mn ores in international markets.
- Even with the EMD price increase to varying extent since the 2nd half of 2008, most producers still reported very poor performance with a mere 70% utilization rate across the whole industry. Some producers reported huge stock or losses to varying extent..
- Anti-dumping actions repelled China EMD from two major markets – USA and Japan. Lower priced C-Zn grade EMD accounts for more than 80% of China's EMD export.
- Inevitably the blocked export forces producers to turn to home market, which makes the already high competition at home market even fiercer.
- The re-shaping of China EMD geographical landscape is continuing. Blessed with its rich Mn ore deposit, Guangxi has been developed into the center for China EMD industry with a year to year increased capacity share.

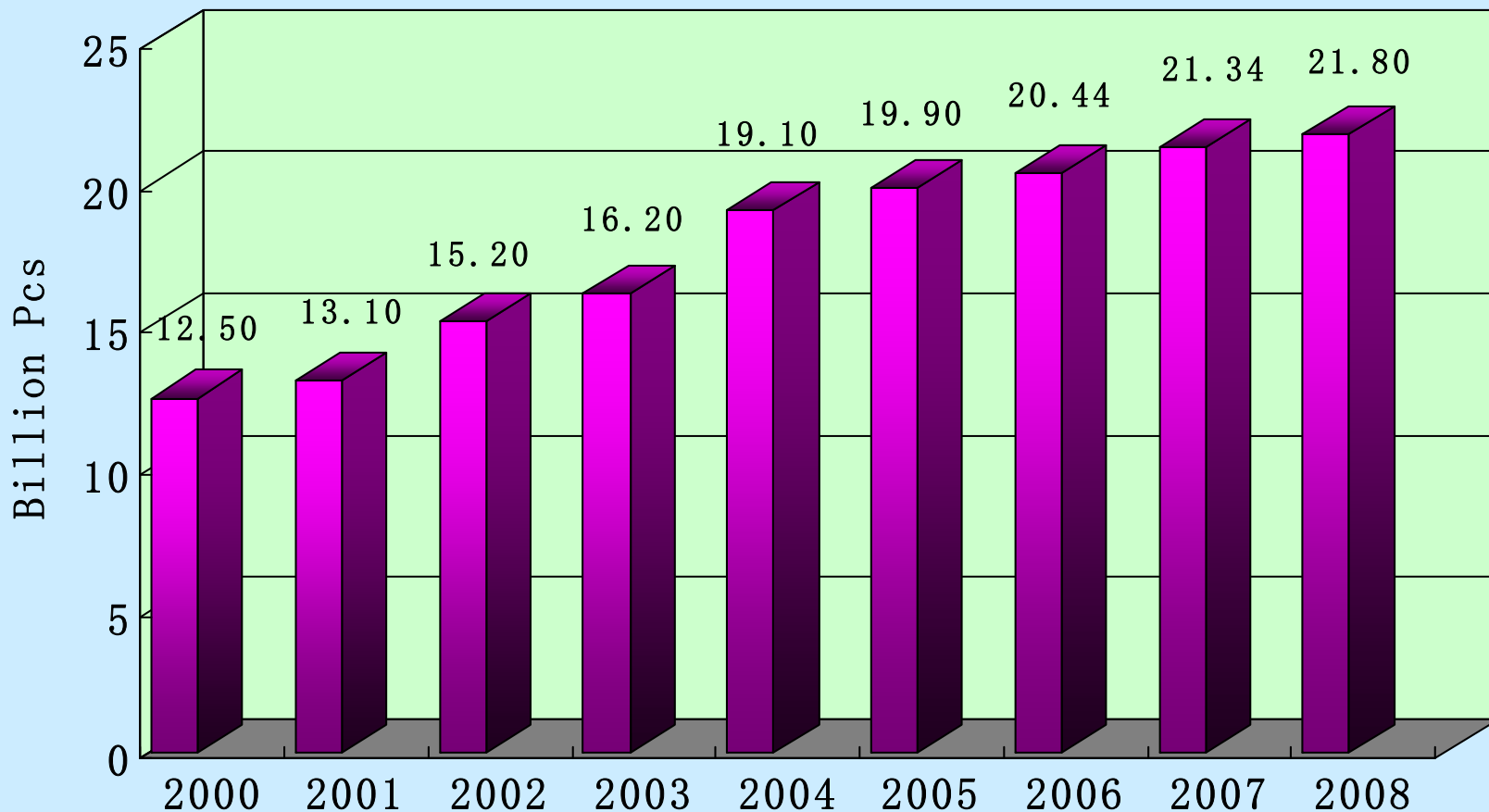
# The Production of Primary MnO<sub>2</sub> Battery in China 2000 - 2008





# China Exports of Primary MnO<sub>2</sub> Battery

## 2000-2008



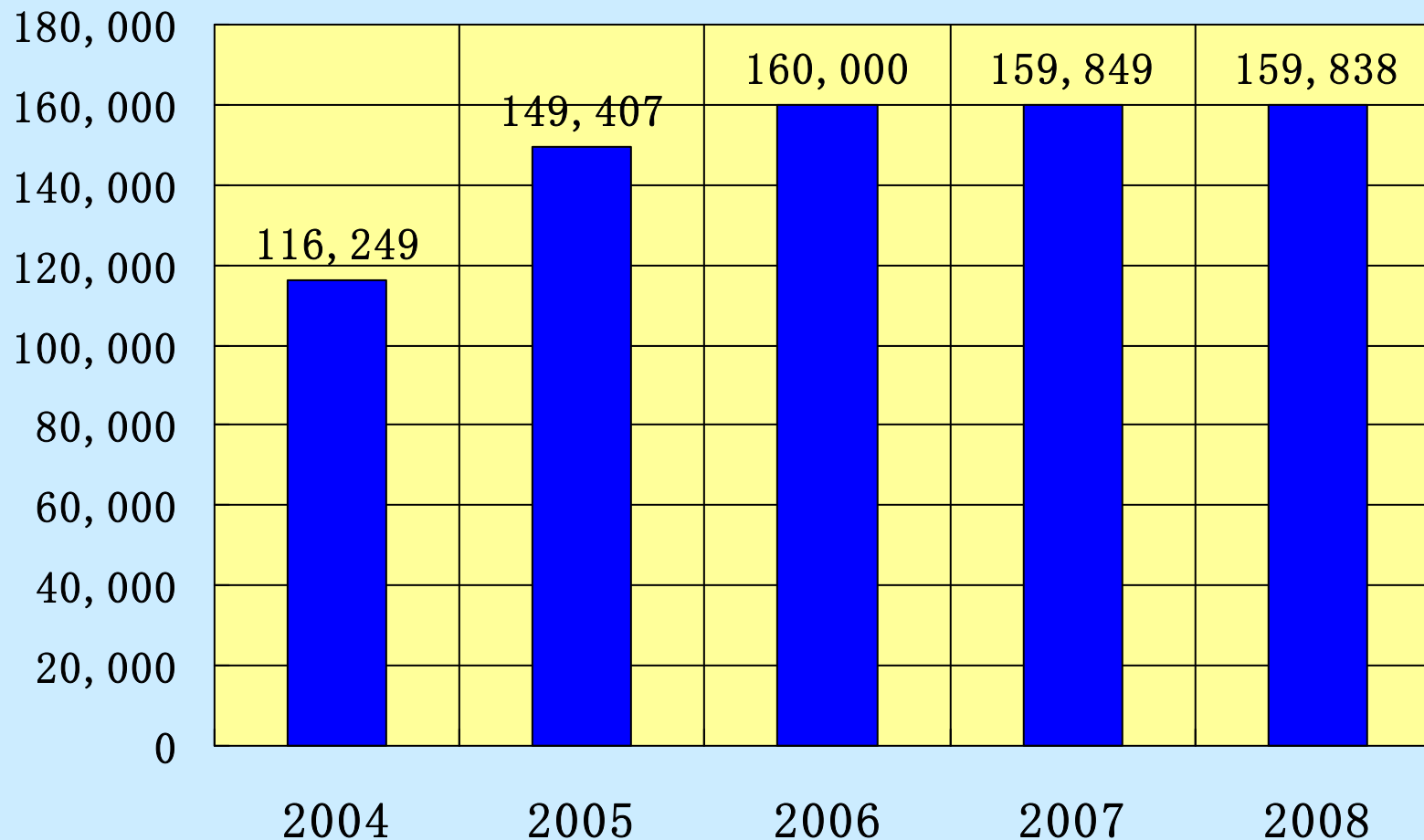


## Statistic Data of EMD Business in China 2006-2008

| Items              | 2006    | 2007    | 2008    |
|--------------------|---------|---------|---------|
| Producers          | 16      | 14      | 14      |
| Capacity (tpa)     | 200,000 | 210,000 | 216,000 |
| Total Output (t)   | 160,000 | 159,839 | 159,238 |
| C-Zn Grade (t)     | -       | 78,387  | 90,159  |
| Alkaline Grade (t) | -       | 81,542  | 69,079  |
| Export ( t )       | 52,758  | 47,057  | 38,947  |
| Import ( t )       | 7,942   | 6,161   | 2,999   |
| Export ratio       | 32.97%  | 29.44%  | 24.45%  |

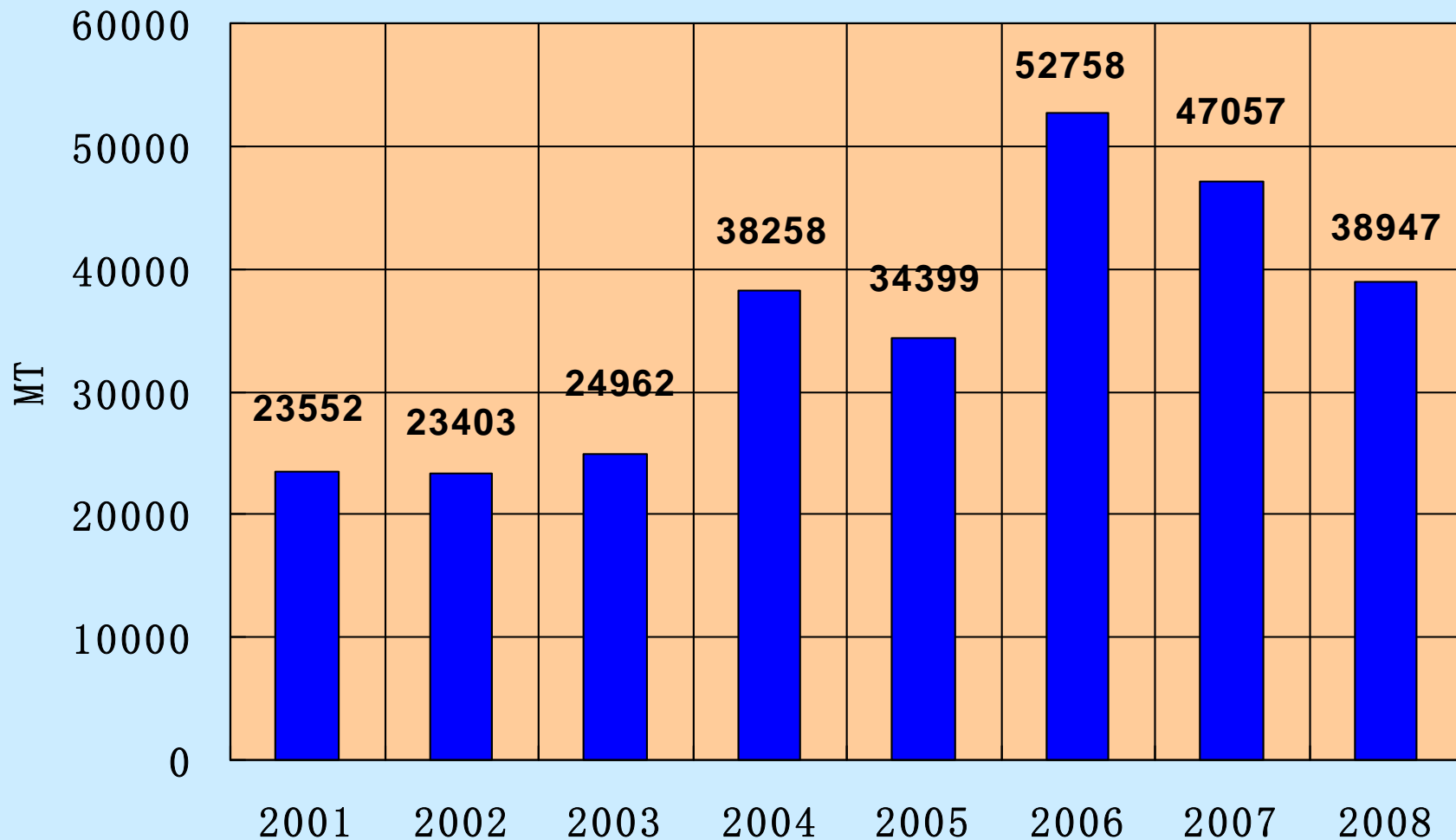


# 2004-2008 China EMD Production Unit: MT





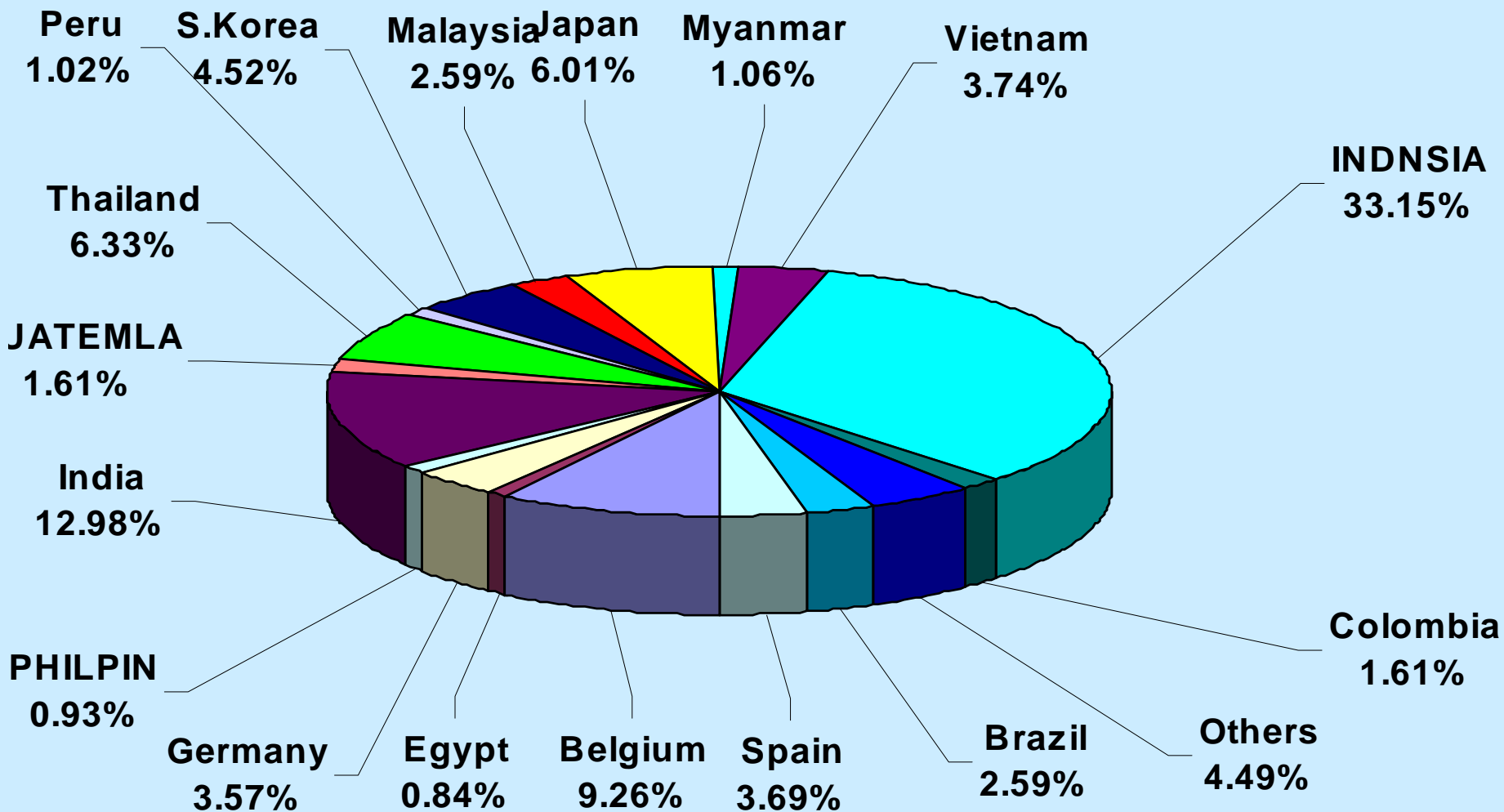
# 2001-2008 中国EMD 出口统计图





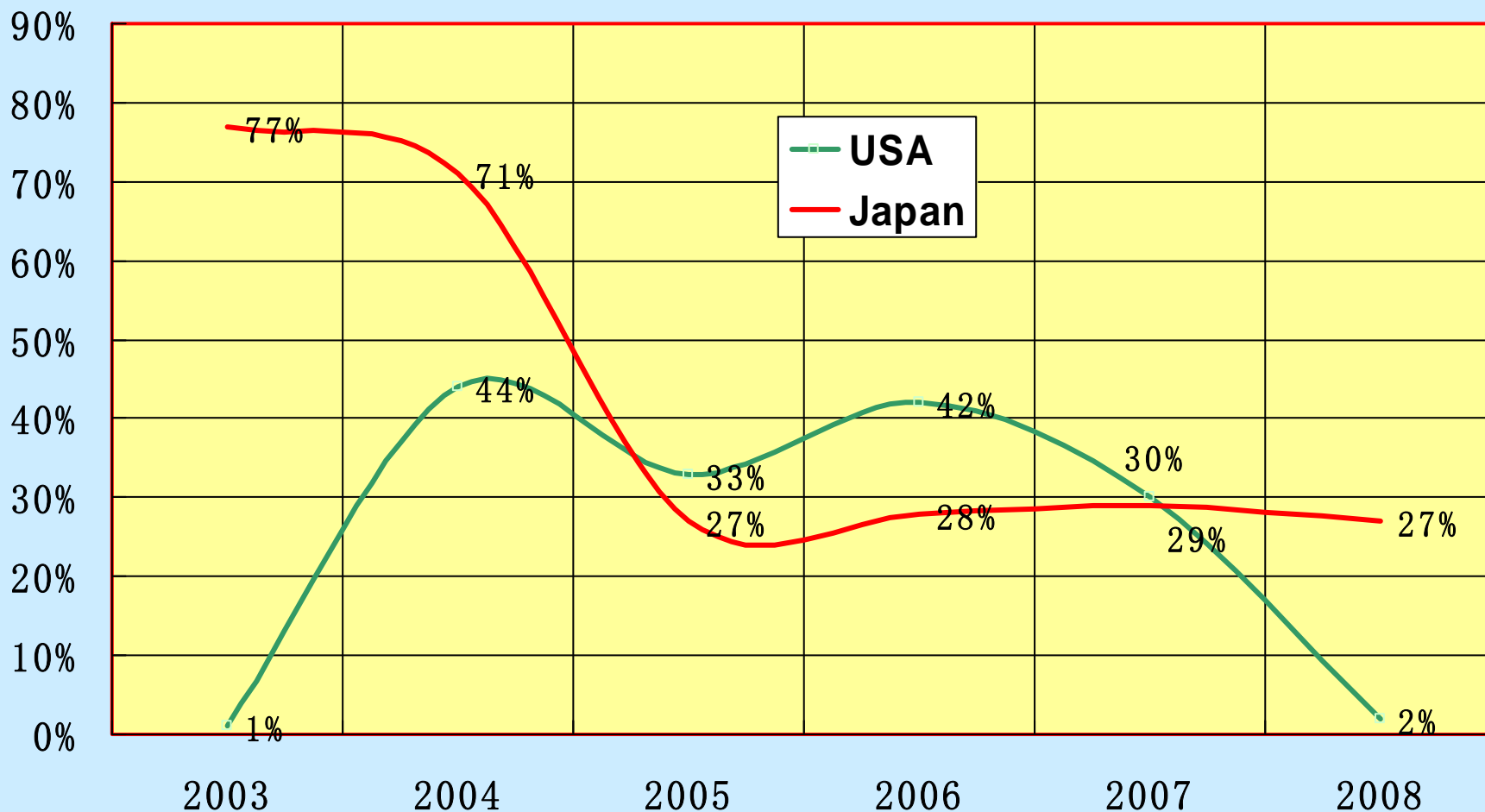
# 2007 China EMD Exports by Country

Total: 38,947 MT





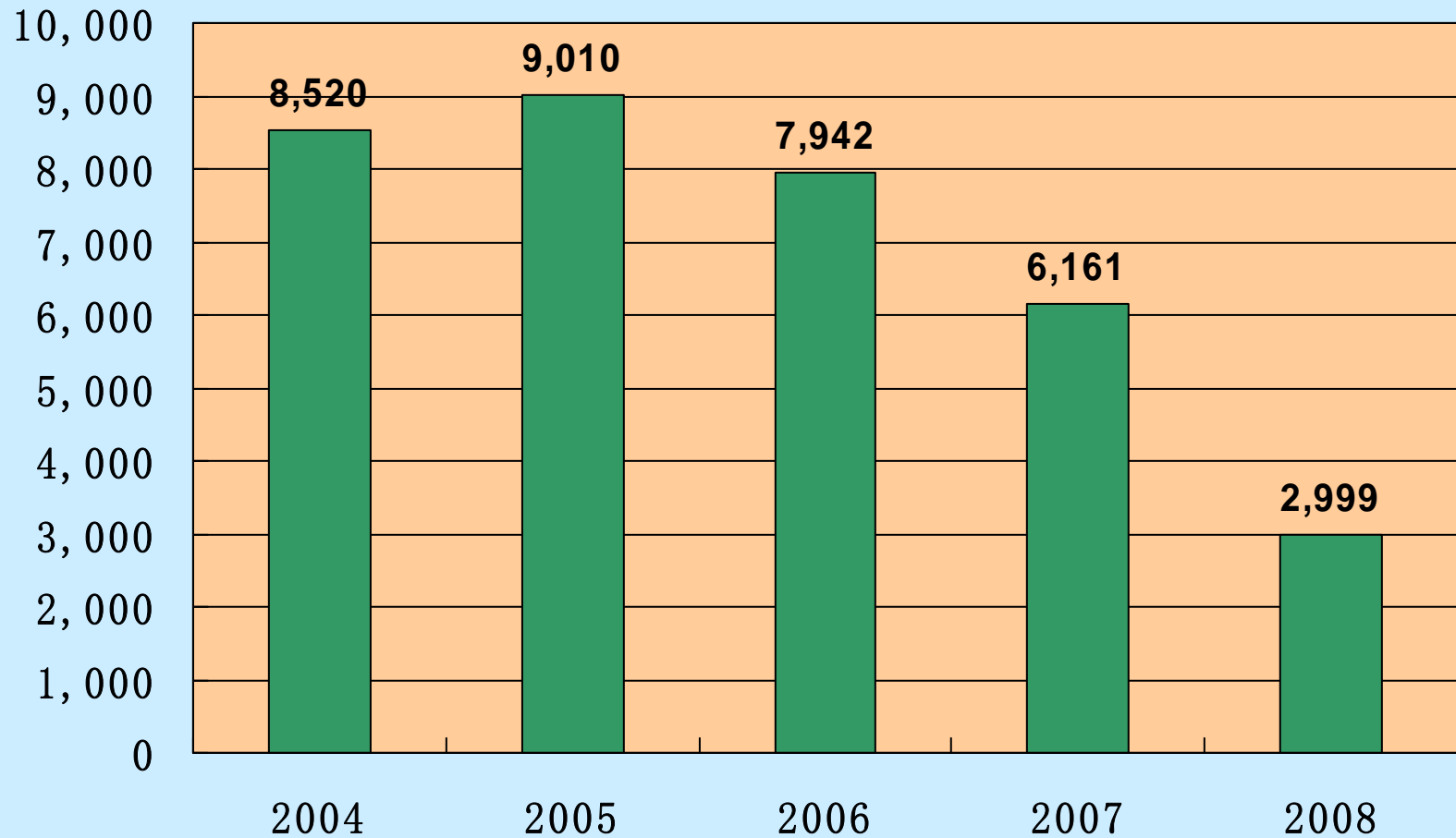
## The Market Shares of China EMD in the EMD Imports of US and Japan (%)





DAMENG

# 2004-2008 China EMD Imports Unit: MT





**DAMENG**

# Market Prospect

- Impacted by the ongoing global financial crisis, some renowned international battery producers have cut their production due to decreased order.
- Tronox (one of EMD producer in US ) filed for bankruptcy protection on Jan 12, 2009
- Spectrumbrands/Rayovac ( the third largest primary Zn-Mn battery manufacturer in US ) filed for bankruptcy protection on Feb 3, 2009.
- Consequently a stagnant demand in 2009 EMD market is predicted with even highly possible contraction, which will present a more competitive market.
- Disadvantaged by its low grade  $MnCO_3$  ore source, Chinese EMD producers must focus on improving its quality up to world top level to strengthen its competitiveness in global major high-end market.
- With the gradual recovery of global economy and the introduction of more consumer based hi-tech electronics, the future market will witness a continuous and steady increase for EMD in the long run.