Indian Metals Industry – Shaping the Next Decade

The Indian Institute of Metals
New Delhi

An Overview and Outlook for the Global Lead, Zinc, Nickel and Copper Markets

Paul White

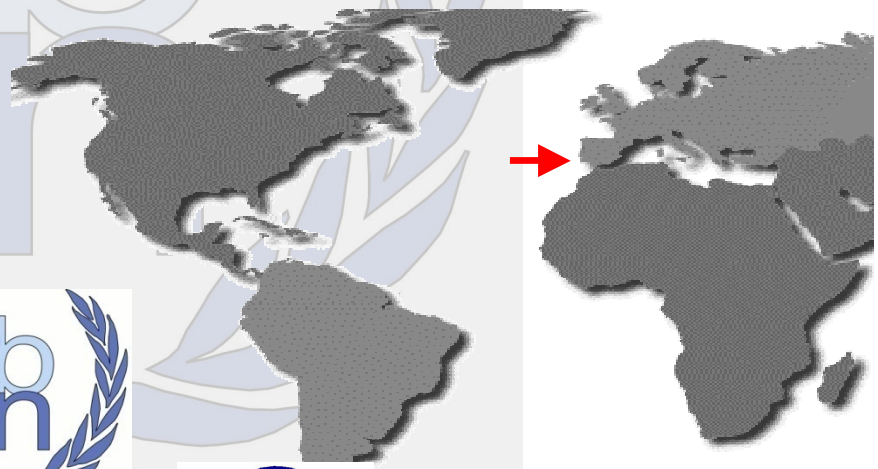
Head of Forecasting and Statistics

International Lead and Zinc Study Group (ILZSG)

12th February 2011

ILZSG Overview

- Intergovernmental organization set up within the UN system
- Significant level of industry representation
- Established by UN in 1959 in New York
- Moved to London in 1977



- From start of 2006 ILZSG, ICSG & INSG co-located in Lisbon, Portugal

www.icsg.org

www.insg.org

ILZSG Membership

- Membership open to any country involved in lead and/or zinc production, usage, or trade.
- 30 members (>85% of global lead/zinc industry):

Australia	Germany	Namibia	Serbia
Belgium	India	Netherlands	South Africa
Brazil	Iran	Norway	Spain
Bulgaria	Ireland	Peru	Sweden
Canada	Italy	Poland	Thailand
China	Japan	Portugal	United States
Finland	Korea Rep.	Russian Fed.	European Community
France	Morocco		

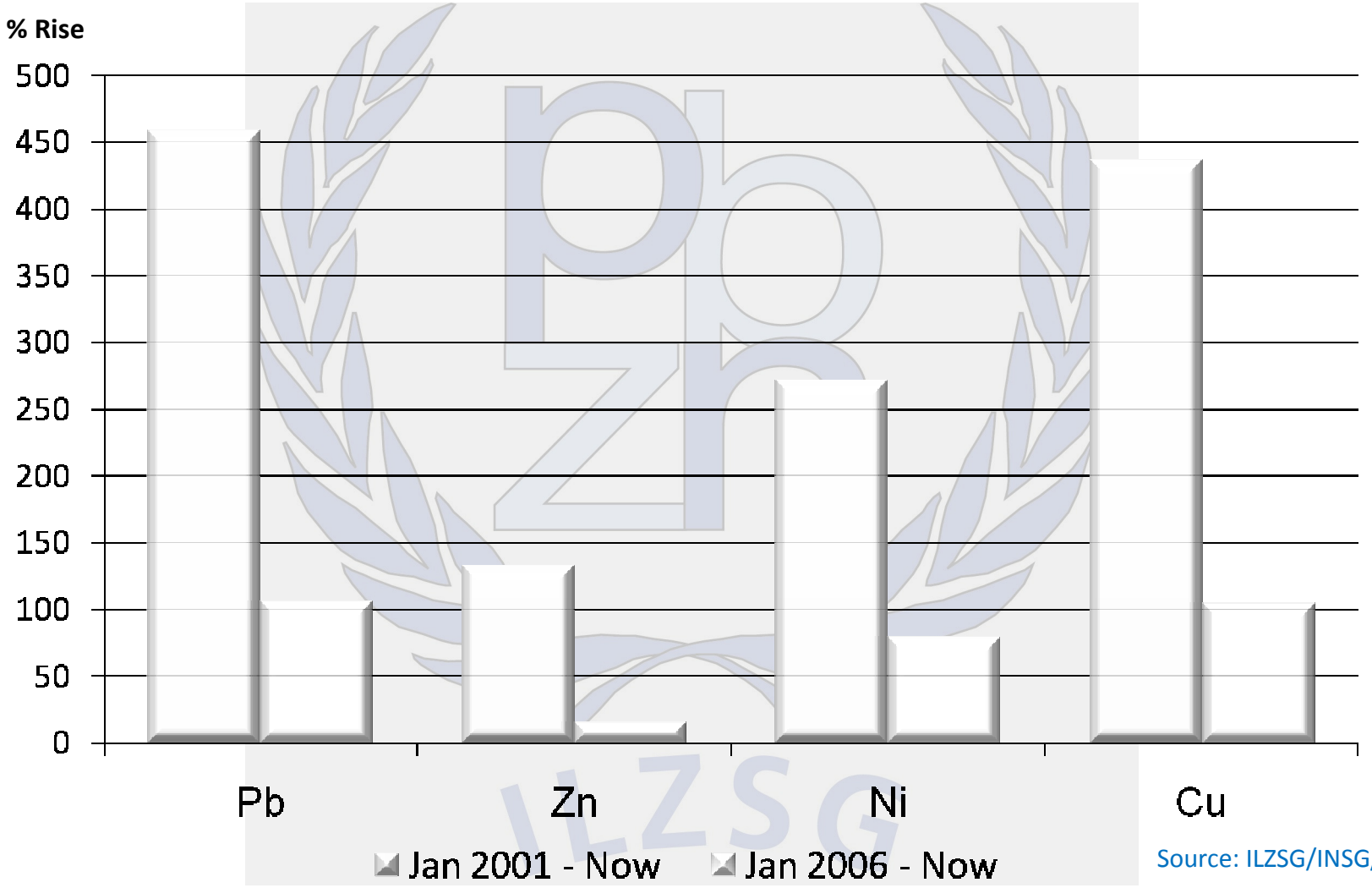
ILZSG Overview – Work of the Group

- **Promote Market Transparency**
  - Closely monitor production, consumption, prices, stocks, trade flows and market balances
  - Reports and directories
- **Facilitate Co-operation Between Government and Industry**
  - Twice yearly meetings
  - Special conferences/seminars
- **In-depth Research into Issues of Interest/Concern to Members**
  - Environmental legislation
  - Economic developments

ILZSG Session 2011

- **Lisbon (28) 29 – 30 September 2011**
- Traditional time slot just prior to LME week
- Venue: **Altis Hotel**, Lisbon
- Industry from all member countries welcome and encouraged to attend
- Please contact your government representatives or the Secretariat (**root@ilzsg.org**)

Price Rises Since 2002 and 2006

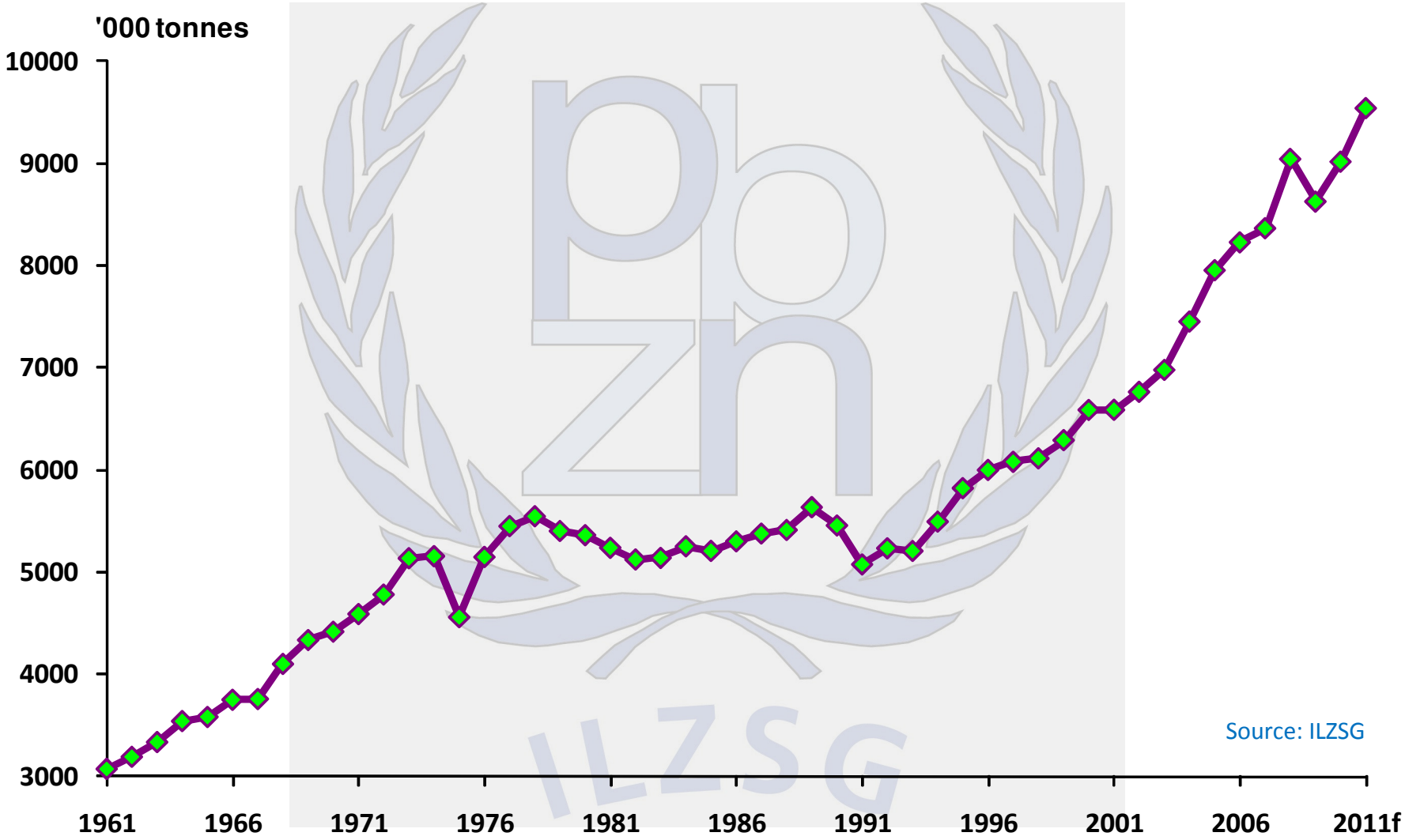


Source: ILZSG/INSG/ICSG

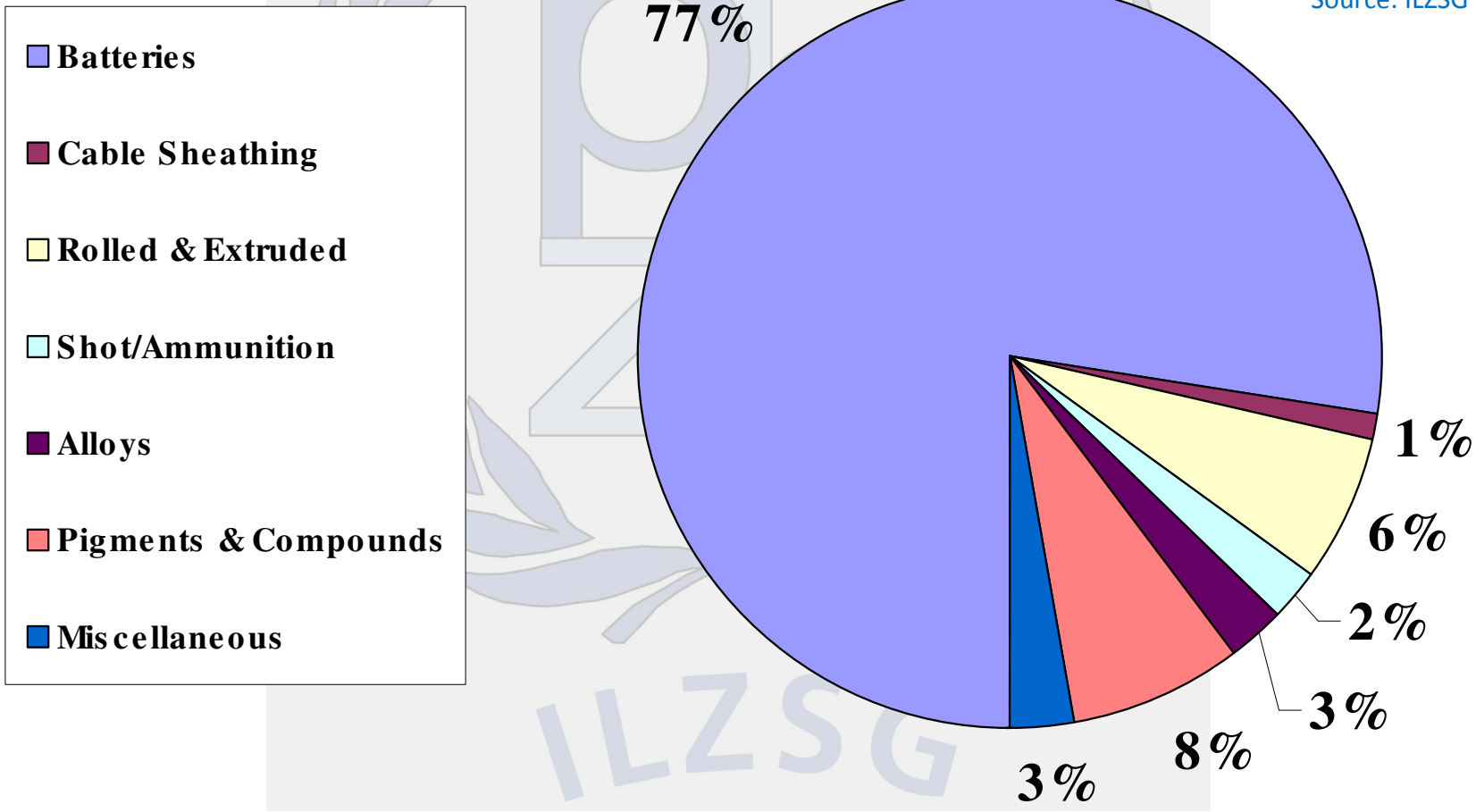
LEAD

Pb

World Lead Demand 1961 to 2011f

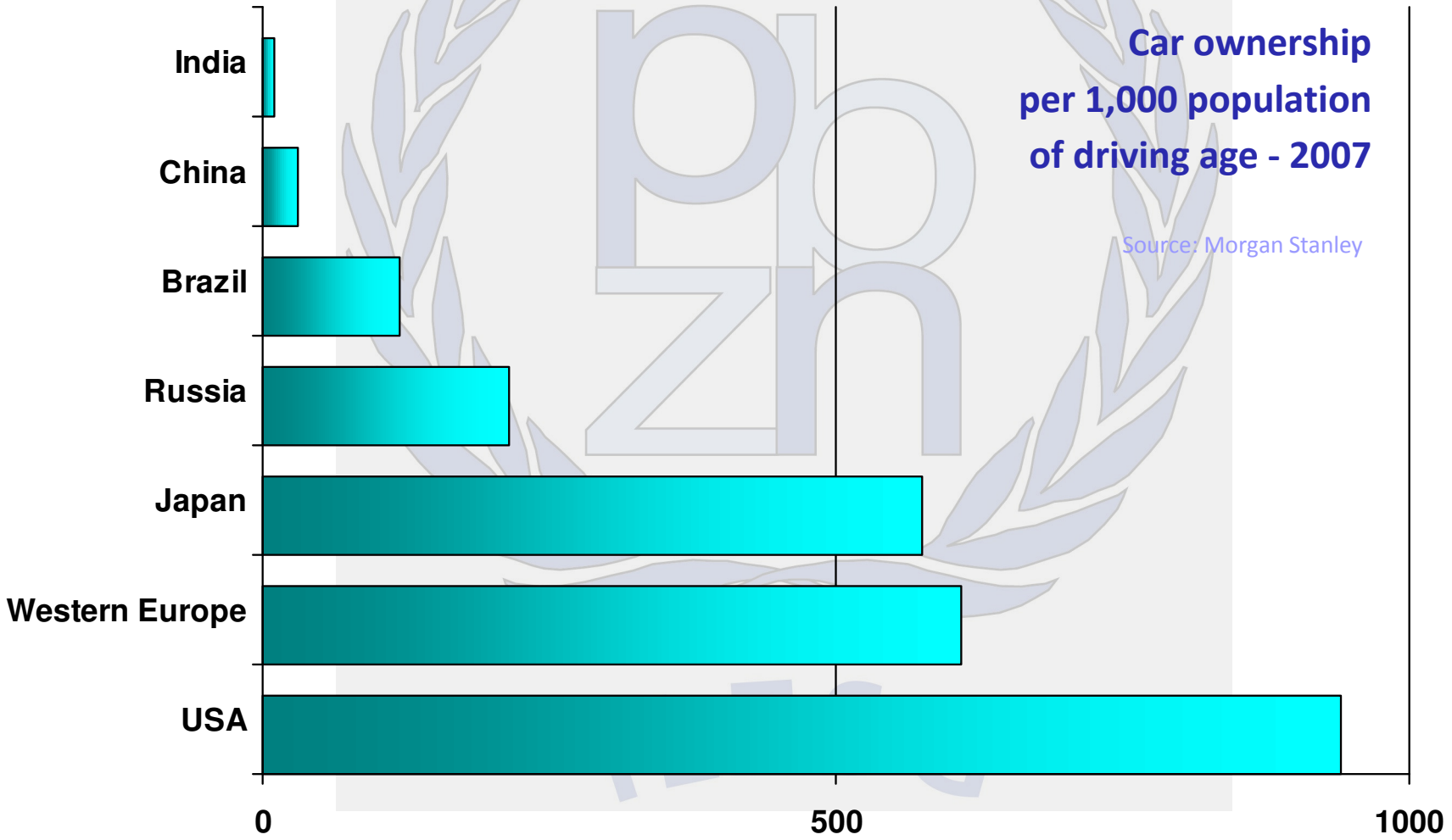


Lead End Uses



Source: ILZSG

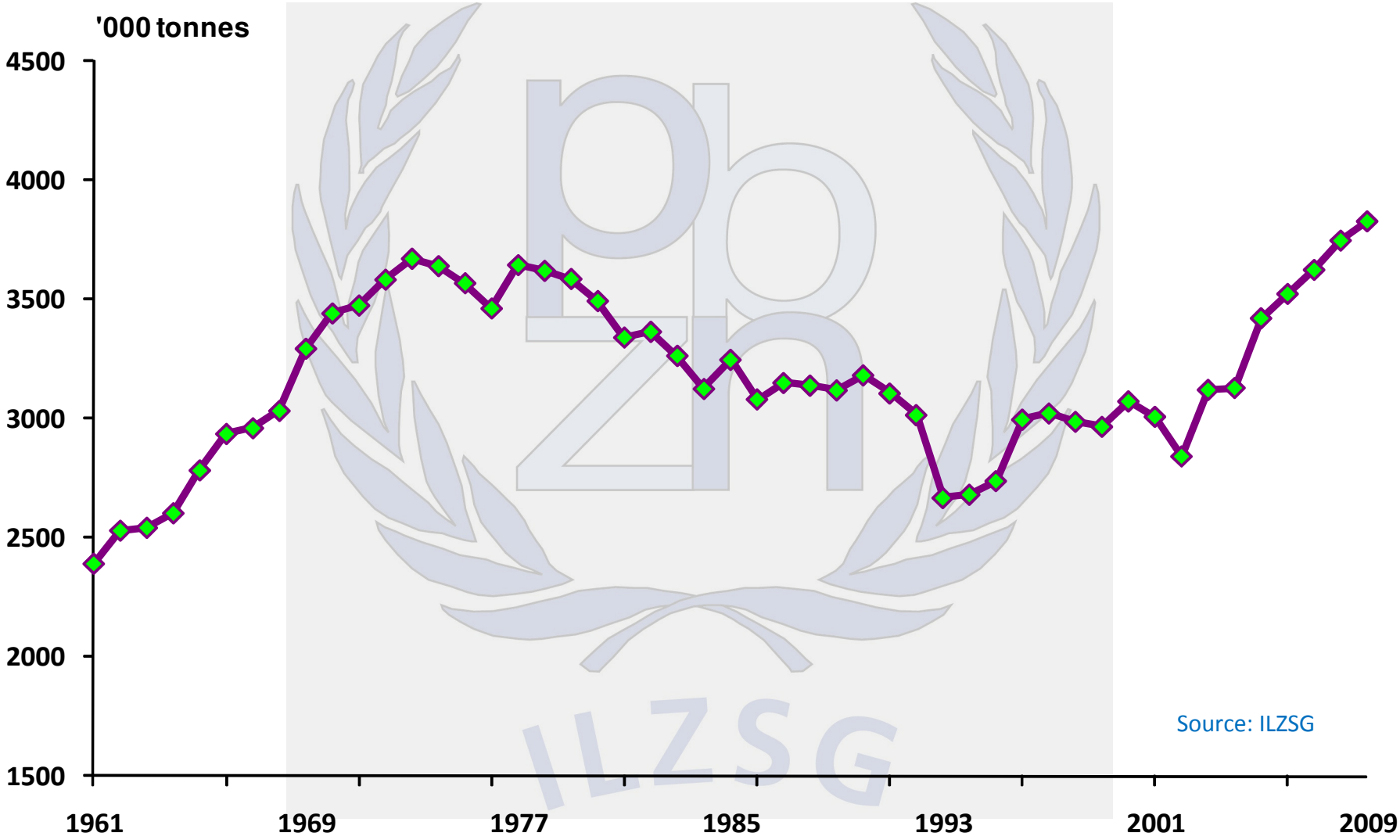
Variations in Car Ownership



Recent Major Lead Plant Closures

Noyelles Godault, France	Jan 2003	190,000t
Northfleet, UK (*partial*)	Dec 2003	70,000t
Glover, USA	Nov 2003	125,000t
Sudamin, Germany	Feb 2005	35,000t
Porto Vesme, Italy	May 2009	100,000t
La Oroya, Peru	June 2009	115,000t
Baton Rouge, USA	April 2009	80,000t
Copsa Mica, Romania	Jan 2009	42,000t

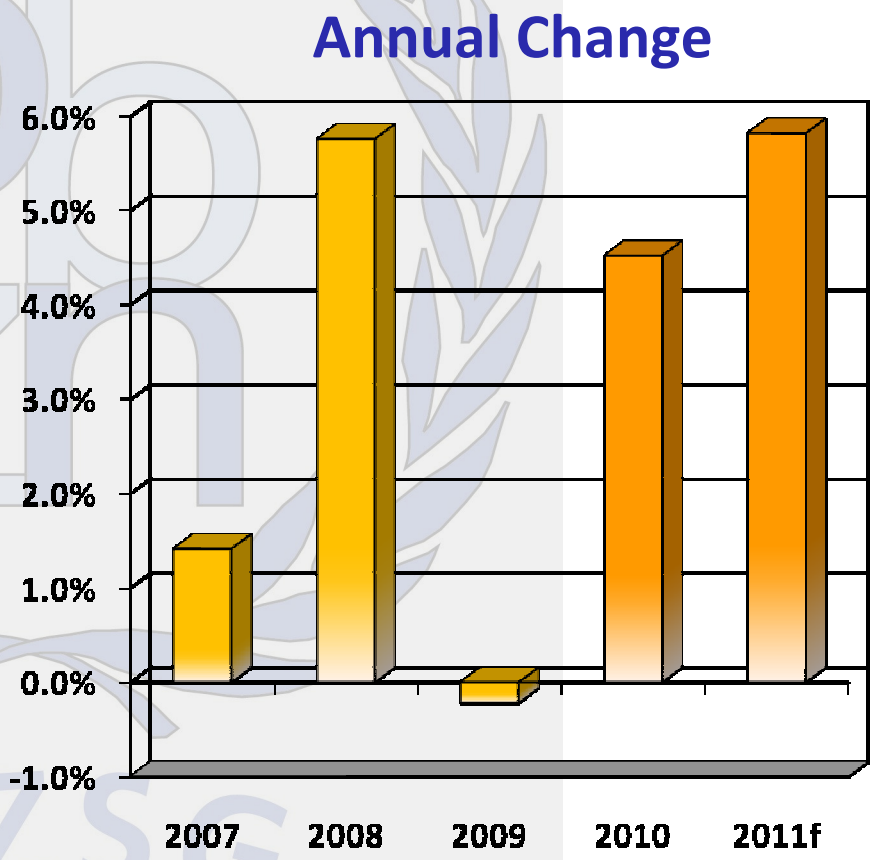
World Lead Mine Output 1961 to 2009



World Lead Metal Usage Forecast

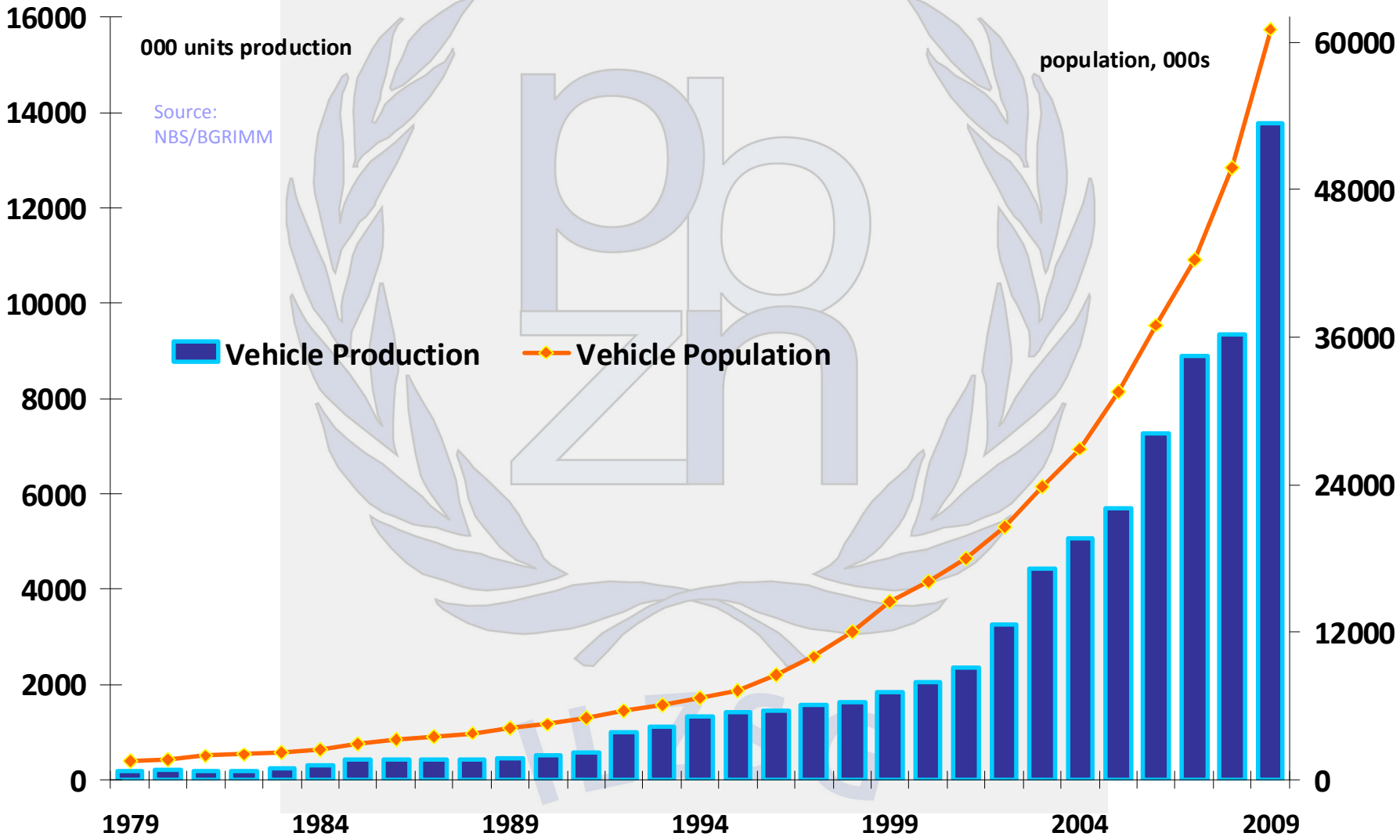
ILZSG Forecast

- **2011 5,8%**



Source: ILZSG

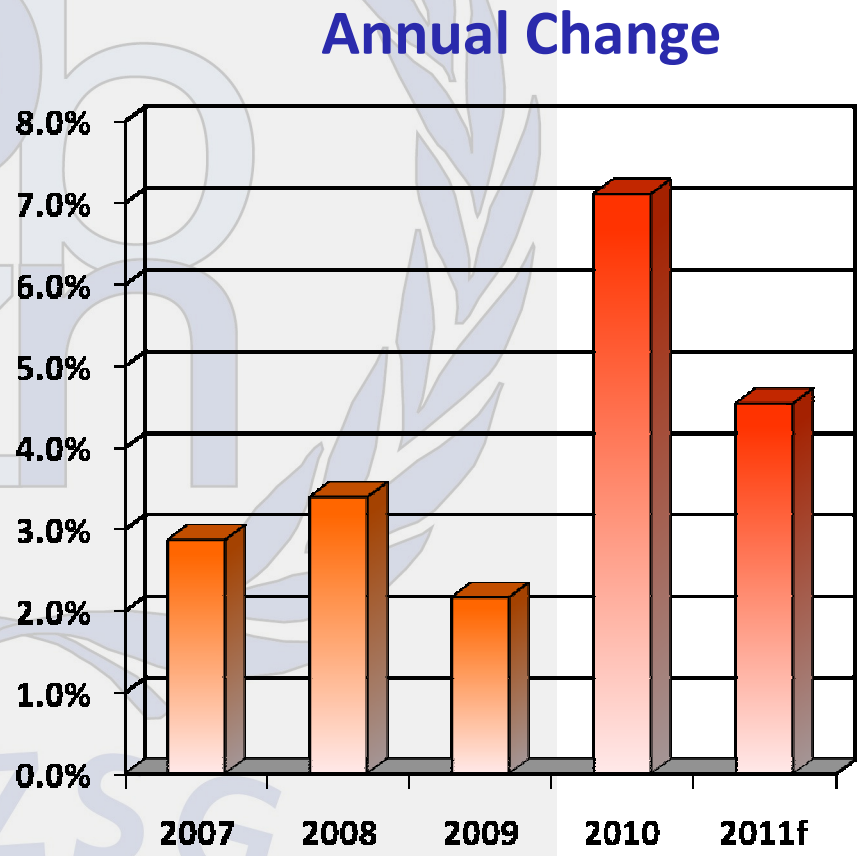
Chinese Vehicle Population and Production 1979-2009



World Lead Mine Output Forecast

ILZSG Forecast

- **2011 4.5%**

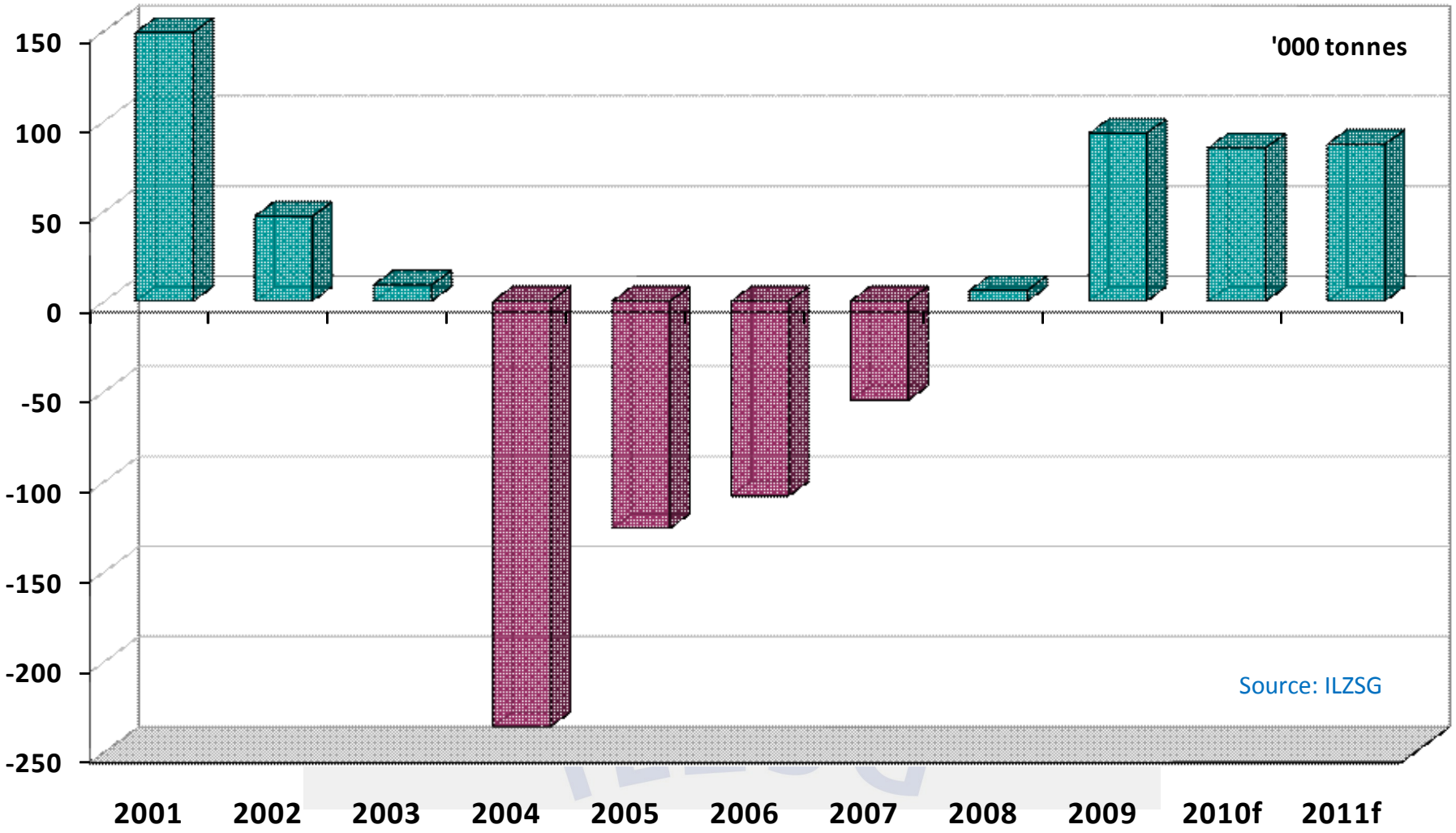


Source: ILZSG

World Lead Metal Output 2011

- Global increase of 5.8%
- Further 360kt new capacity in China
- Opening of 100kt/yr Rajpura Dariba plant in India
- Opening of 130kt/yr Enertec operation in Mexico
- Recovery in Australian production

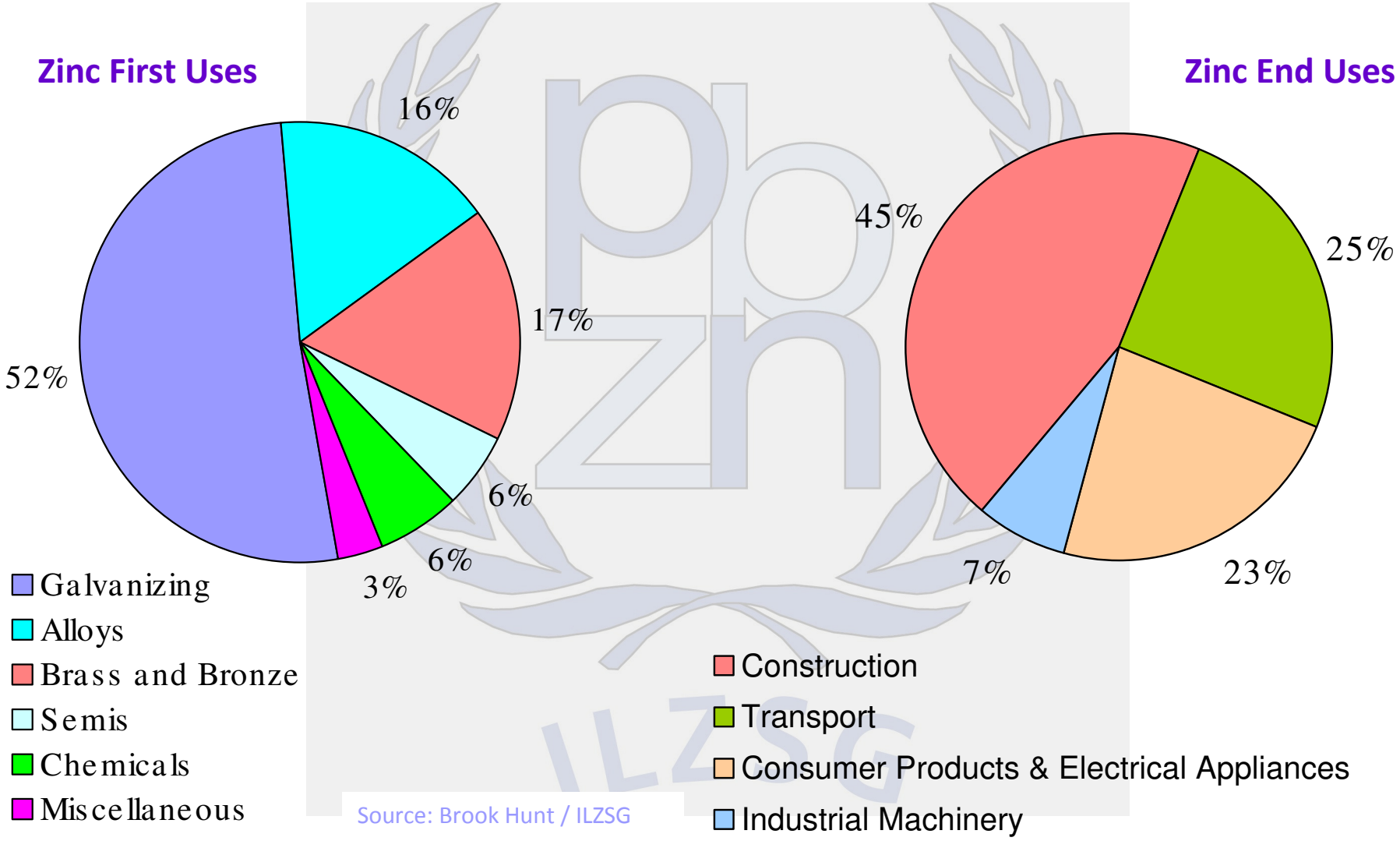
World Refined Lead Metal Balance



ZINC

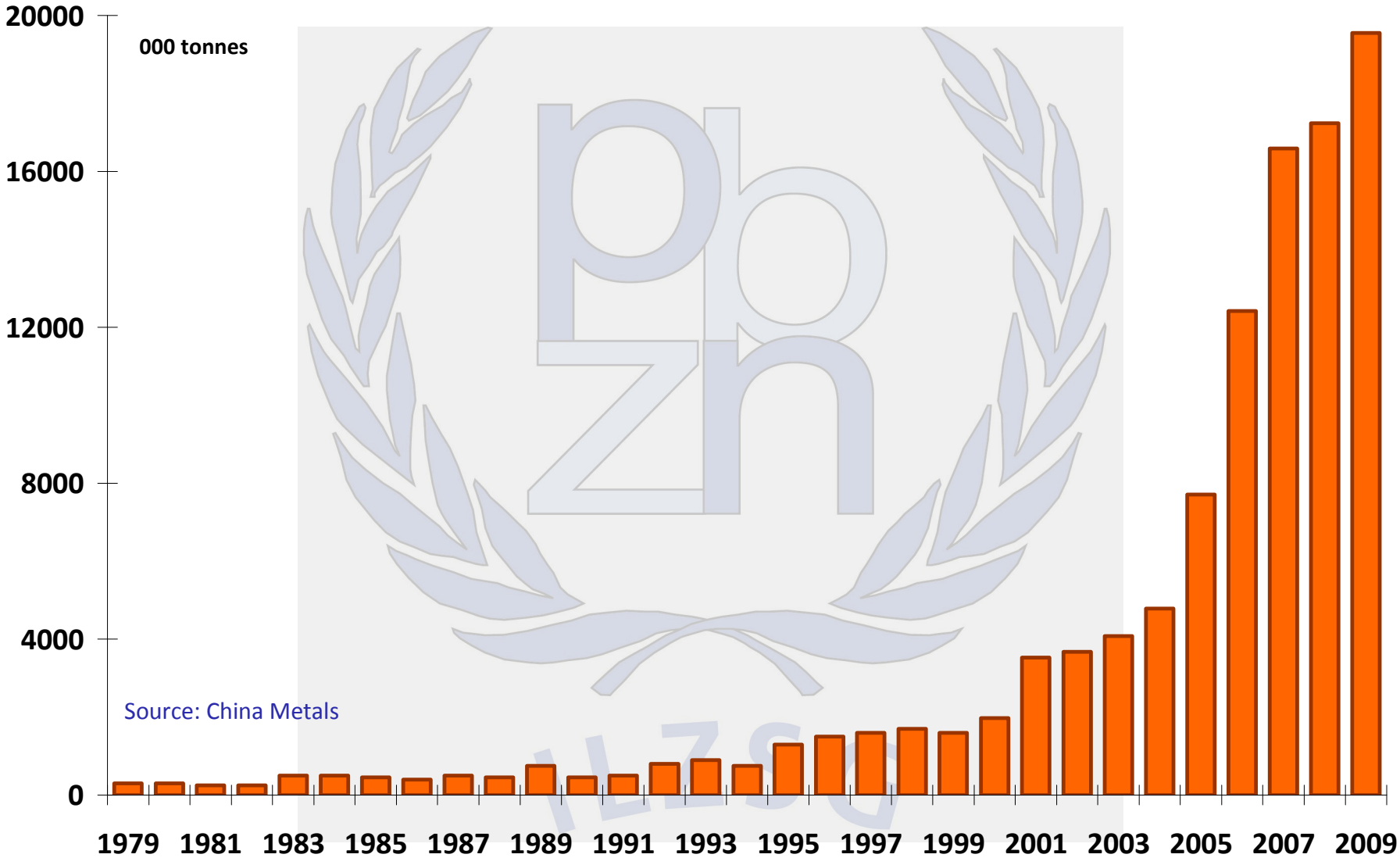
Zn

Zinc First and End Uses

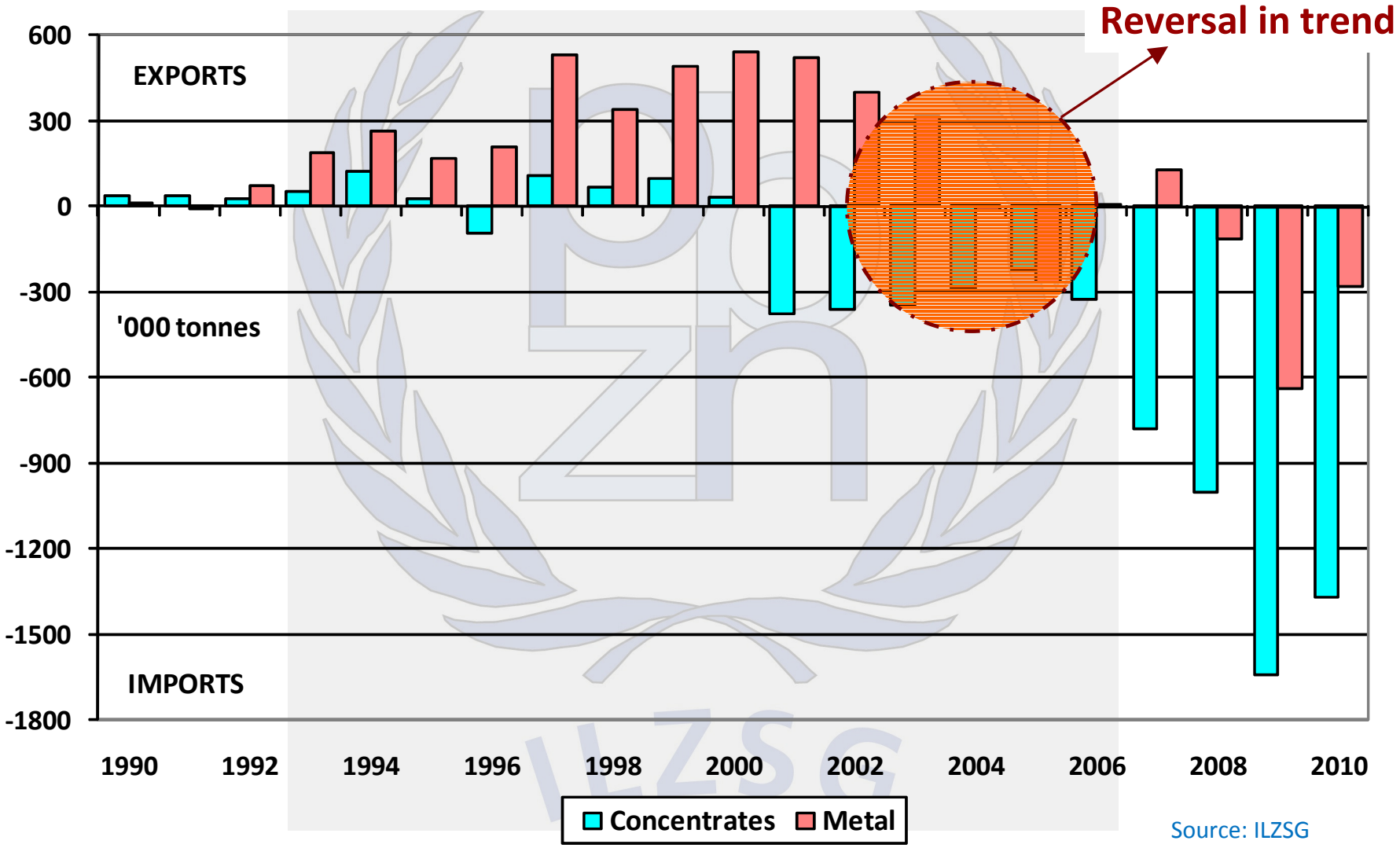


Source: Brook Hunt / ILZSG

Production of Galvanized Steel in China



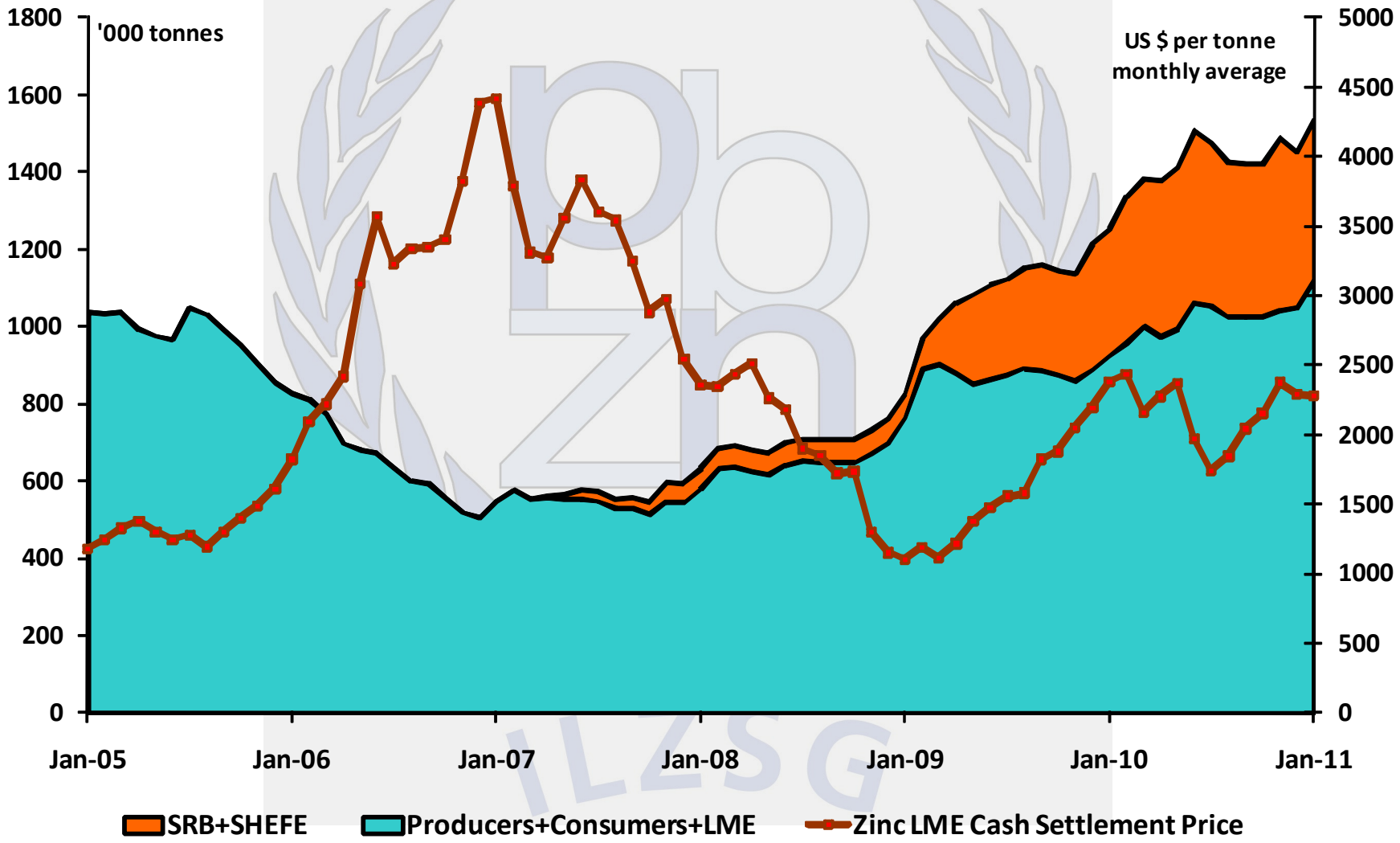
Chinese Zinc Trade 1990-2010



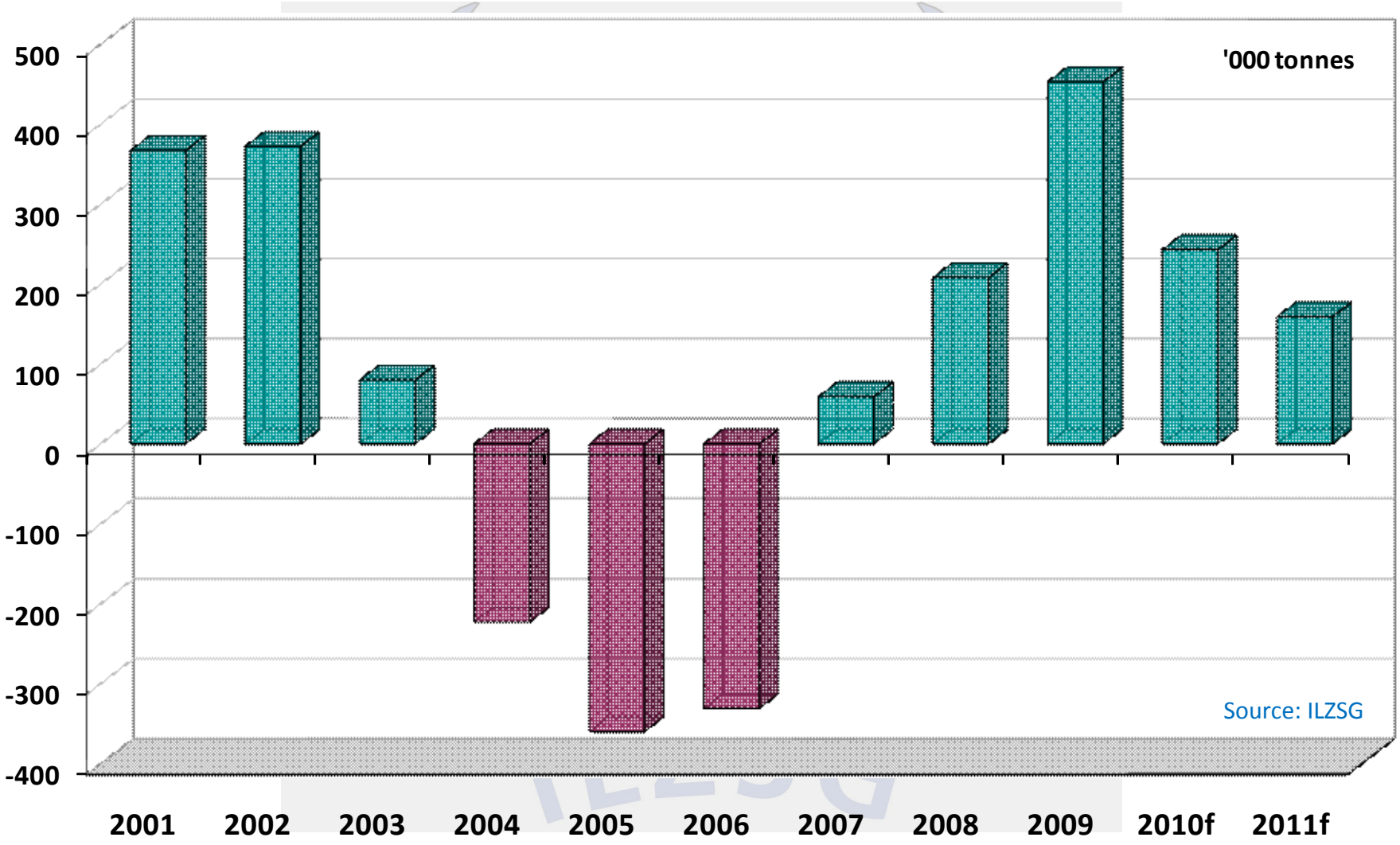
Source: ILZSG

Zinc Stocks and Prices

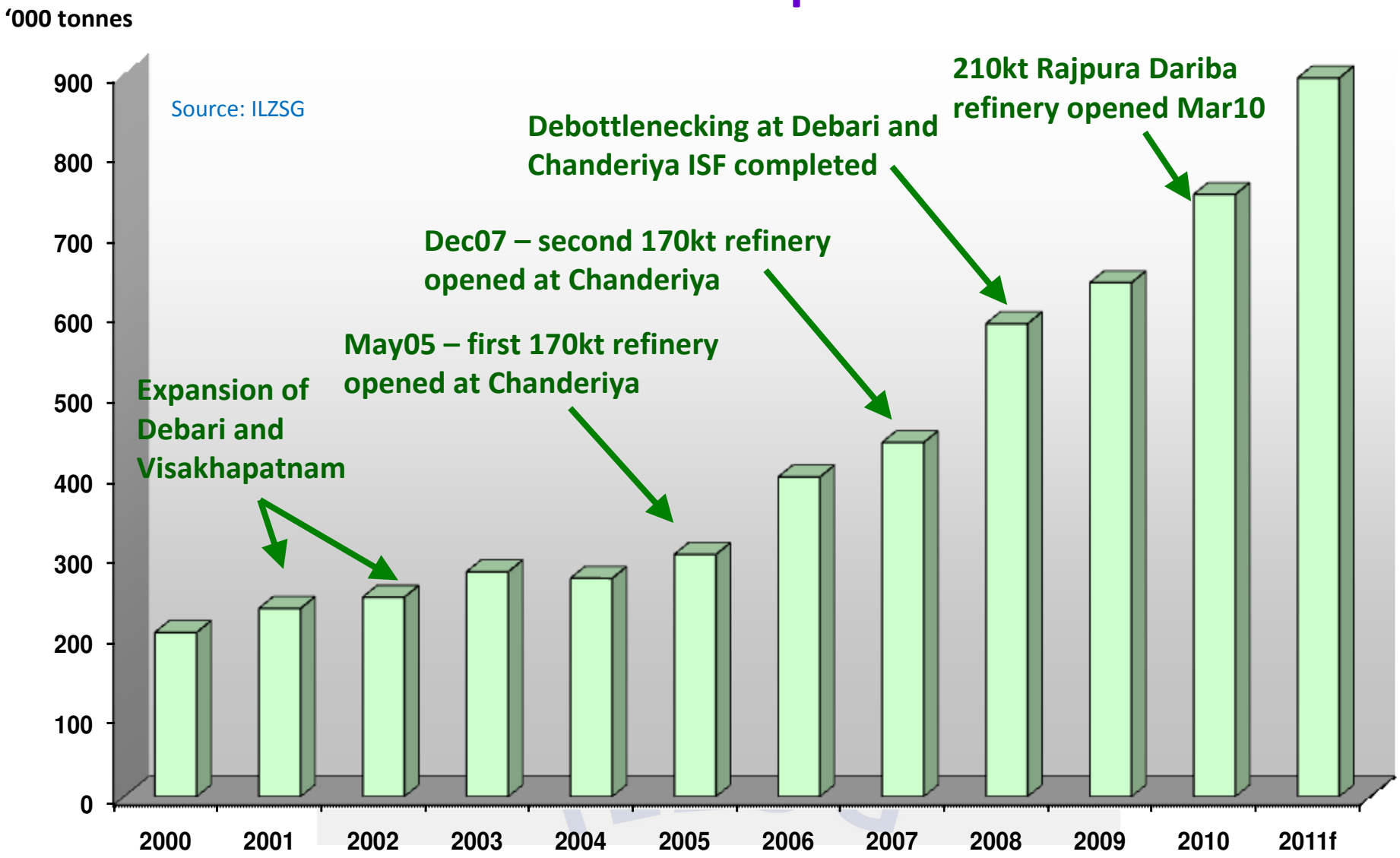
Jan 2005 – Jan 2011



Zinc Metal World Balance



Indian Zinc Metal Output 2000-2011f



China's Infrastructure Requirements

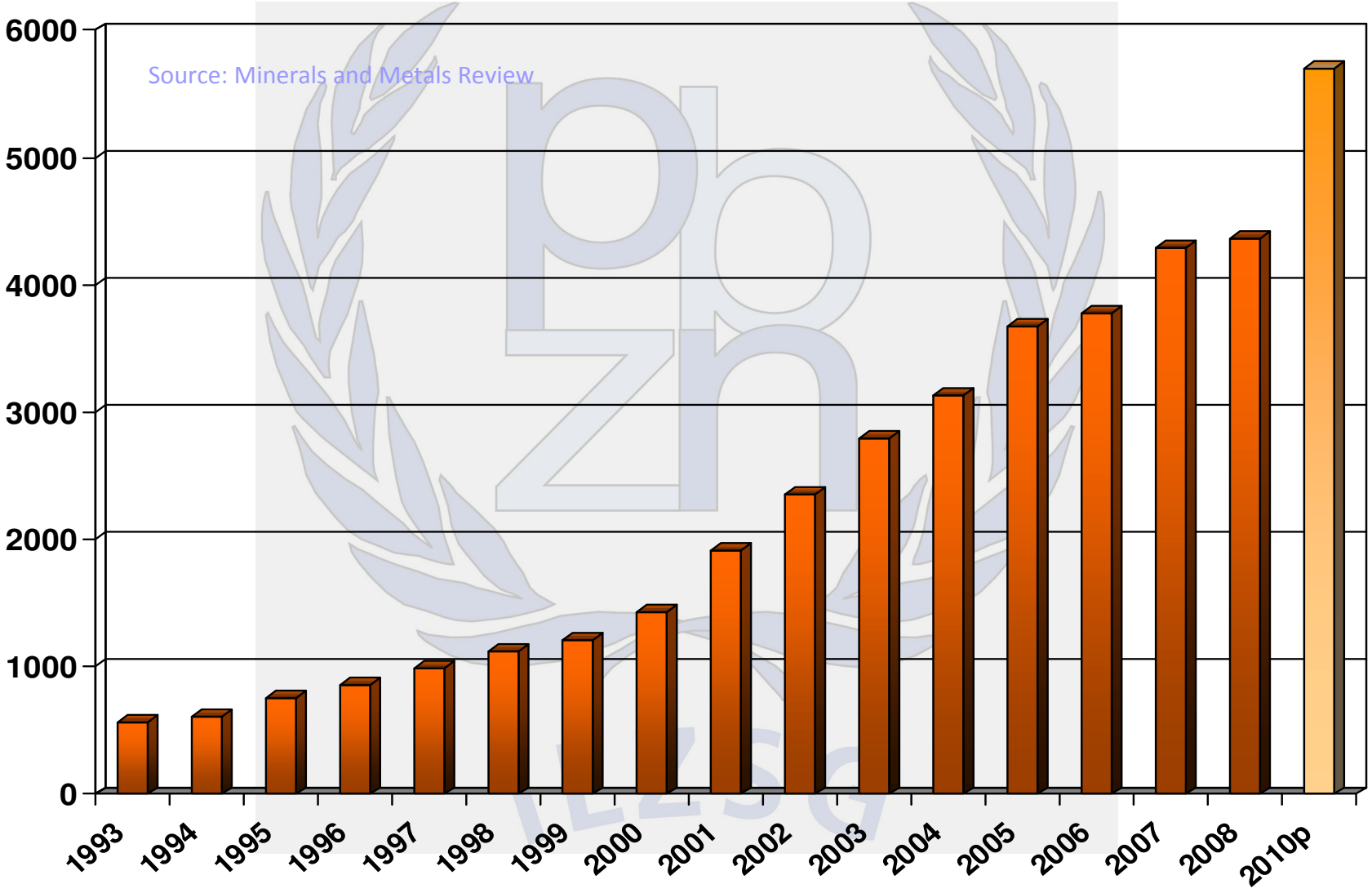
	USA	CHINA
Per million people		
Motorways (km)	21,862	1,080
Roads (km)	14,157	242
Railways (km)	780	54
Per 000 km^2		
Motorways (km)	699	150
Roads (km)	453	34
Railways (km)	25	8

Source: China Metals

China's Infrastructure Plans

- 97 new airports to be built
- 85% rise in seaport capacity by 2020
- New subway systems under construction in 15 Chinese cities
- 100 million more people to be connected to electric grid within 3 years

Galvanized Steel Production in India



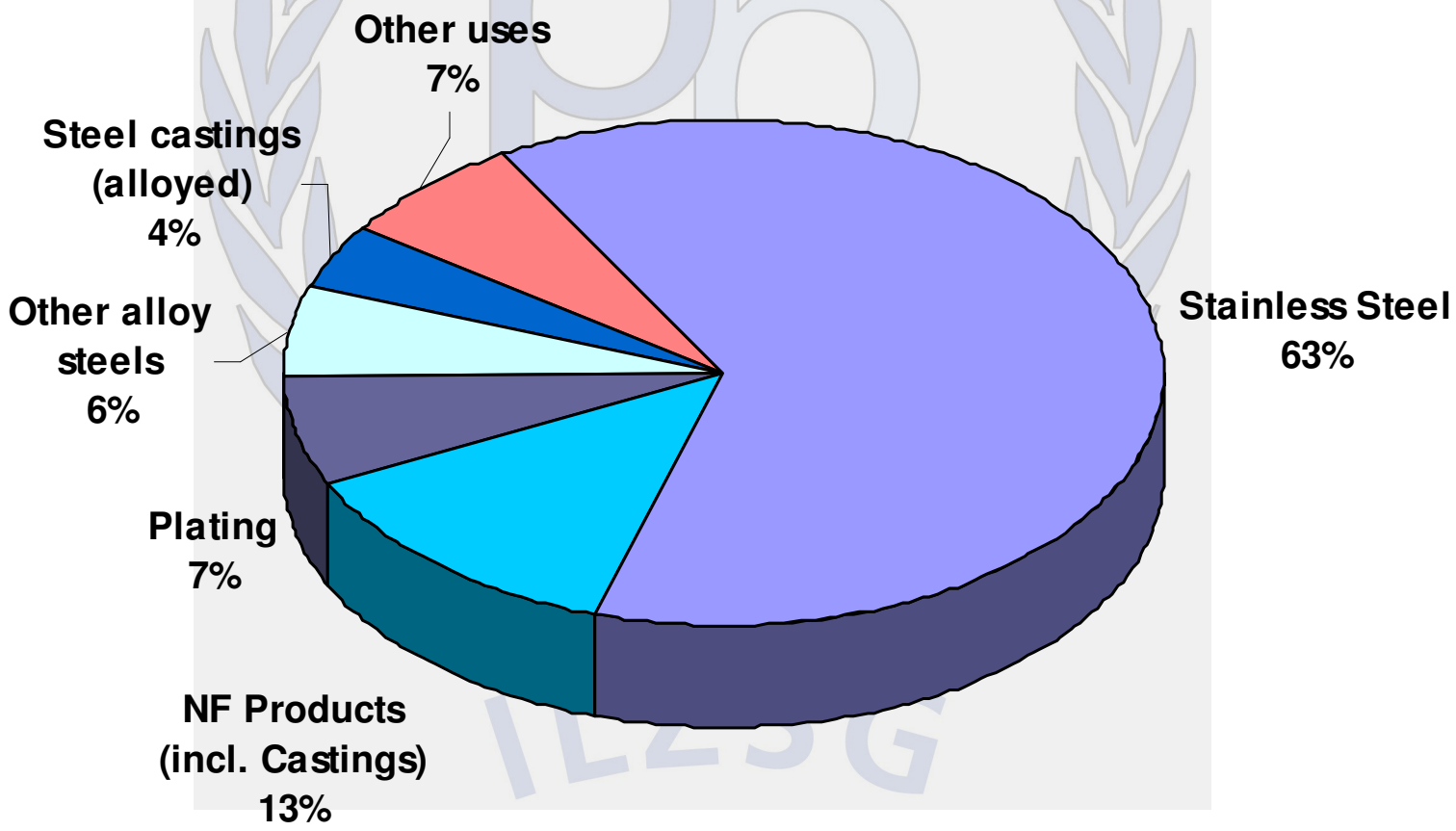
A Number of Large Mines are due to Close in Next 4 Years

Mine	Annual Capacity	Forecast Closure
Century, Australia	500,000t	2014
Paragsha, Peru	150,000t	2014
Brunswick, Canada	240,000t	2012
Perseverance, Canada	115,000t	2014
Lisheen, Ireland	175,000t	2013

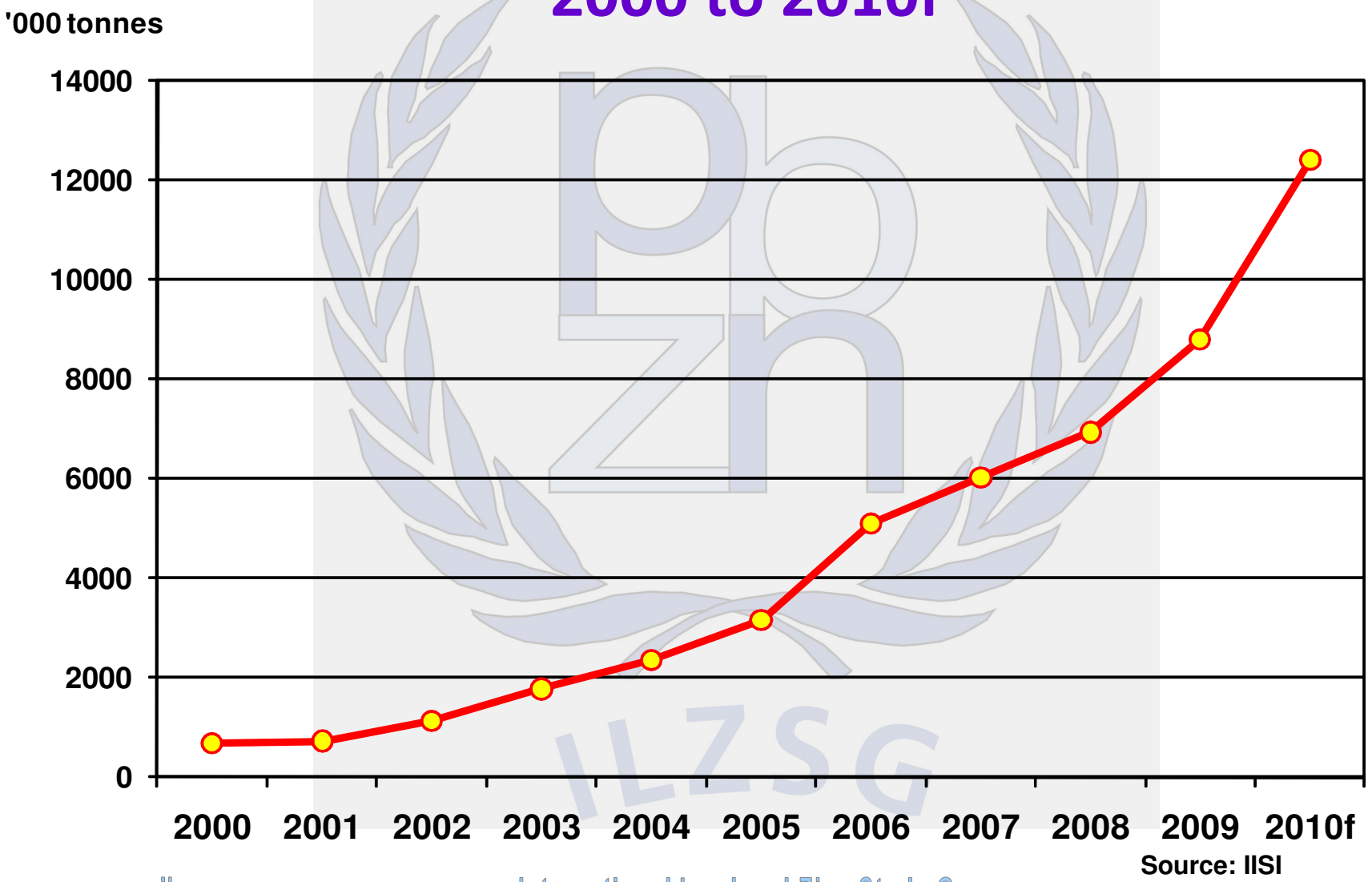
NICKEL

Ni

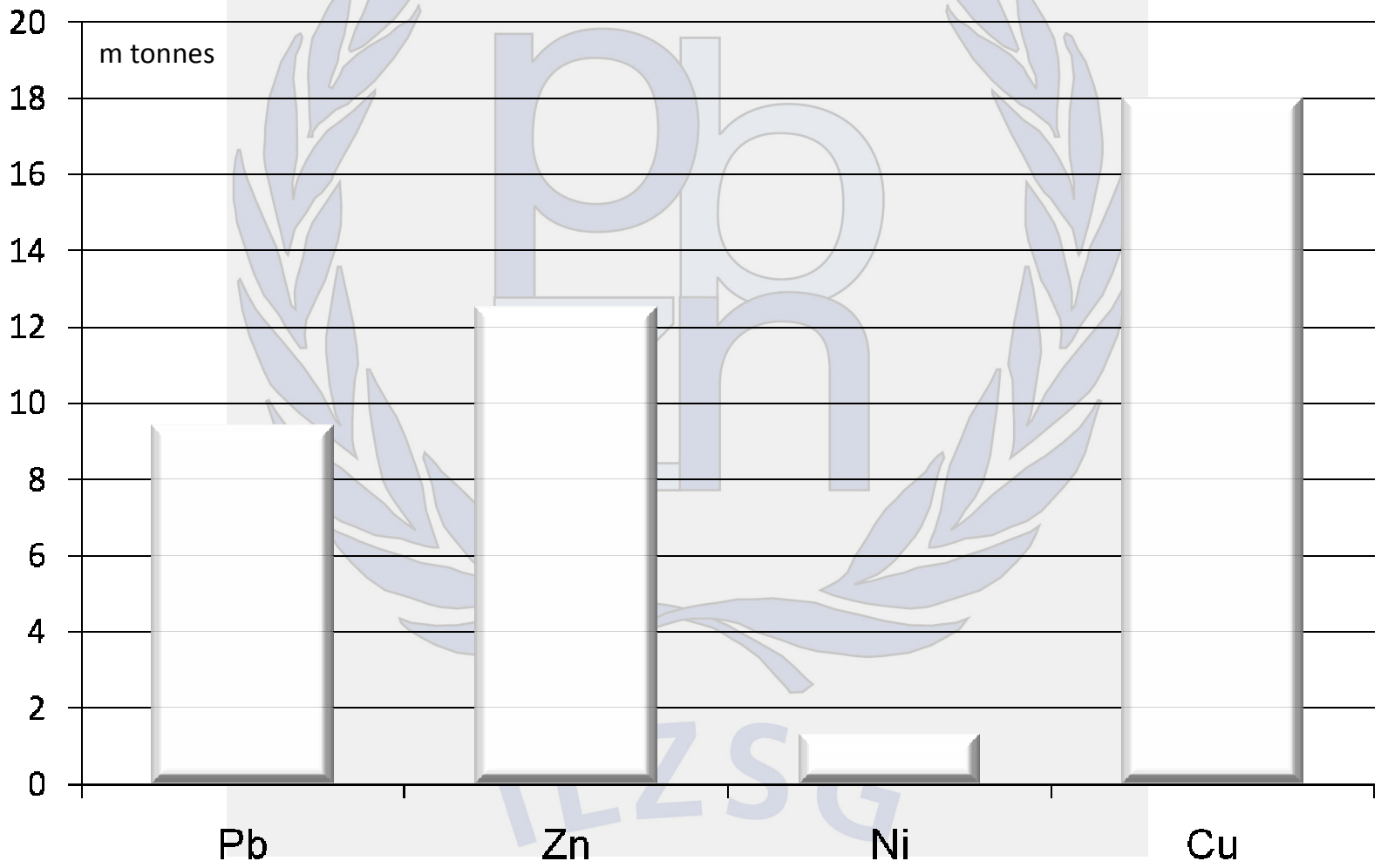
Principal End Uses of Primary Nickel in 2009



Chinese Stainless Steel Production 2000 to 2010f



Relative Size of Refined Metal Markets

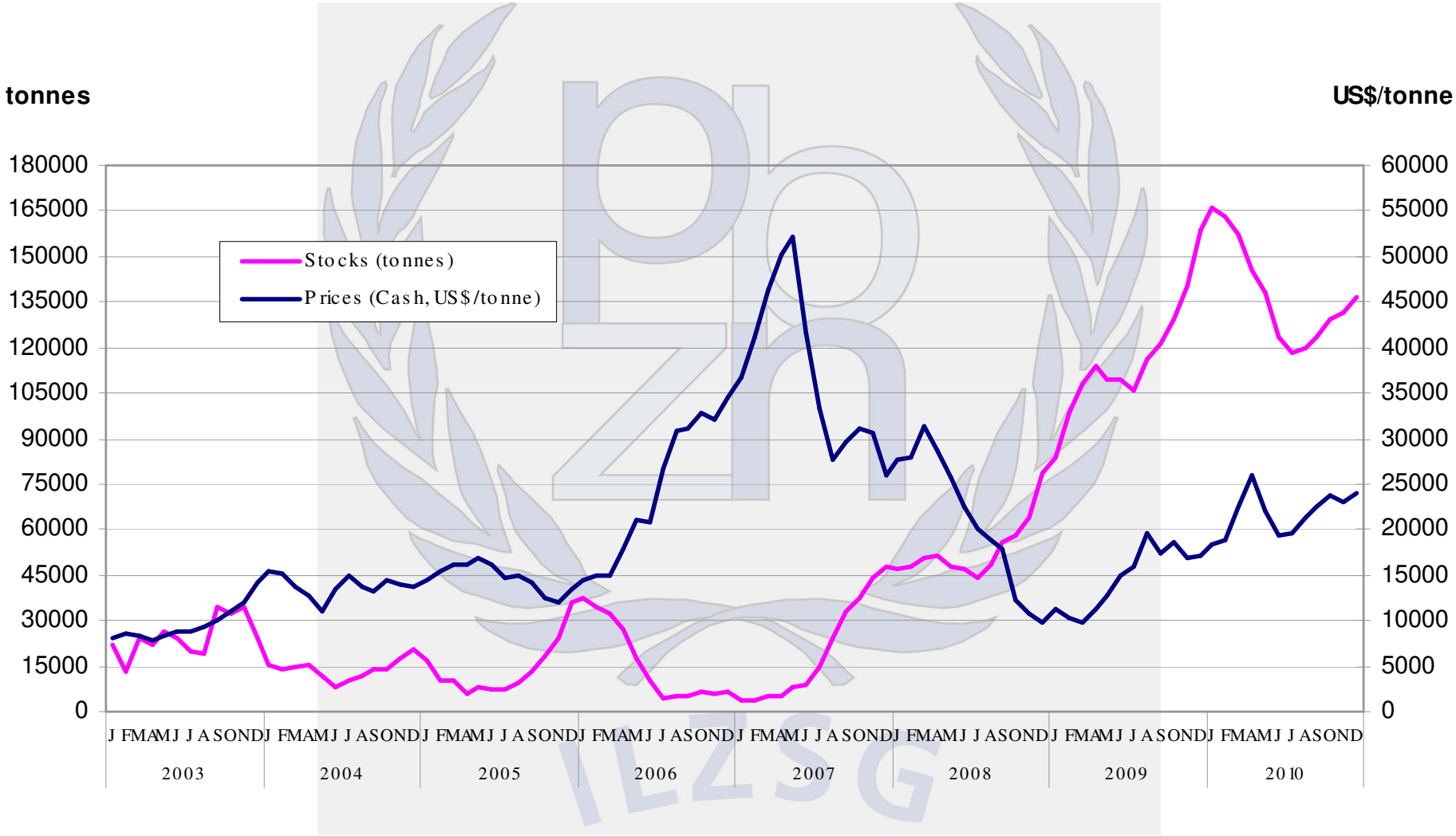


Source: ILZSG / INSG / ICSG

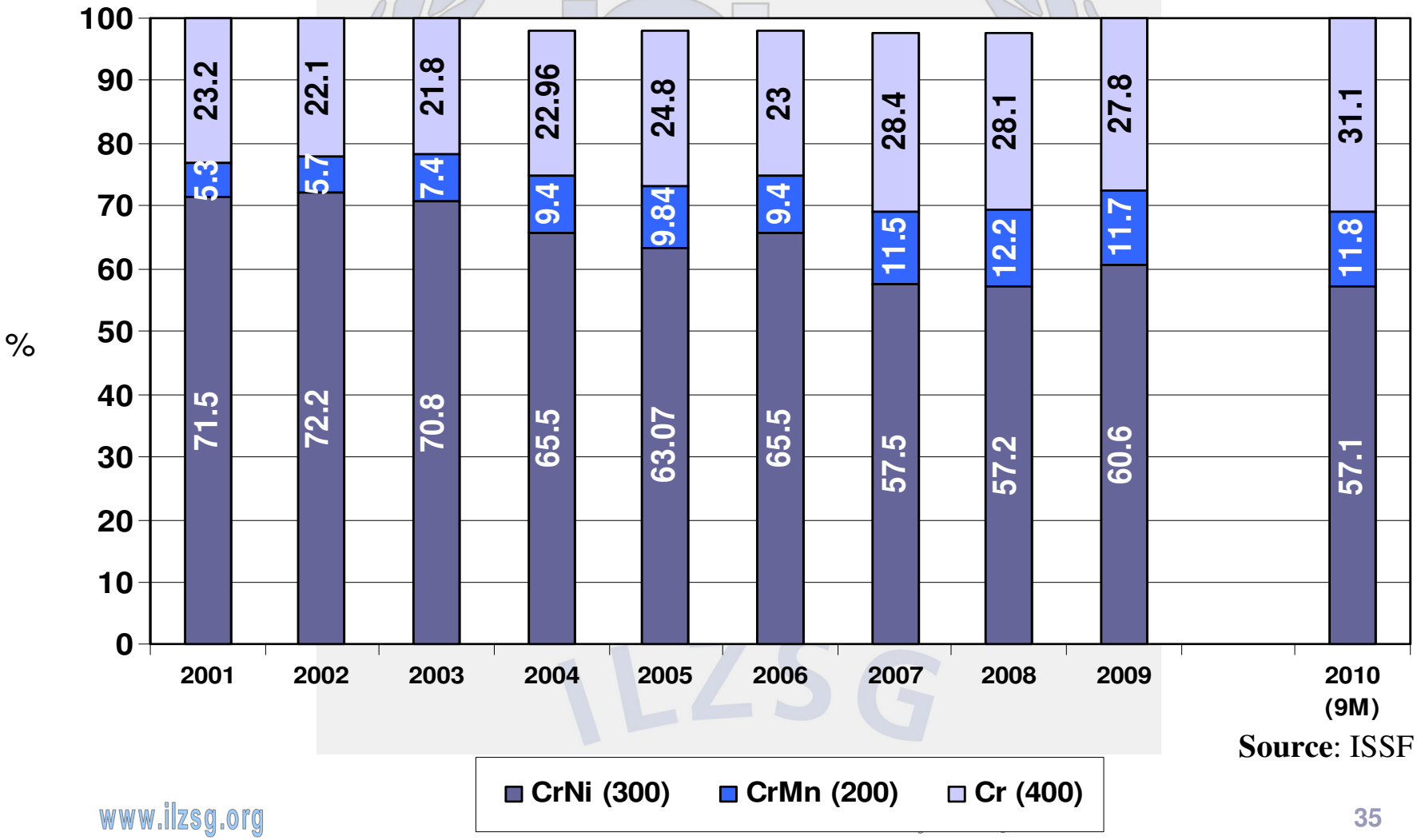
Nickel Supply Problems

- Delays with Laterite Projects
  - Goro, New Caledonia 60Kt
  - Koniambo, New Caledonia 60Kt
  - Ravensthorpe, Australia 35Kt

Nickel Prices and Stocks

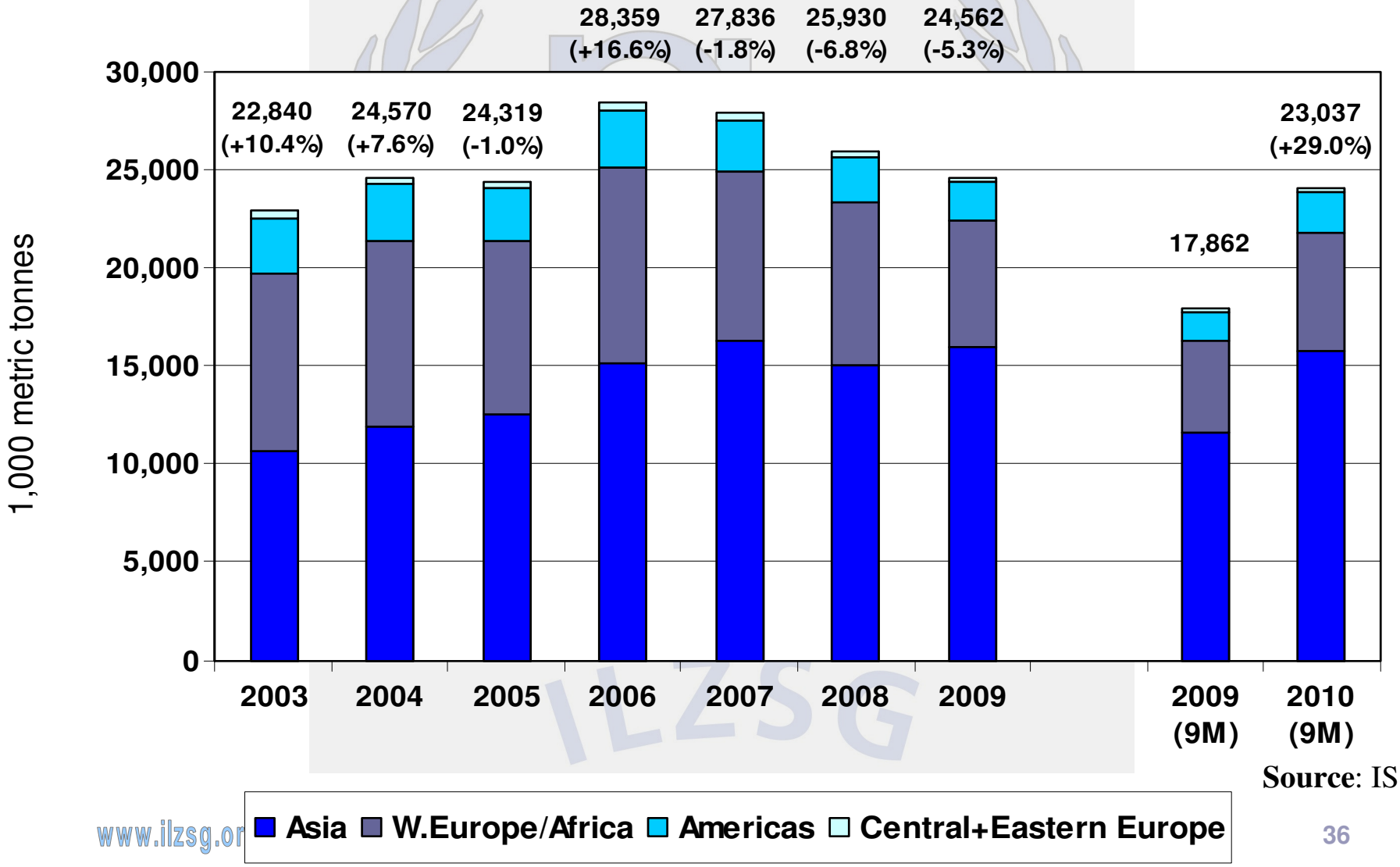


Stainless Steel by Categories



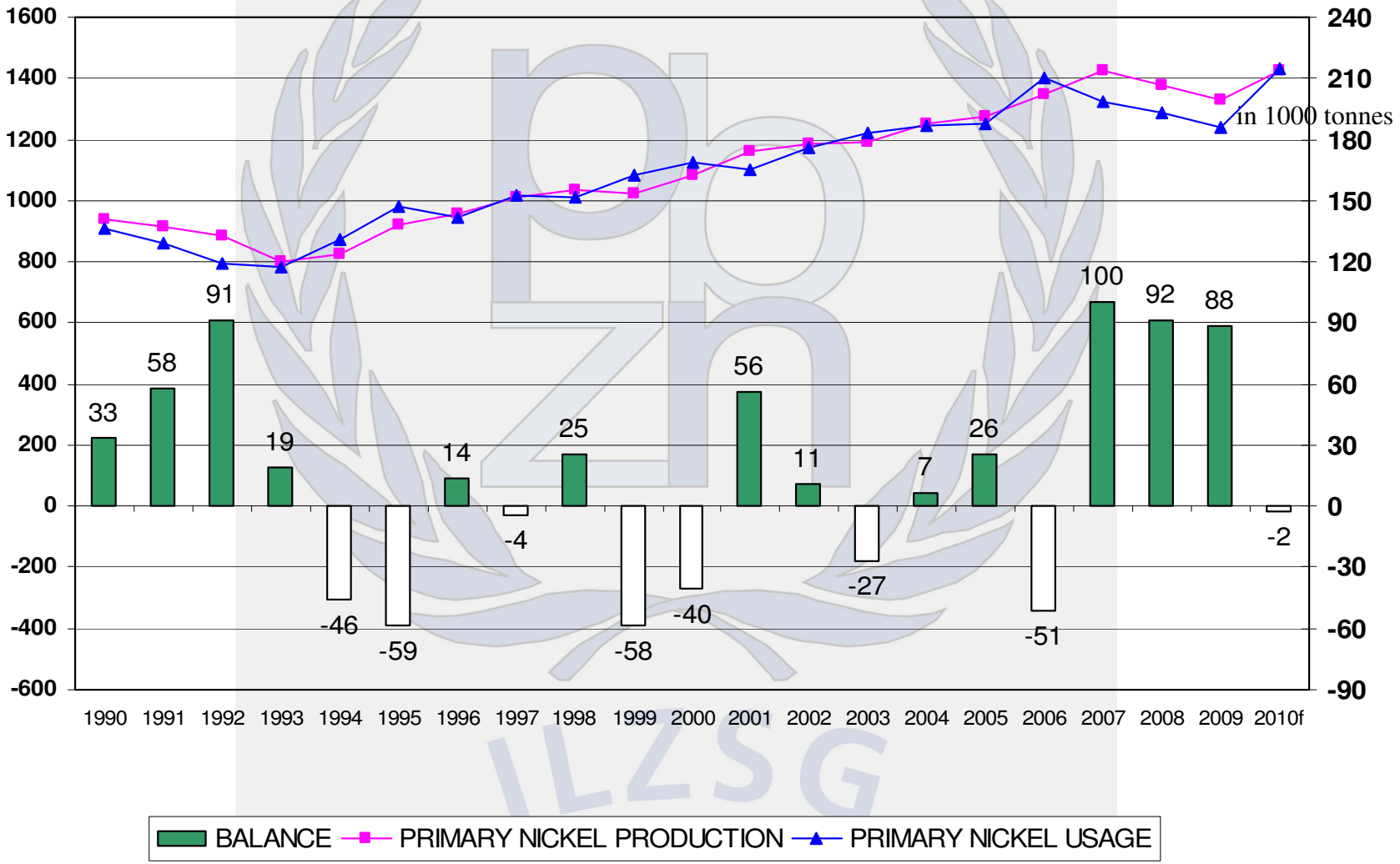
Source: ISSF

World Stainless Crude Steel Production



Source: ISSF

World Primary Nickel Balance



(f) forecast October 2010

Nickel Capacity on Stream / Ramp Up in 2011

Project Name / Country	Product	Mode	Estimated Production 2011	Projected Total Production	Remarks
Ambatovy / Madagascar	Class I	Start Up	≈ 15 000	60 000	Open market
Tagaung Taung / Myanmar	Class I	Start Up	≈ 5 000	22 000	To China
Onça Puma / Brazil	FeNi	Start Up	≈ 20 000	58 000	Open market
Barro Alto / Brazil	FeNi	Start Up	≈ 20 000	36 000	Open market
Goro / New Caledonia	Semi	Ramp Up	≈ 15 000	60 000	To China & Other
Talvivaara / Finland	Semi	Ramp Up	≈ 20 000	35 000	For Finland
Ramu / PNG	Semi	Start Up	≈ 15 000	30 000	To China & other
Santa Rita / Brazil	Conc.	Ramp Up	≈ 15 000	18 5000	Brazil & Finland
Munali / Zambia	Conc.	Ramp Up	≈ 5 000	8 500	To China

Note: no Chinese NPI projects included

World Primary Nickel Balance

in 1000 tonnes

Area	2008	2009	% change	2010 (f)	% change	2011 (f)	% change
Production	1381.9	1346.8	-2.5	1427.1	6.0	1610.5	12.9
Usage	1287.3	1241.6	-3.6	1429.2	15.1	1525.0	6.7
Balance	**94.6**	**105.2**		**-2.1**		**85.5**	

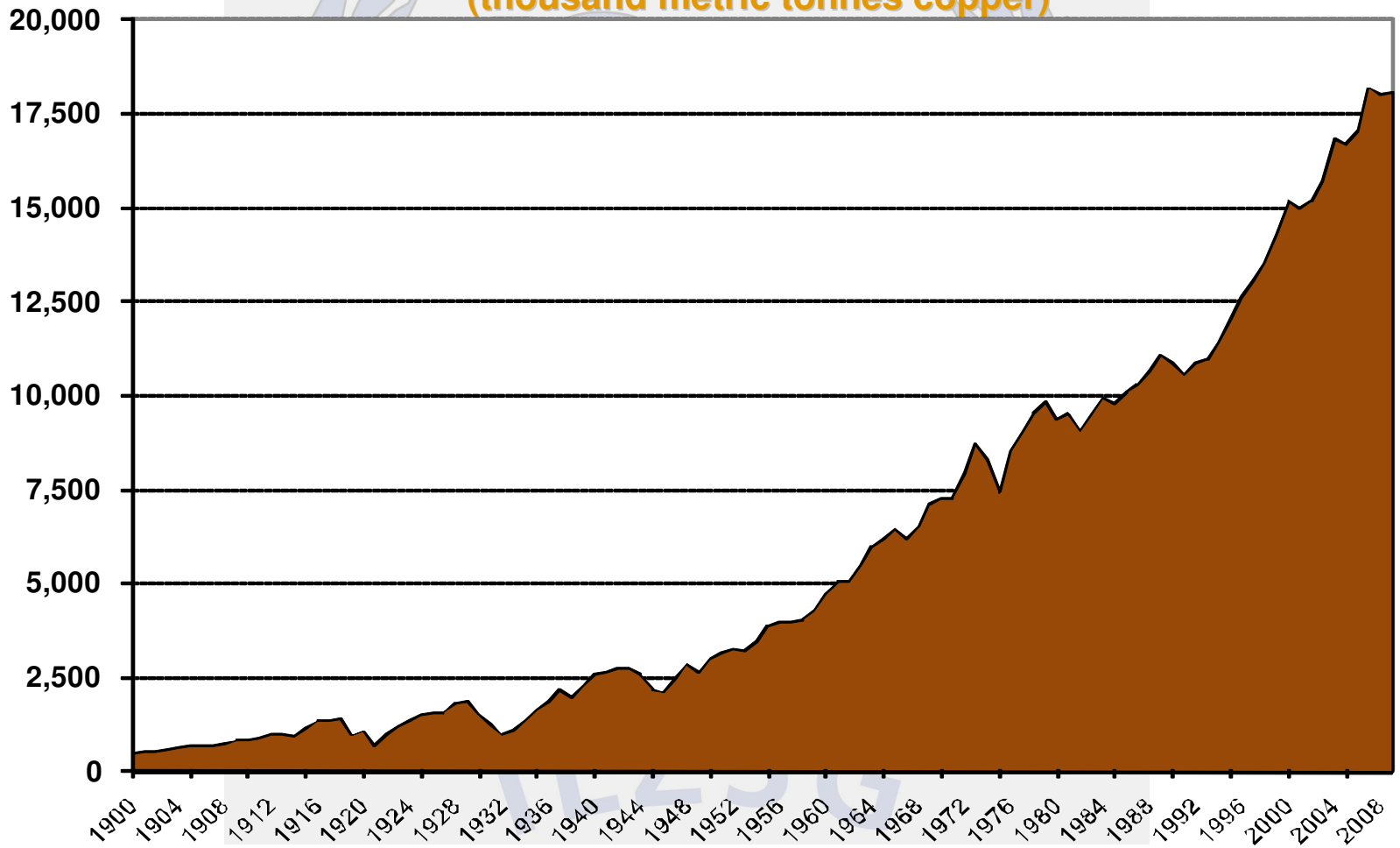
(f) forecast October 2010

Copper

Cu

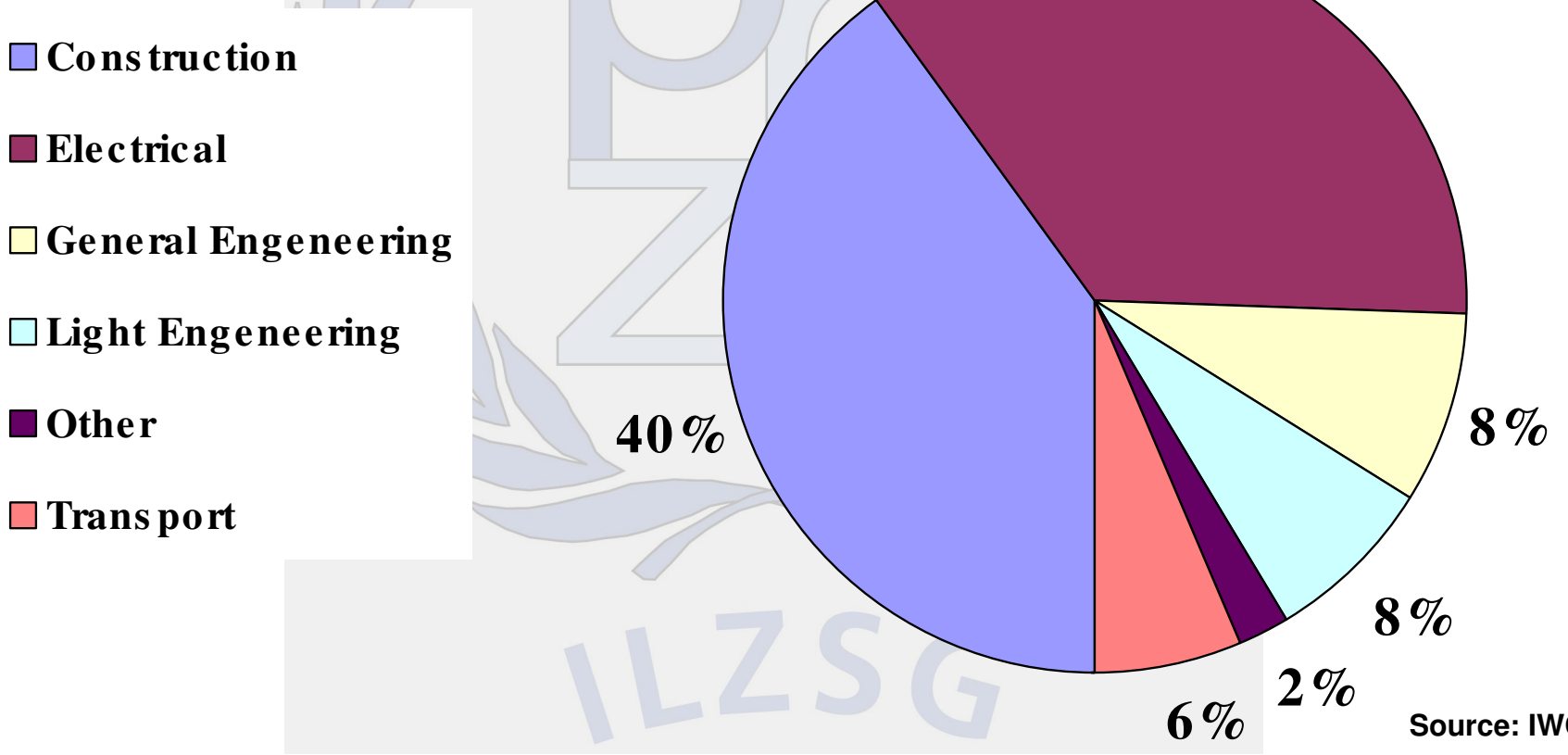
World Refined Copper Usage 1900-2010e

(thousand metric tonnes copper)



Source: ICSG

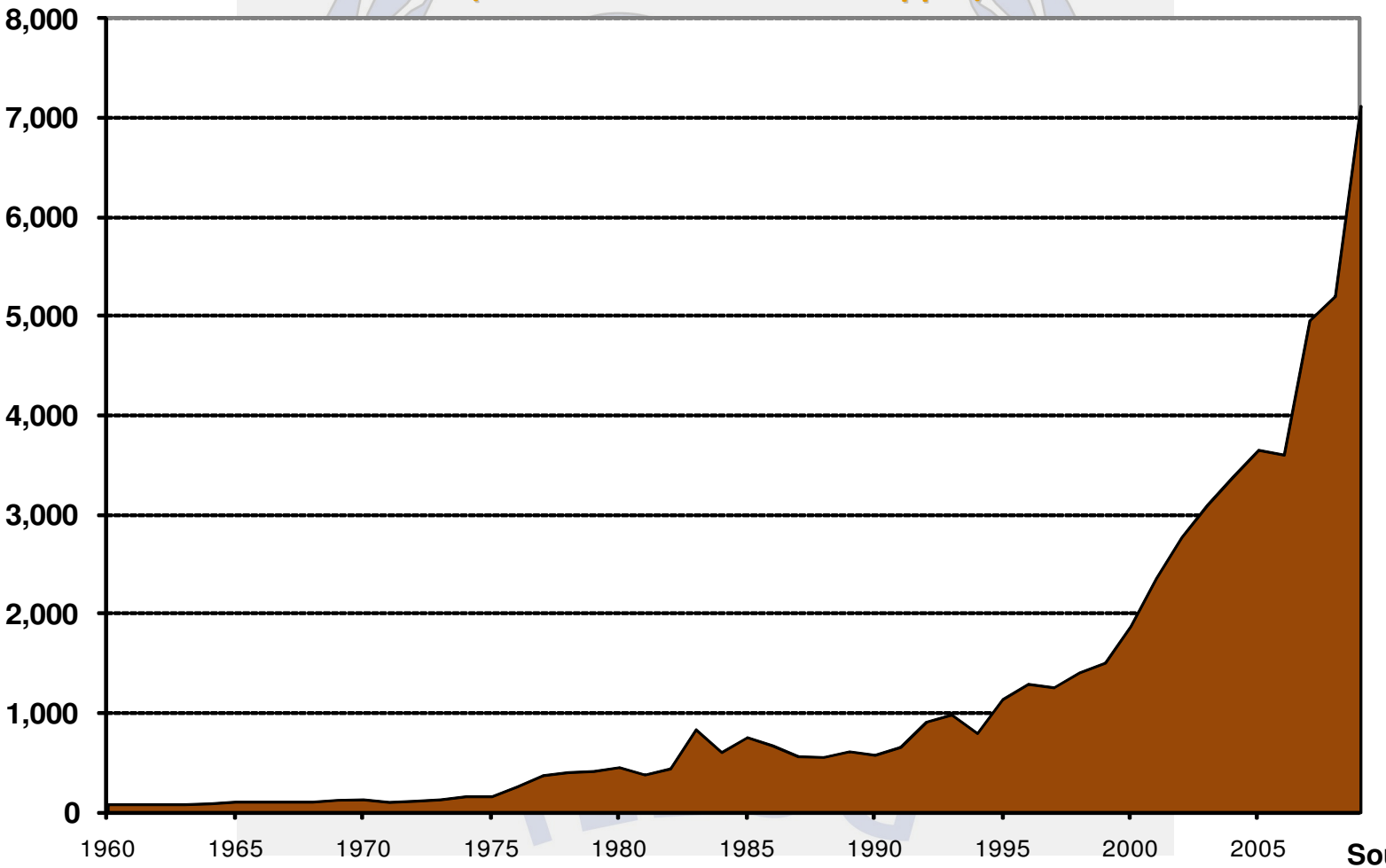
Copper End Uses



Source: IWCC

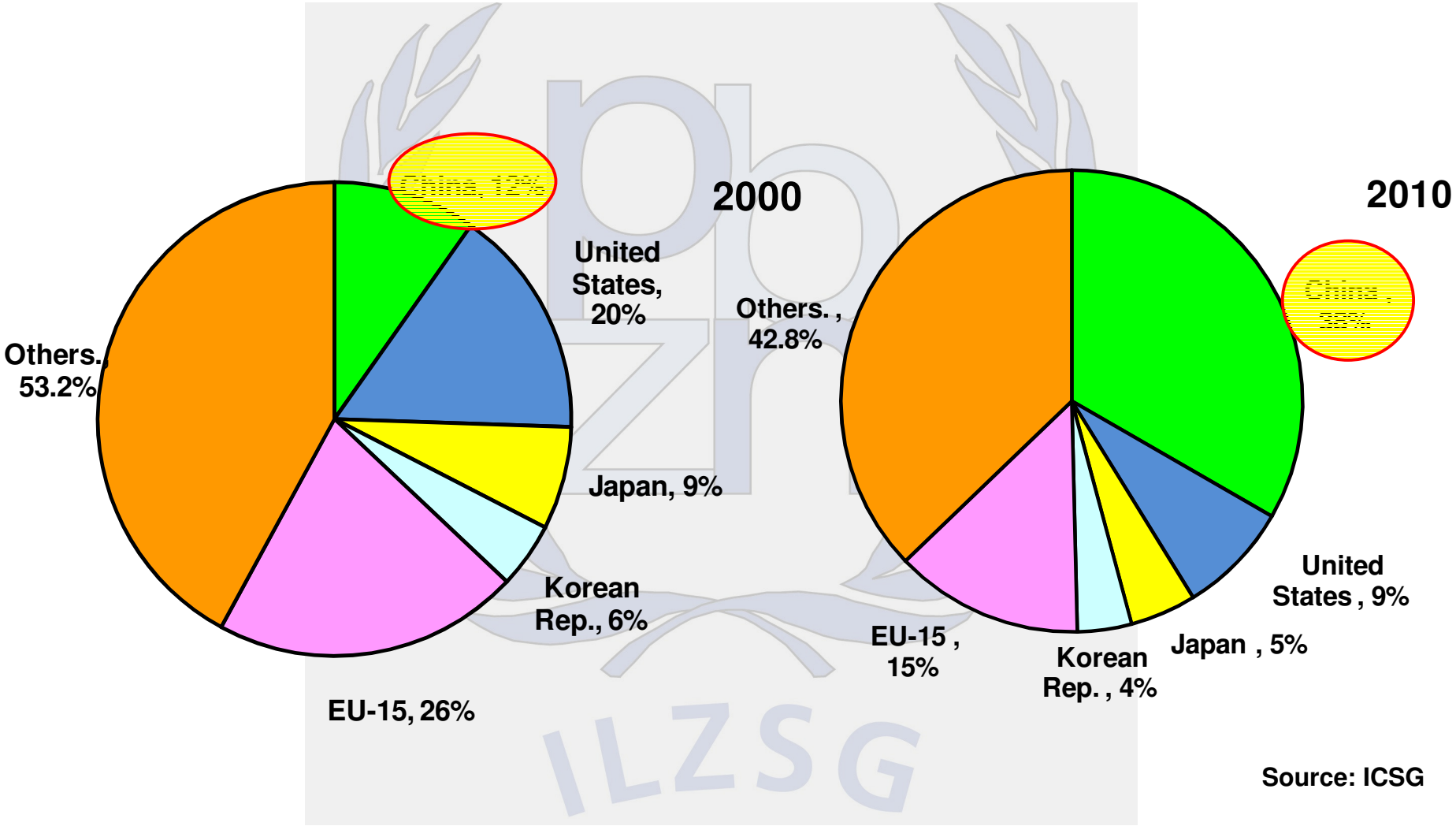
Chinese Refined Copper Usage 1960-2010e

(thousand metric tonnes copper)



Source: ICSG

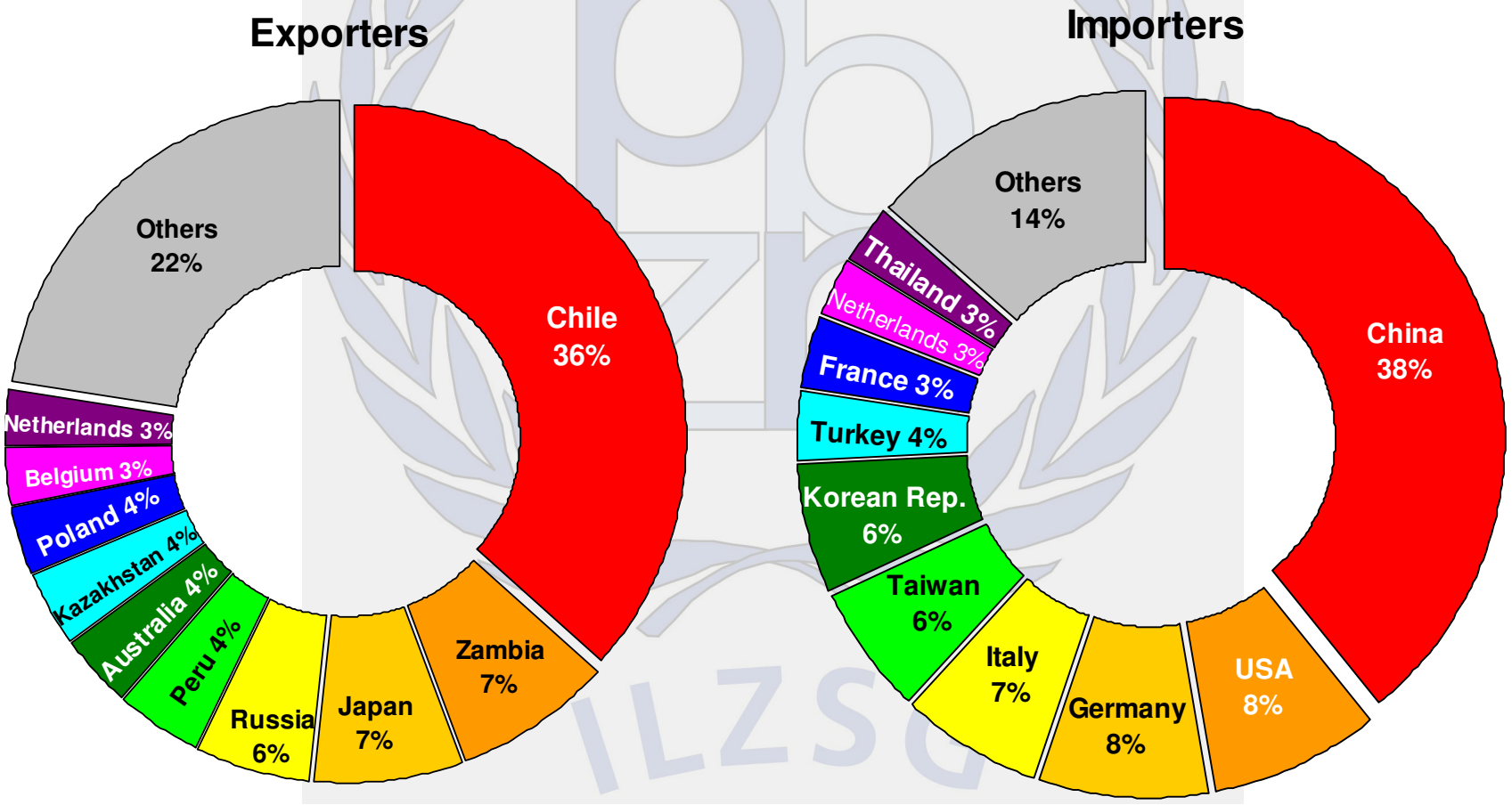
World Copper Demand Breakdown



Source: ICSG

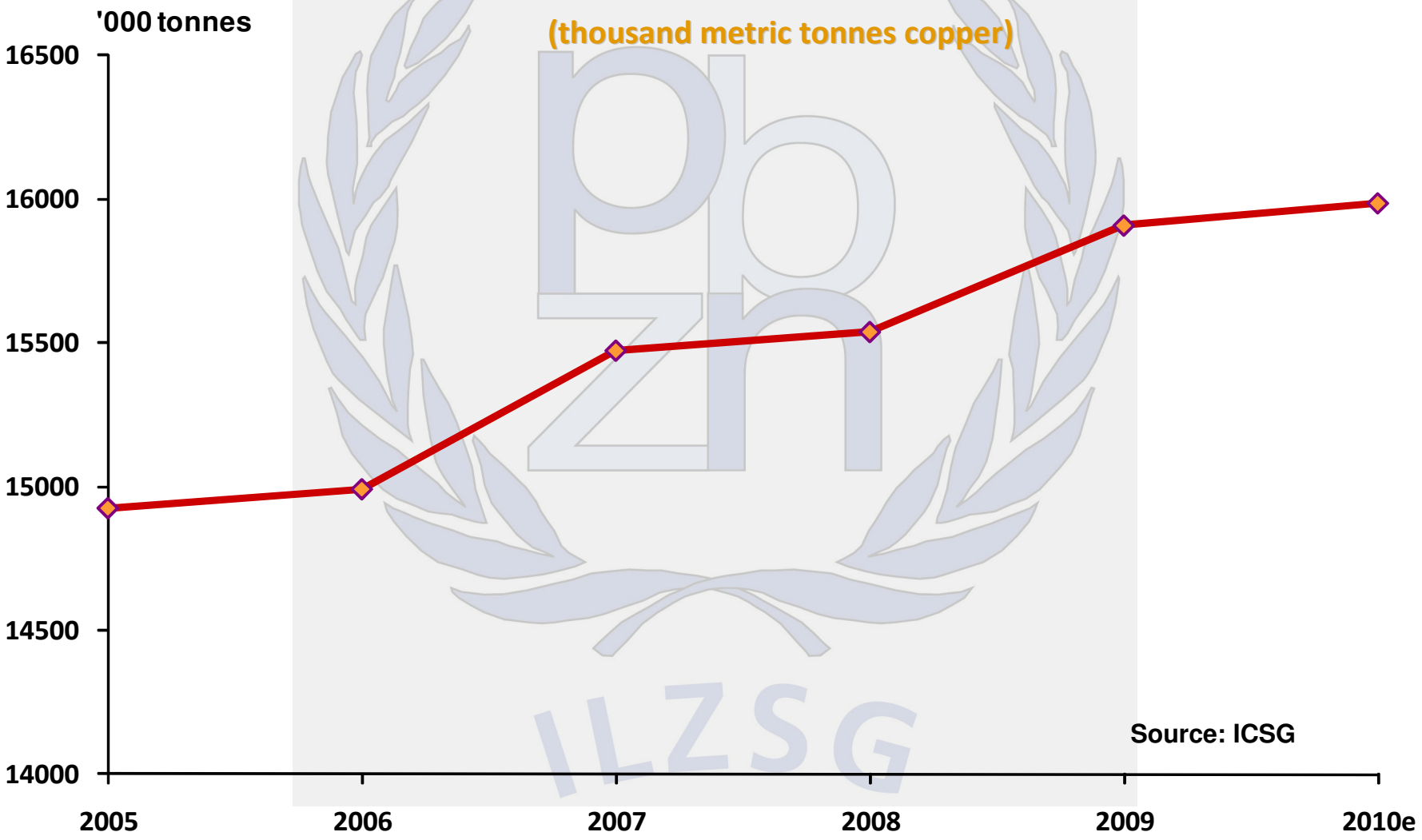
Leading Exporters and Importers of Refined Copper, 2010

(thousand metric tonnes)



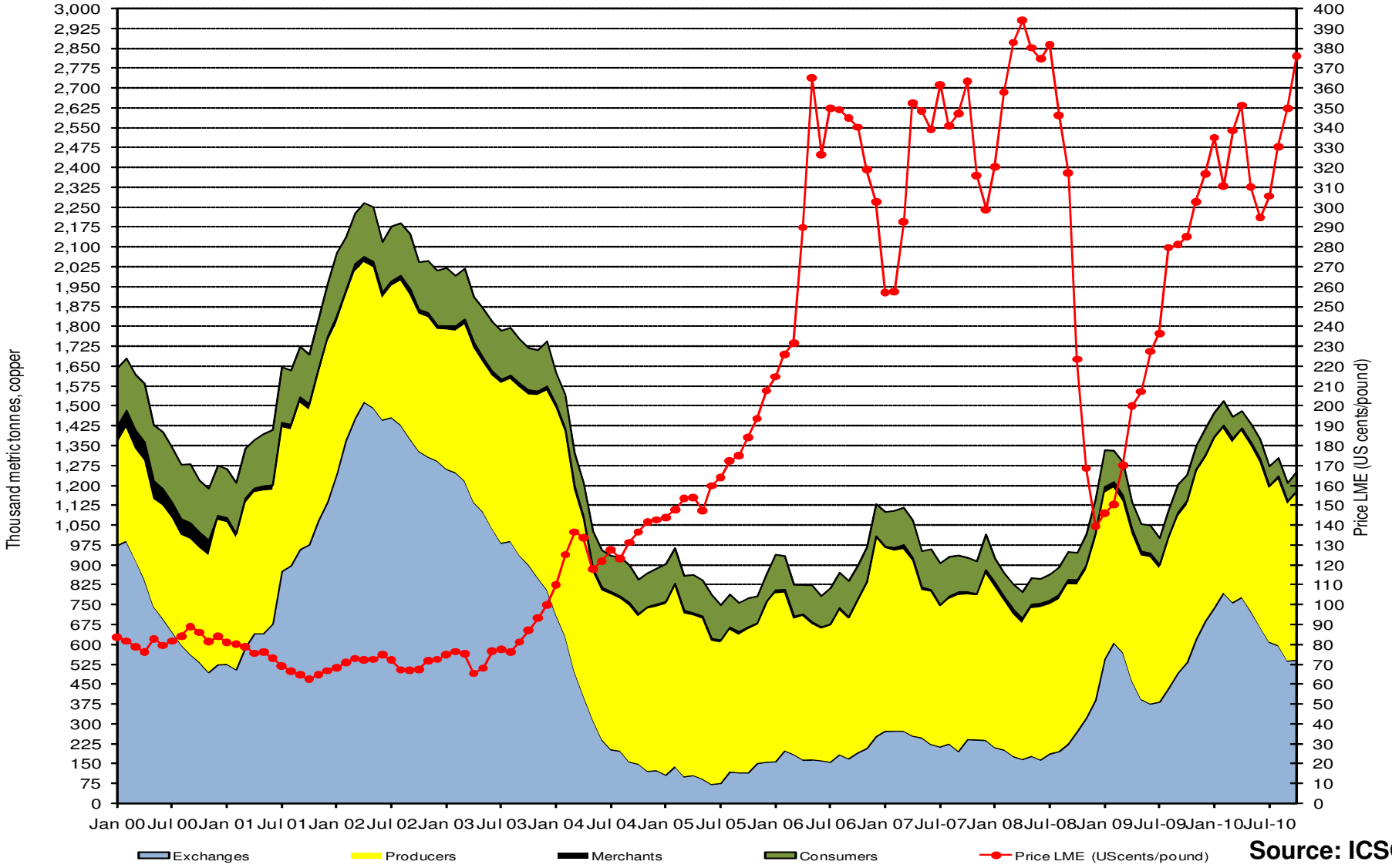
World Mine Production 2005-2010e

(thousand metric tonnes copper)



Copper Stocks vs. Price

Jan 2000 - Oct 2010



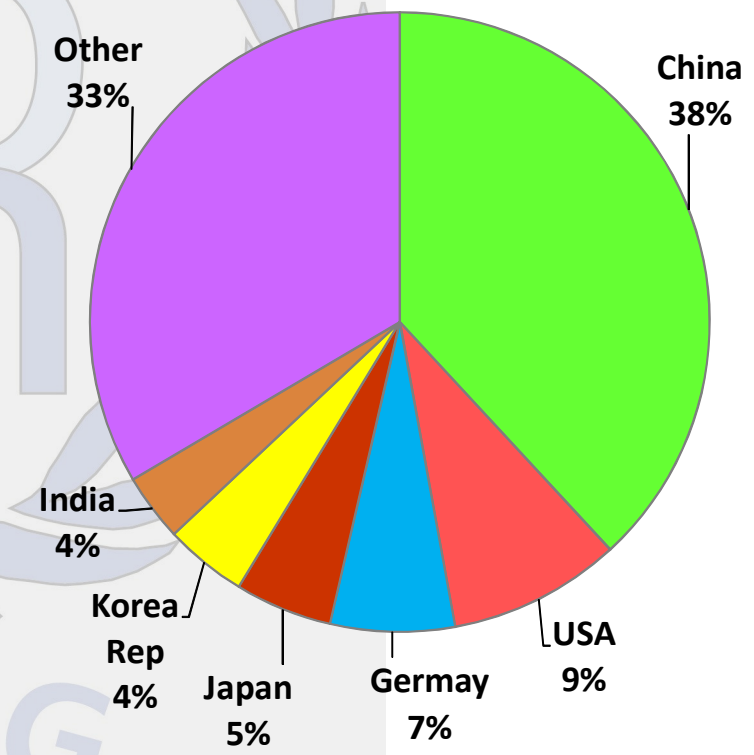
Source: ICSG

World Copper Demand

Forecast Change:

- **2011 +4.5%**

Distribution:



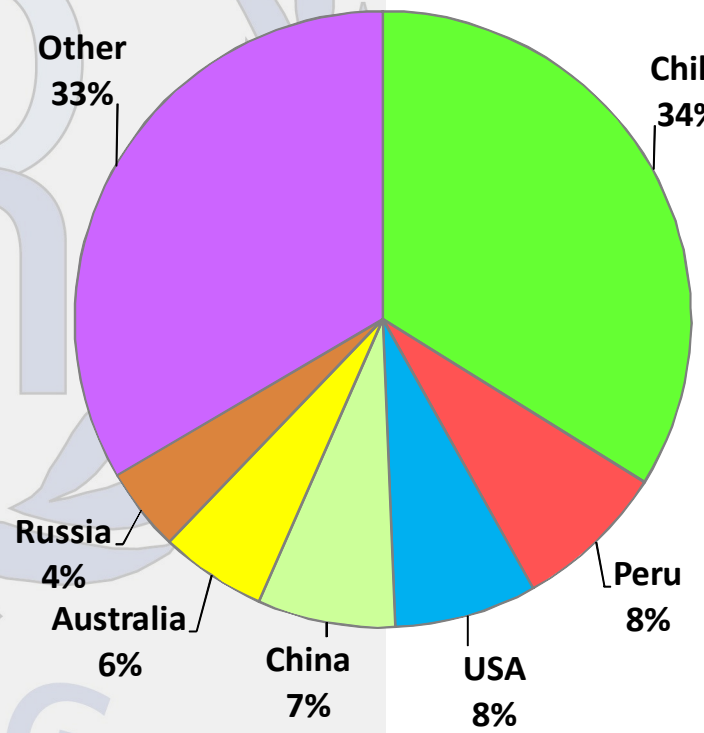
Source: ICSG

World Copper Mine Output

Forecast Change:

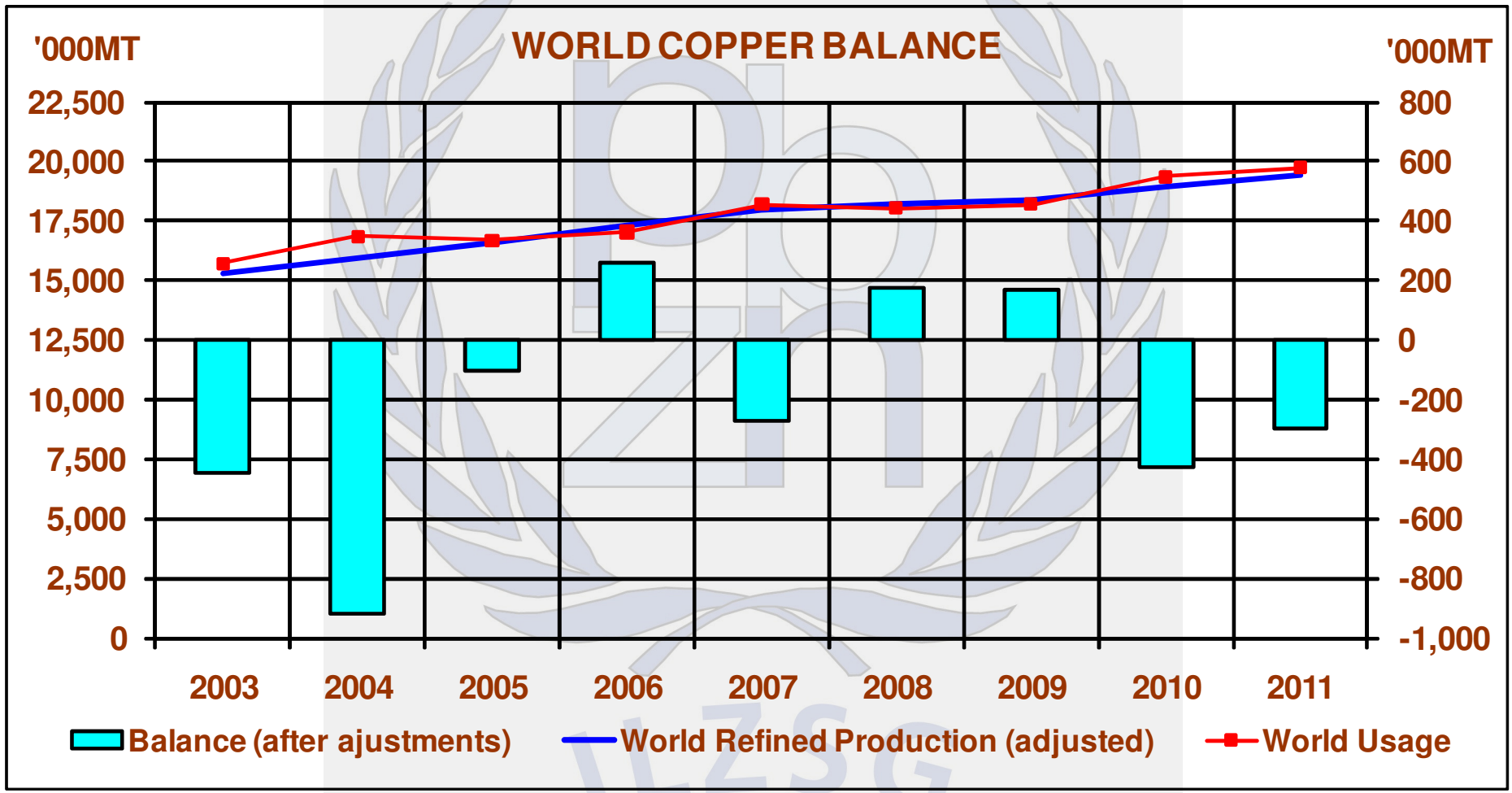
- **2011 +5.0%**

Distribution:



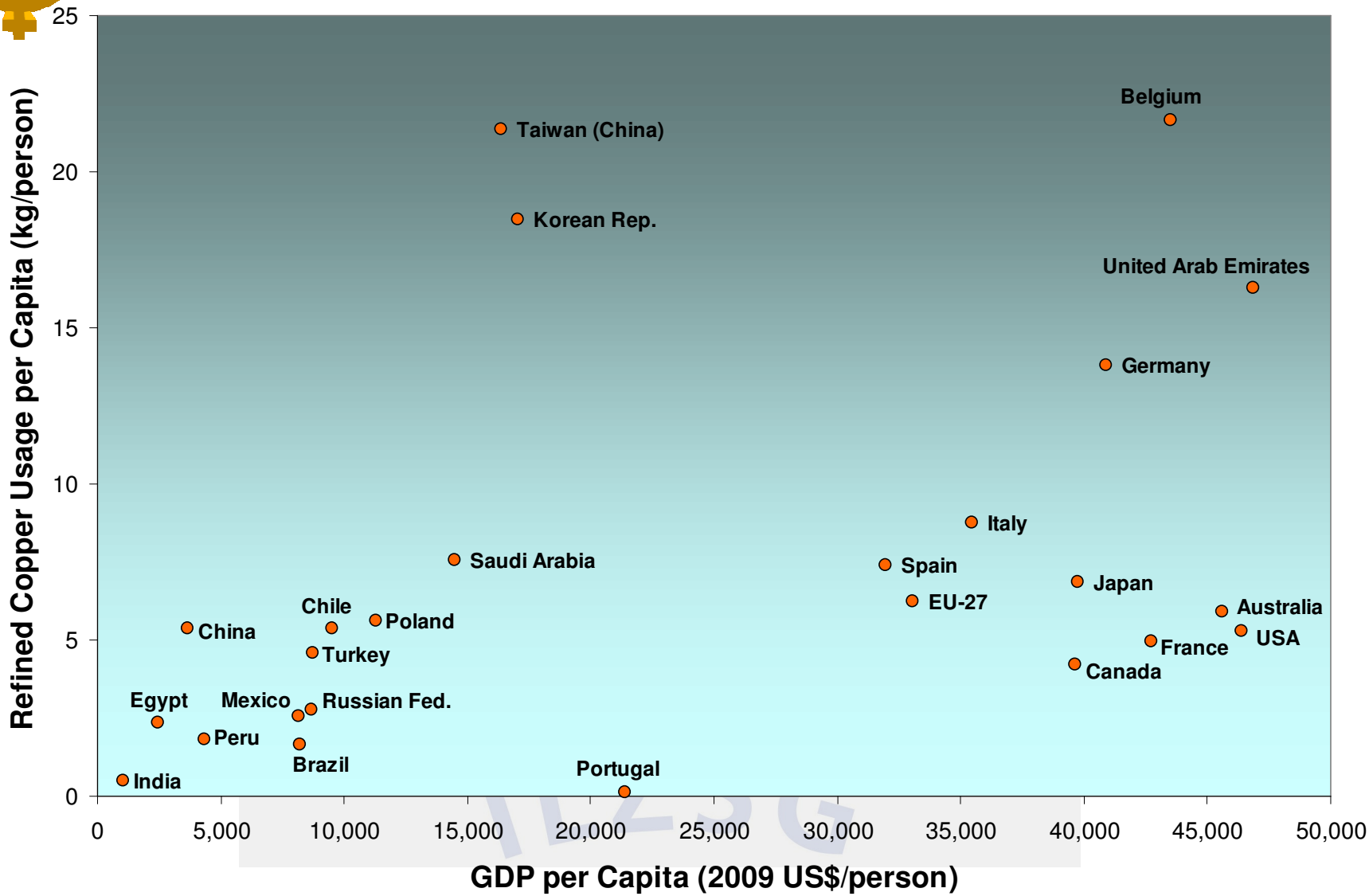
Source: ICSG

ICSG World Copper forecast



Source: ICSG

Intensity of Refined Copper Use, 2010[1]



1/ Note: Refined copper is consumed by semis fabricators or the "first users" of refined copper, including ingot makers, master alloy plants, wire rod plants, brass mills, alloy wire mills, foundries and foil mills. As a result, per capita consumption of refined copper refers to the amount of copper consumed by industry divided by the total domestic population and does not represent consumption of copper in finished products per person.

THANK YOU!