

Analysis on China's Tungsten Industry in 2010-2011

Xu Aihua Li Bingxin

Beijing Antaiko Information Development Co., Ltd.

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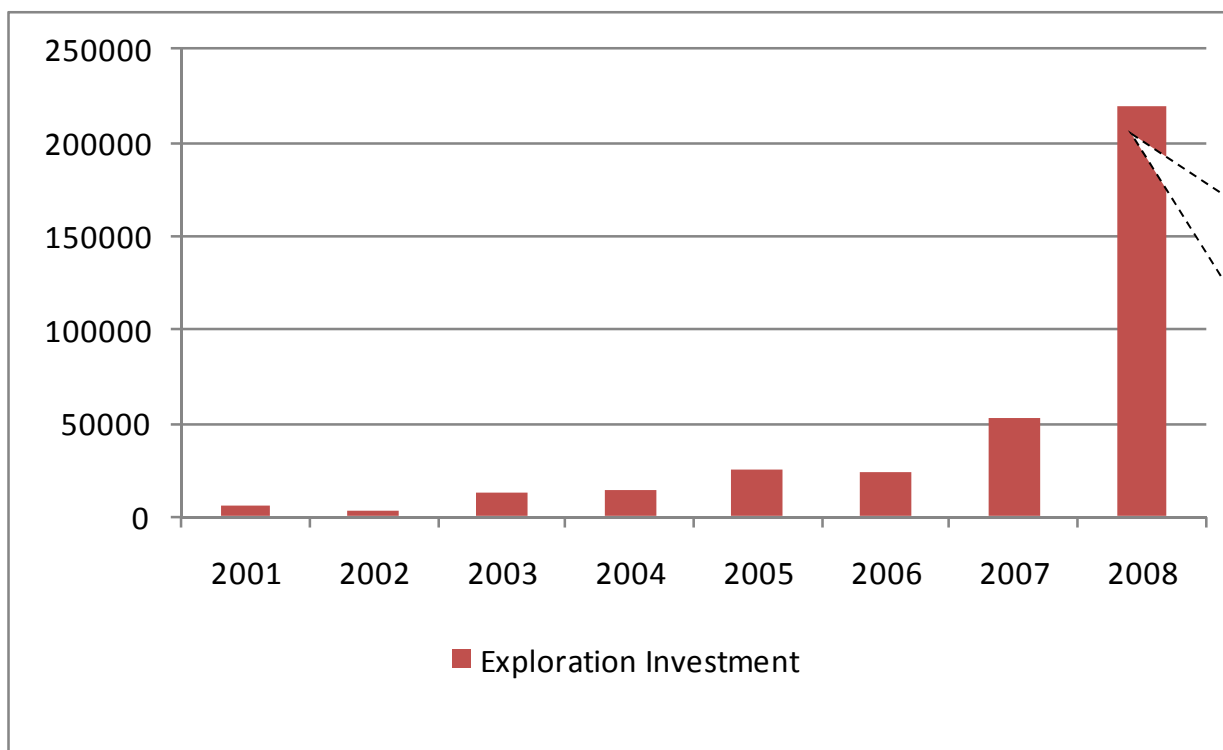
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- **China's tungsten supply**
- **China's tungsten consumption**
- **China's tungsten trade**
- **China' tungsten supply/demand balance**
- **Tungsten prices**
- **Outlook for 2010-2011**

China's tungsten supply

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Investment in tungsten resources exploration in China in 2001- 2008
(Unit: 000 yuan)



- 220 mln yuan in 2008.
- Newly-found reserve amounted to 190kt in 2001-2008

China's tungsten supply

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China's tungsten ore mining and dressing capacity by province
(Unit: kt)

2008			2005		
Province	Mining	Dressing	Province	Mining	Dressing
Jiangxi	3730	4300	Jiangxi	4290	5130
Hunan	2650	2850	Hunan	1460	1340
Guangdong	520	490	Guangdong	1020	960
Guangxi	-	-	Guangxi	30	30
Gansu	260	260	Inner Mongolia	50	40
Henan	-	4040	Henan	-	-
National Total	7160	11940	National Total	6850	7500

Sources: Incomplete statistics from China Tungsten Industry Association

China's tungsten supply

Newly-built tungsten concentrate capacity in China in 2009

(Unit: tpy)

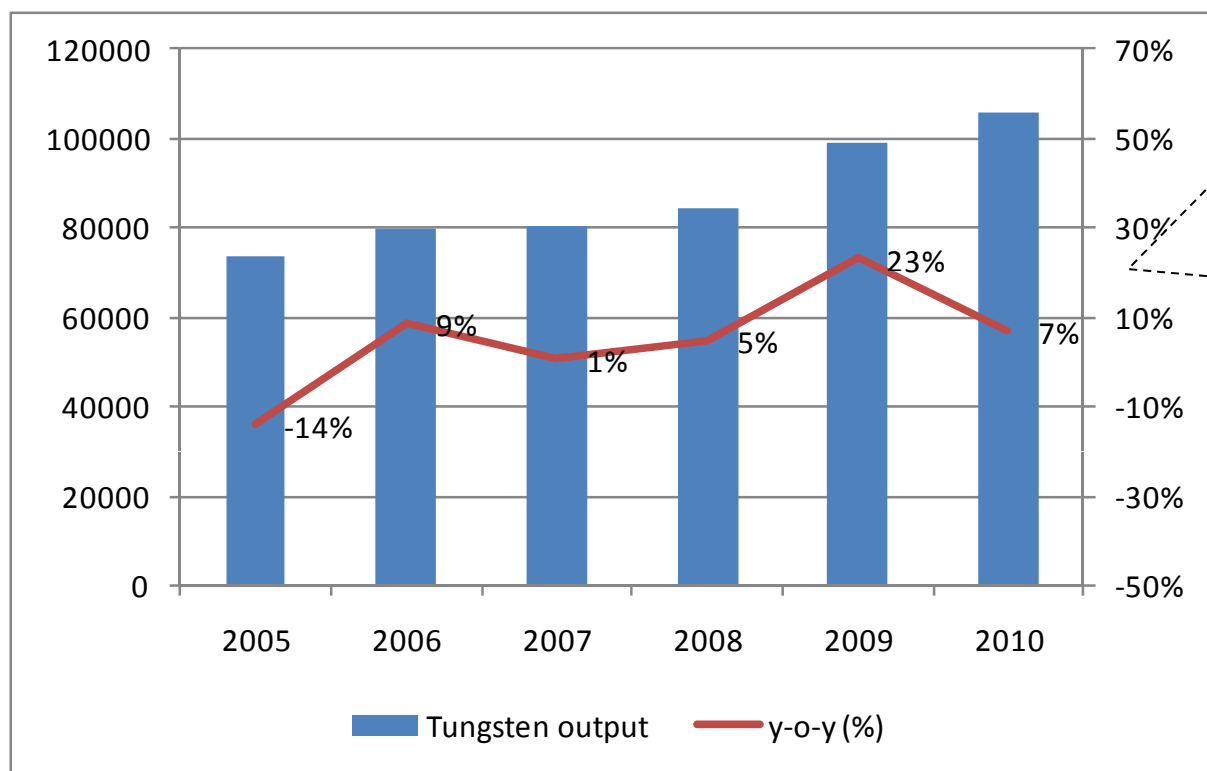
Company	Province	Capacity	Starting time	Completion time
Dingsheng Mining Co., Ltd.	Chizhou, Anhui	500		Completed in March 2009
China Moly	Luanchuan, Henan	7,000	2008	Completed before 2010
Yaogangxian Mining	Chenzhou, Hunan	4,000	Sept., 2009	To be completed in Sept. 2011
Gansu Xinzhou Mining Co., Ltd.	Zhangye, Gansu	1,500	Early 2008	Installed in Oct. 2008

- Newly-built tungsten concentrate capacity may exceed 10ktpy since 2009, which are mainly from the recycling from molybdenum mines in Henan.

China's tungsten supply

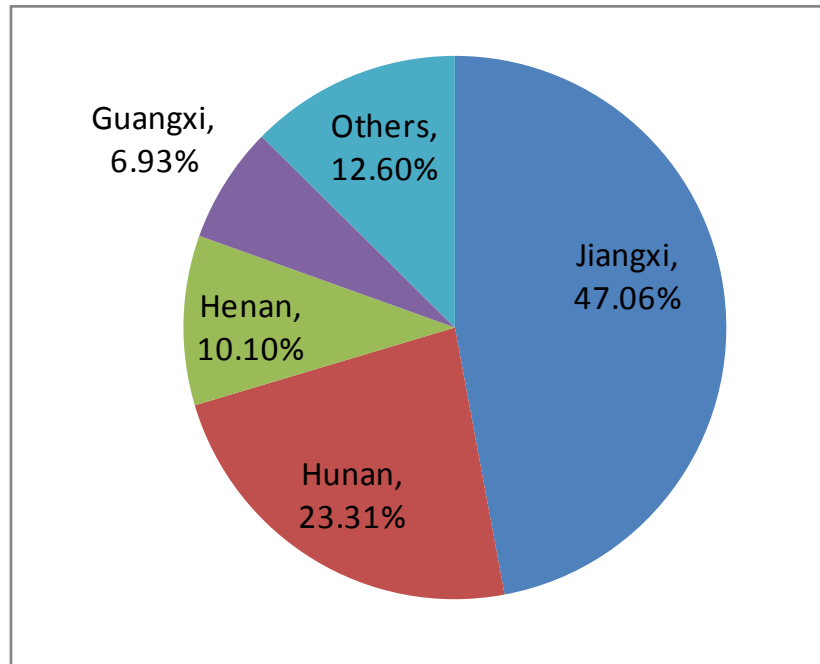
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China's tungsten concentrate output in 2005-2010
(65%WO₃, Unit: ton)



Chinese tungsten concentrate production kept relatively stable and grew at 8% AAGR in 2005-2009.

China's tungsten concentrate output by province in 2009

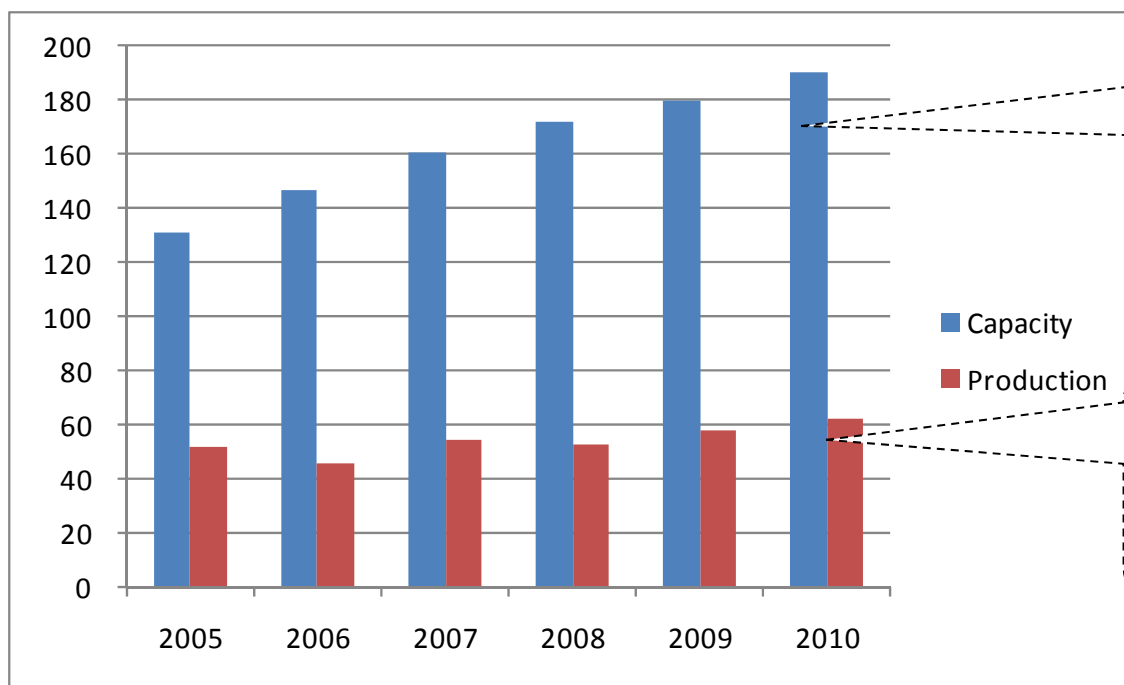


- More than 70% from Jiangxi and Hunan.
- Tungsten concentrate output in Hunan began to decrease since 2008, due to the regulation over the tungsten industry from related governments.

China's tungsten supply

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China's APT output in 2005-2010 (Unit: kt)



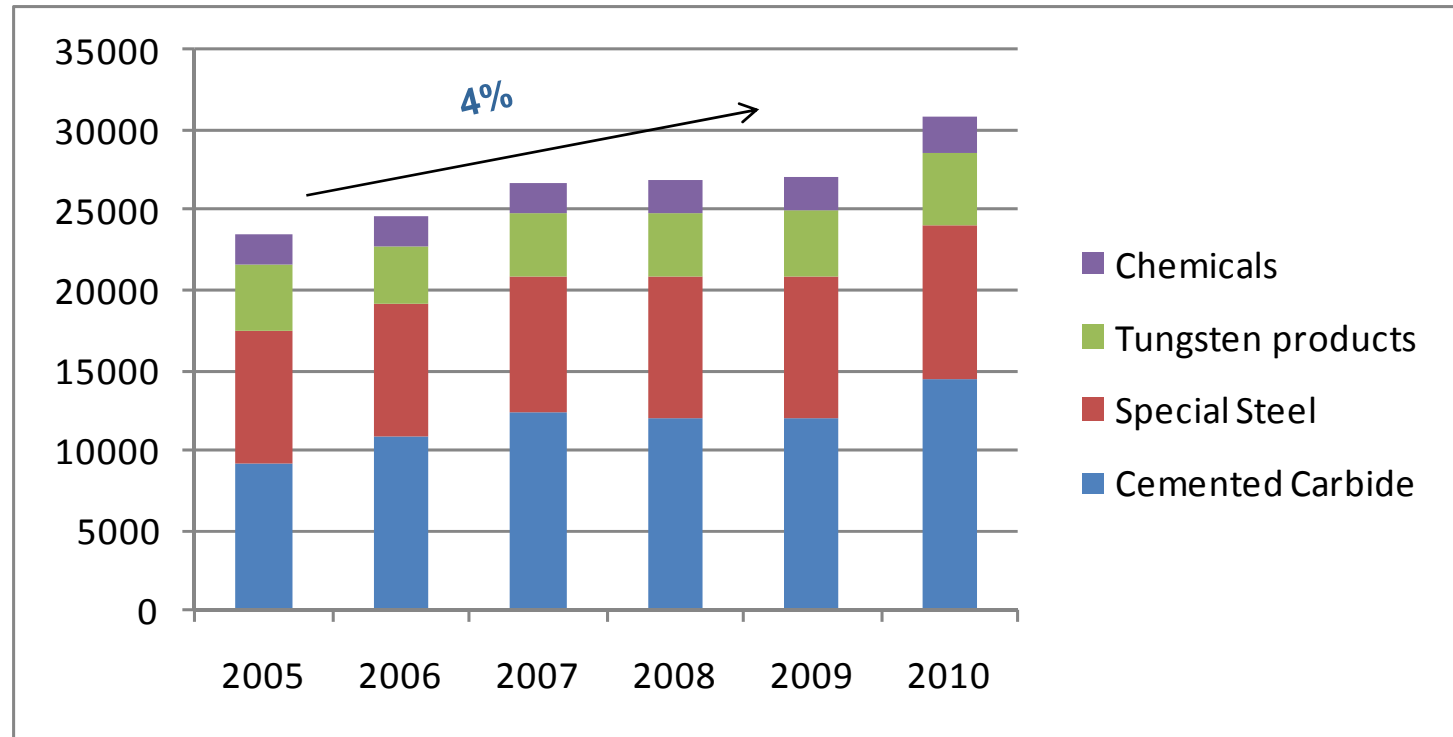
➤ China's APT capacity has seen gradual increase.

➤ However, APT output growth was limited due to lacking tungsten concentrate supply.

Brownfield and Greenfield APT projects:

- **China Moly: 5,000tpy APT production line, whose construction has been completed this July.**
 - **Luoyang Mudu Tungsten & Molybdenum Technology: 5,000tpy APT production line was commissioned in March 2009, but the monthly output was only around 200 tonnes due to limited concentrate supply.**
 - **Jiangxi Dayu Longxintai Tungsten Industry Co., Ltd.: 5,000tpy APT production line was seen into official commission in August 2009. Currently, monthly output amounted to about 300 tonnes.**
 - **Gansu Xinzhou Mining: 10ktpy APT production line, still not started.**
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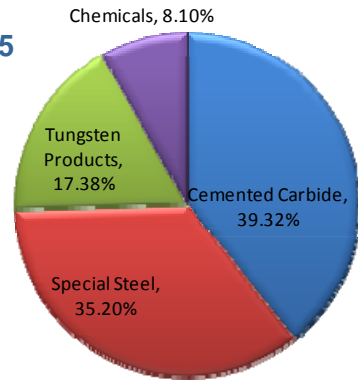
China's tungsten consumption in 2005-2010 (Unit: ton metal content)



Growing tungsten consumption in China

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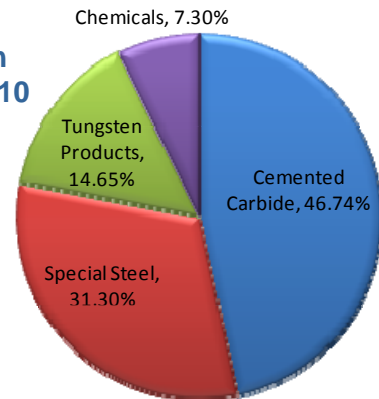
Consumption structure in 2005



Main end-users:

- cemented carbide,
- special steel,
- tungsten products,
- chemicals.

Consumption structure in 2010



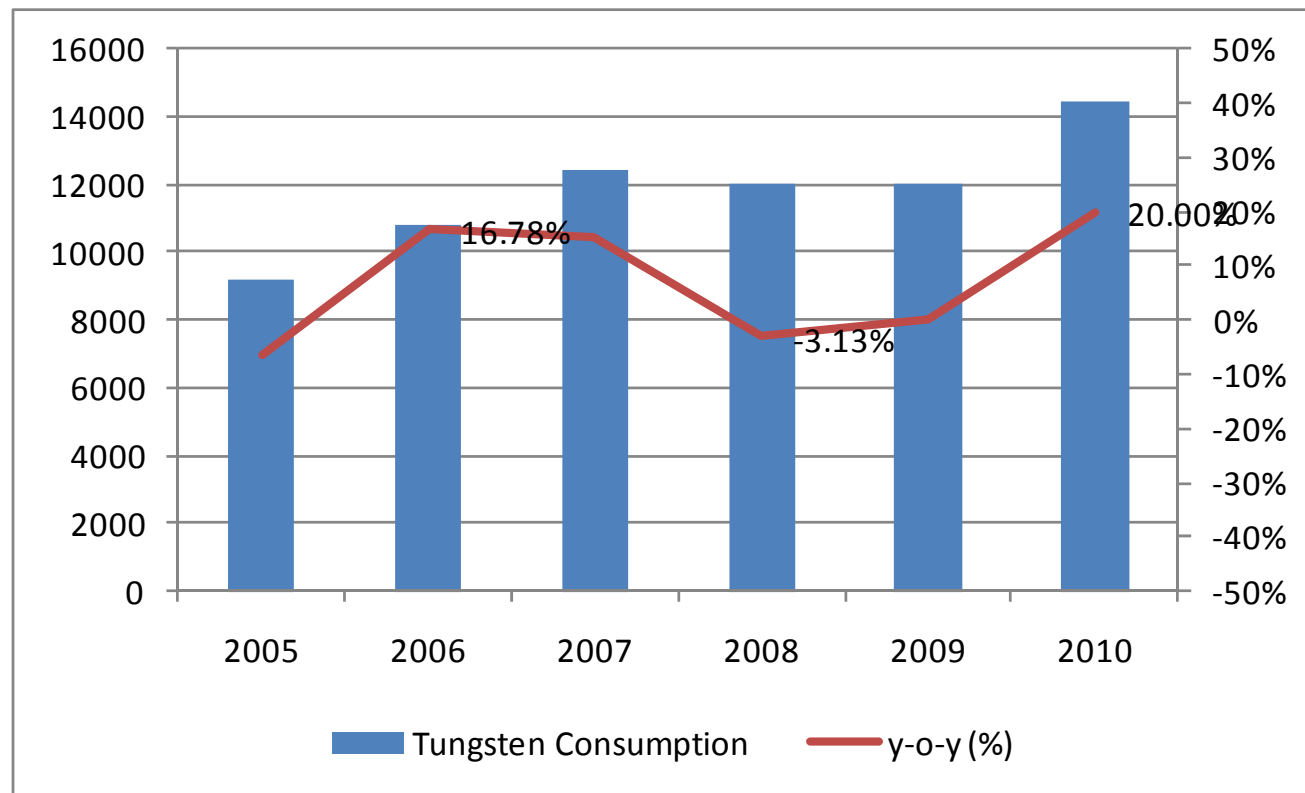
Cemented carbide:

- Its share grows to 47% in 2010 from 39% in 2005.

Consumption – cemented carbide

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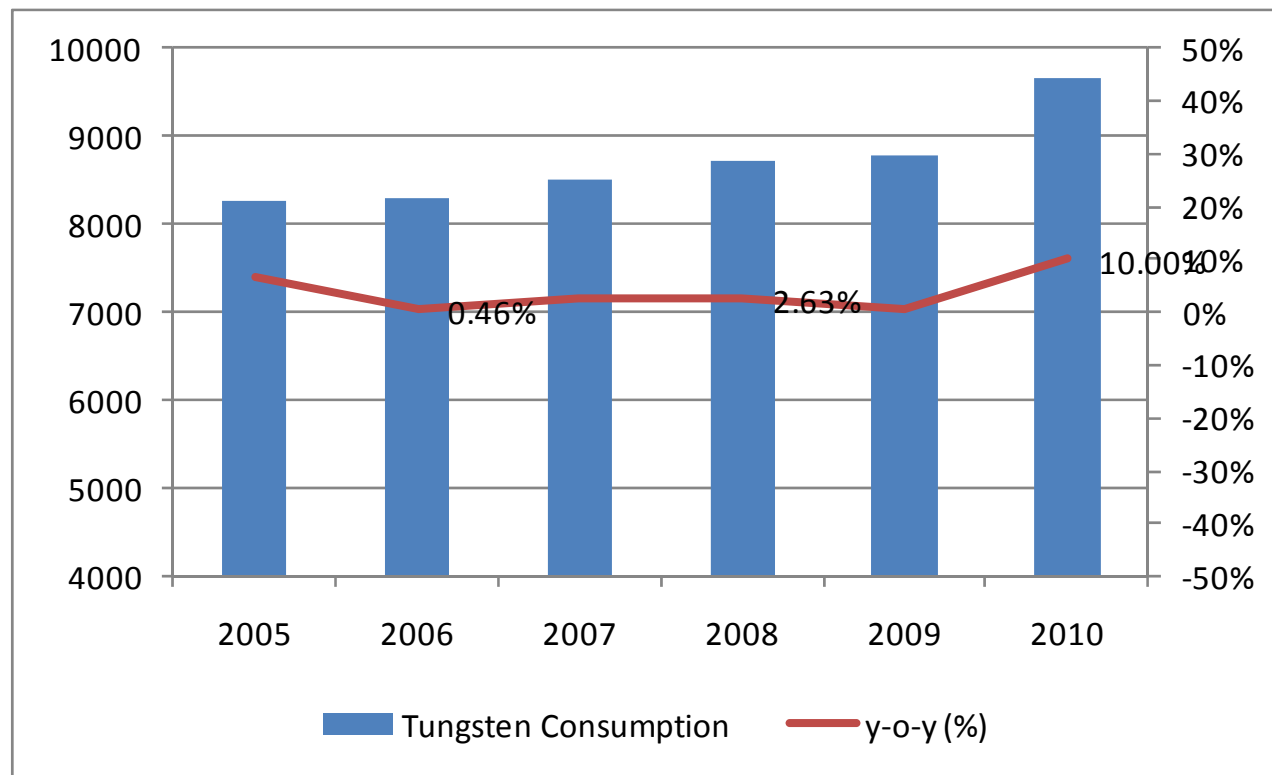
China's tungsten consumption from cemented carbide industry
in 2005-2010 (Unit: ton metal content)



Consumption – special steel

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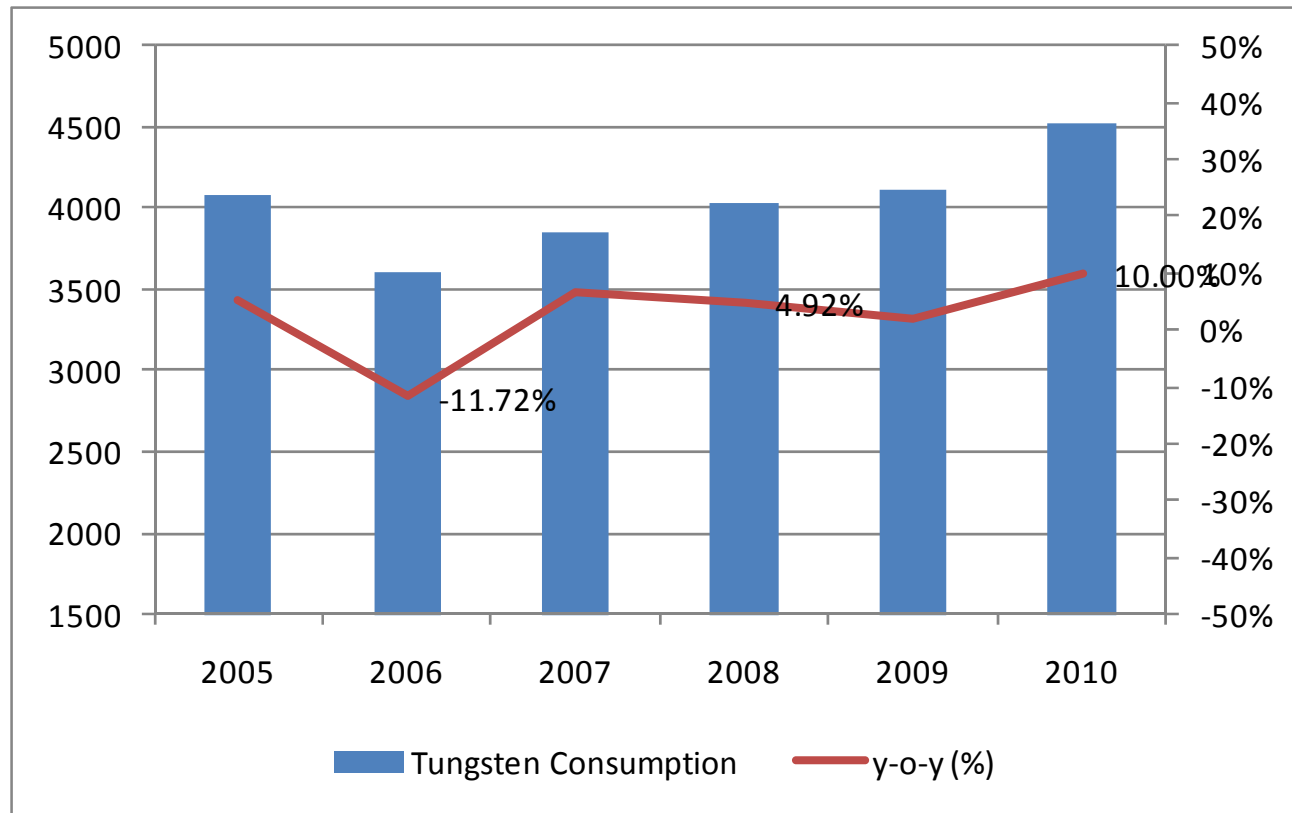
China's tungsten consumption from special steel industry
in 2005-2009 (Unit: ton metal content)



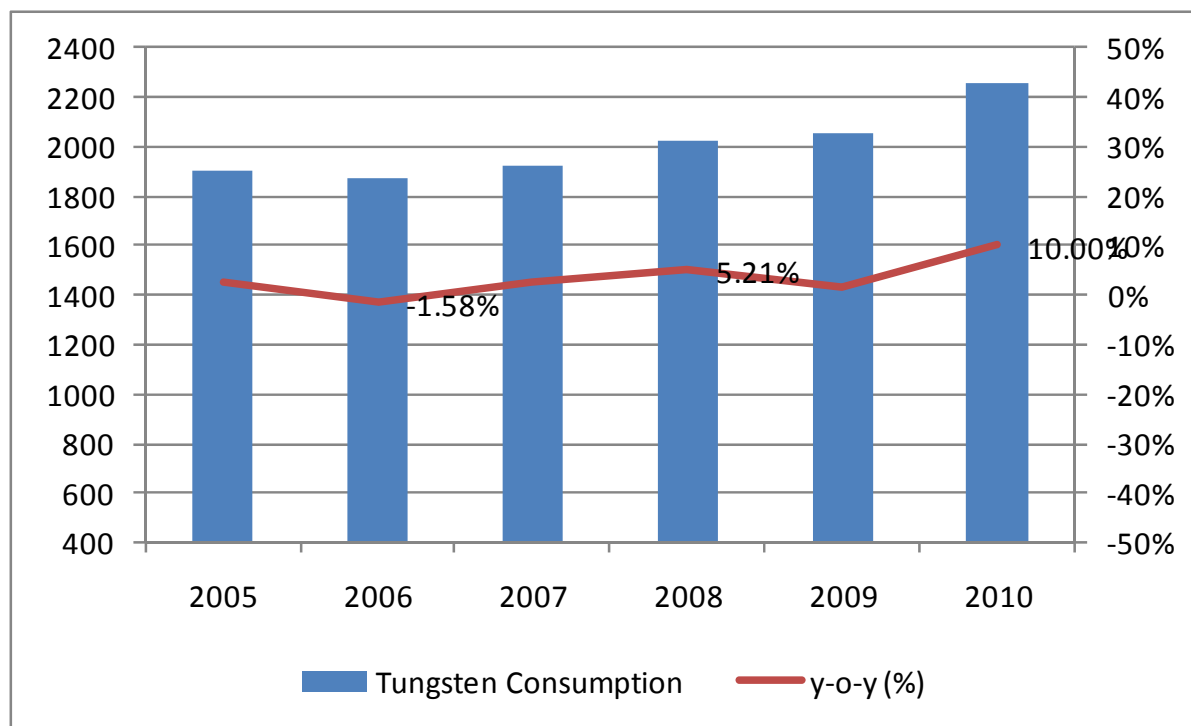
Consumption – tungsten materials

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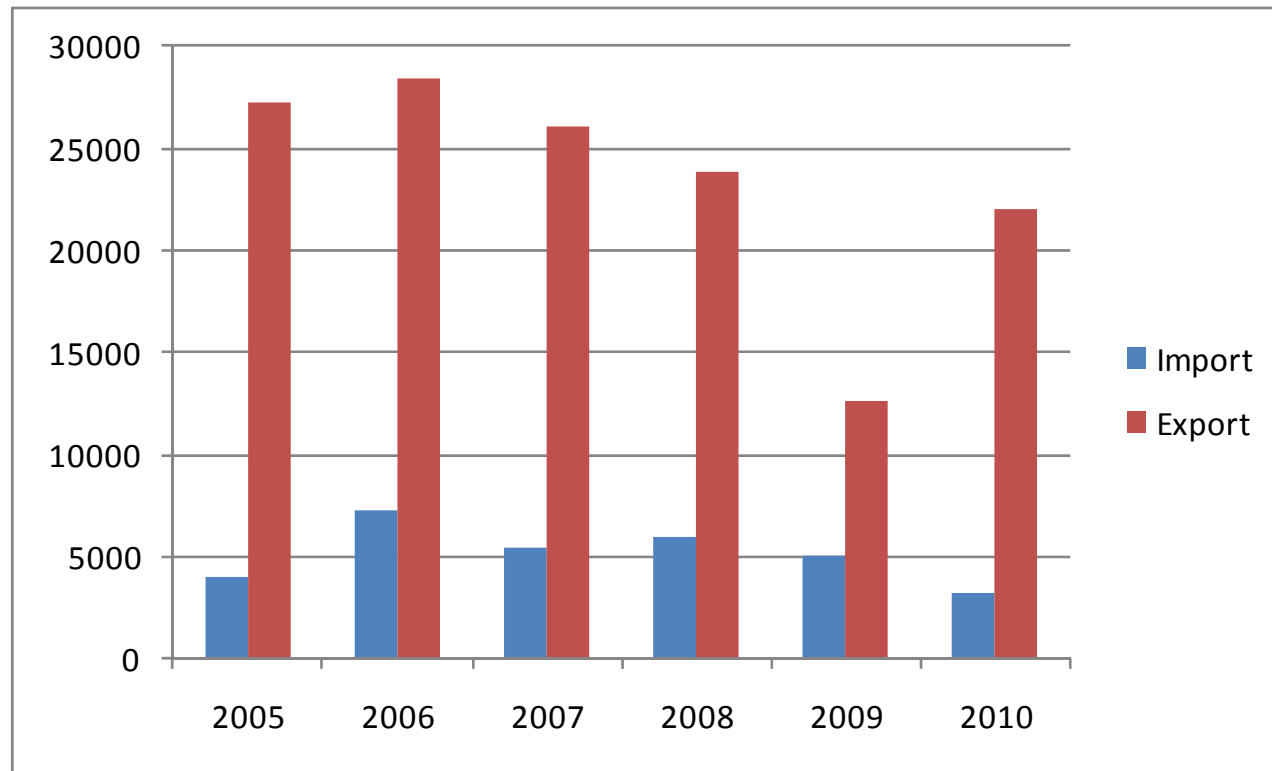
China's tungsten consumption from tungsten products industry
in 2005-2009 (Unit: ton metal content)



China's tungsten consumption from chemicals industry in 2005-2009 (Unit: ton metal content)



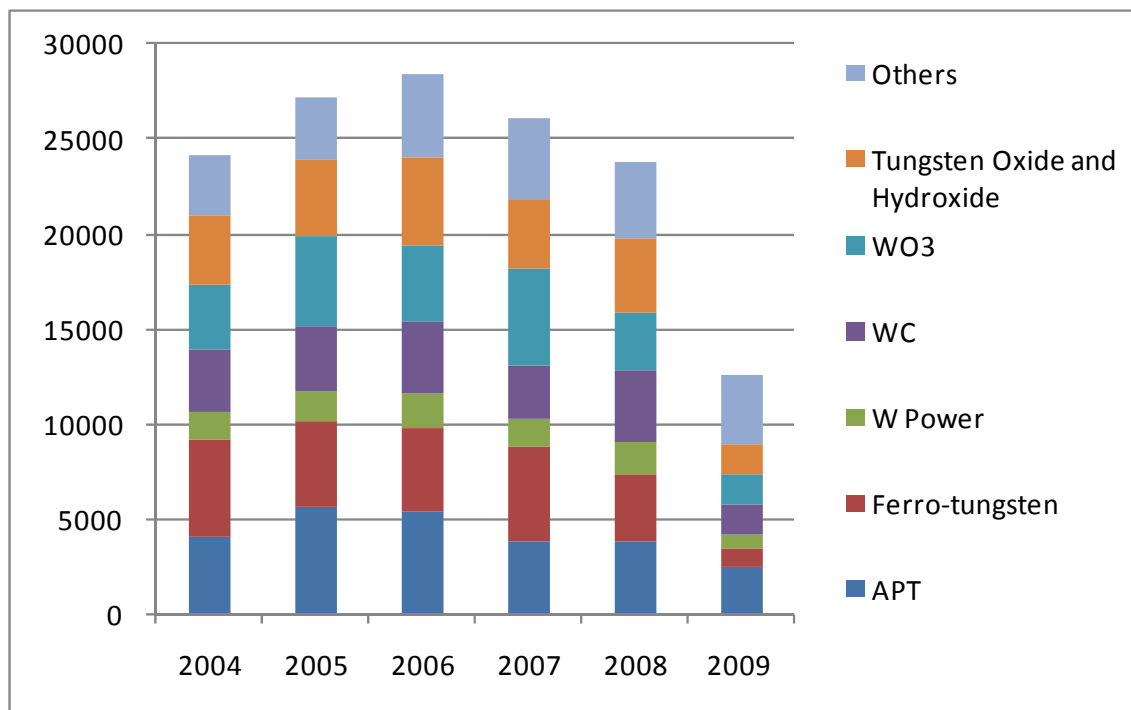
China's tungsten imports & exports in 2005-2010 (Unit: ton metal content)



China's tungsten trade

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China's tungsten export structure in 2004-2009
(Unit: ton metal content)

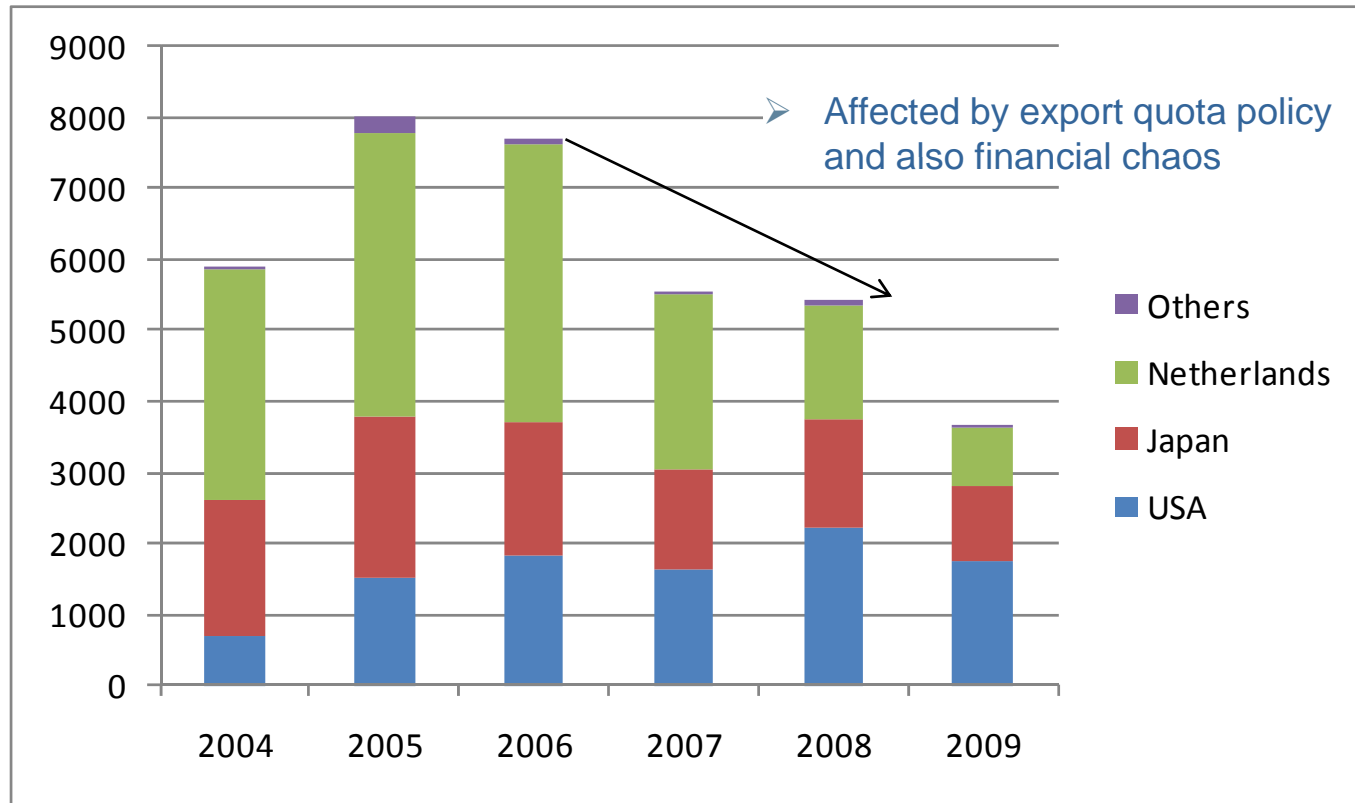


- China's tungsten export is subject to quota management.
- The major export destinations: West Europe, USA and Japan.

China's tungsten trade

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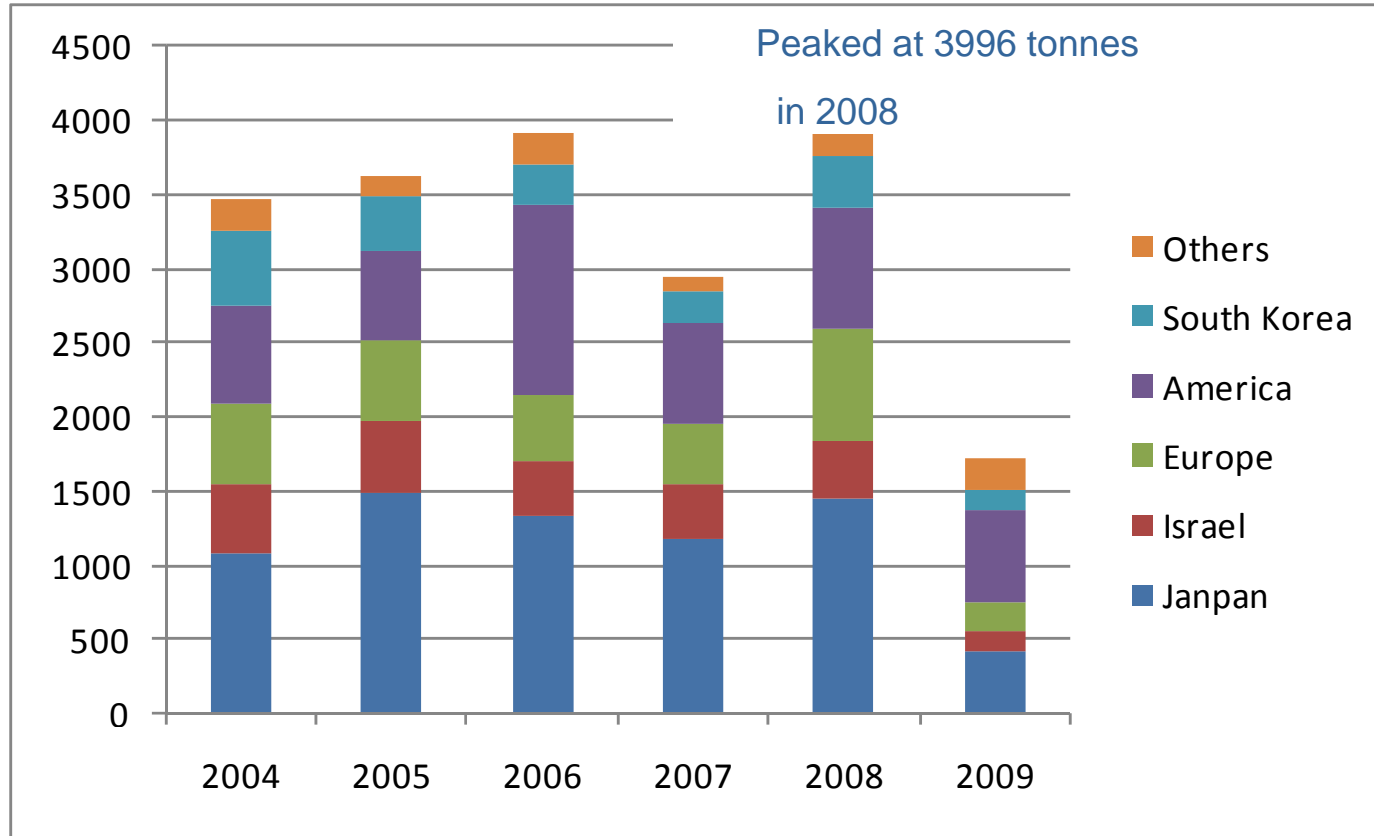
China's APT exports by country in 2004-2009 (Unit: ton)



China's tungsten trade

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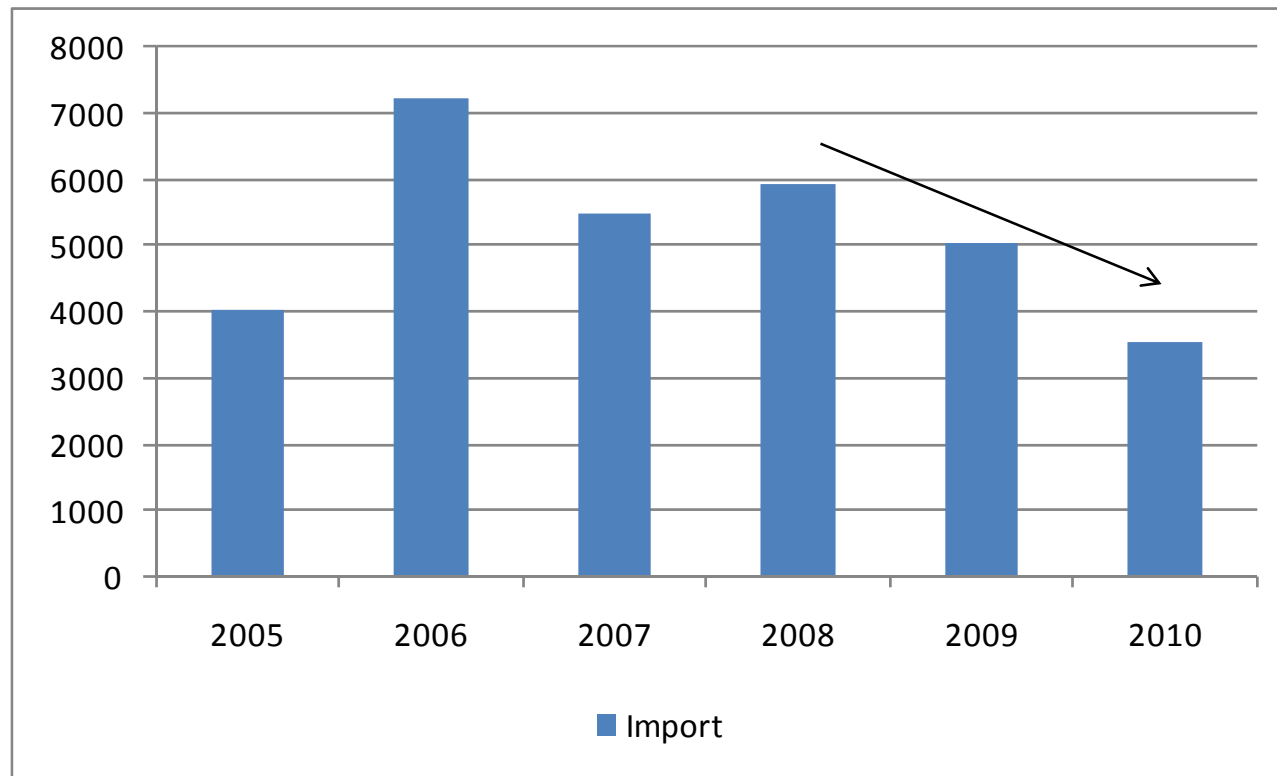
China's WC exports by country in 2004-2009
(Unit: ton)



China's tungsten trade

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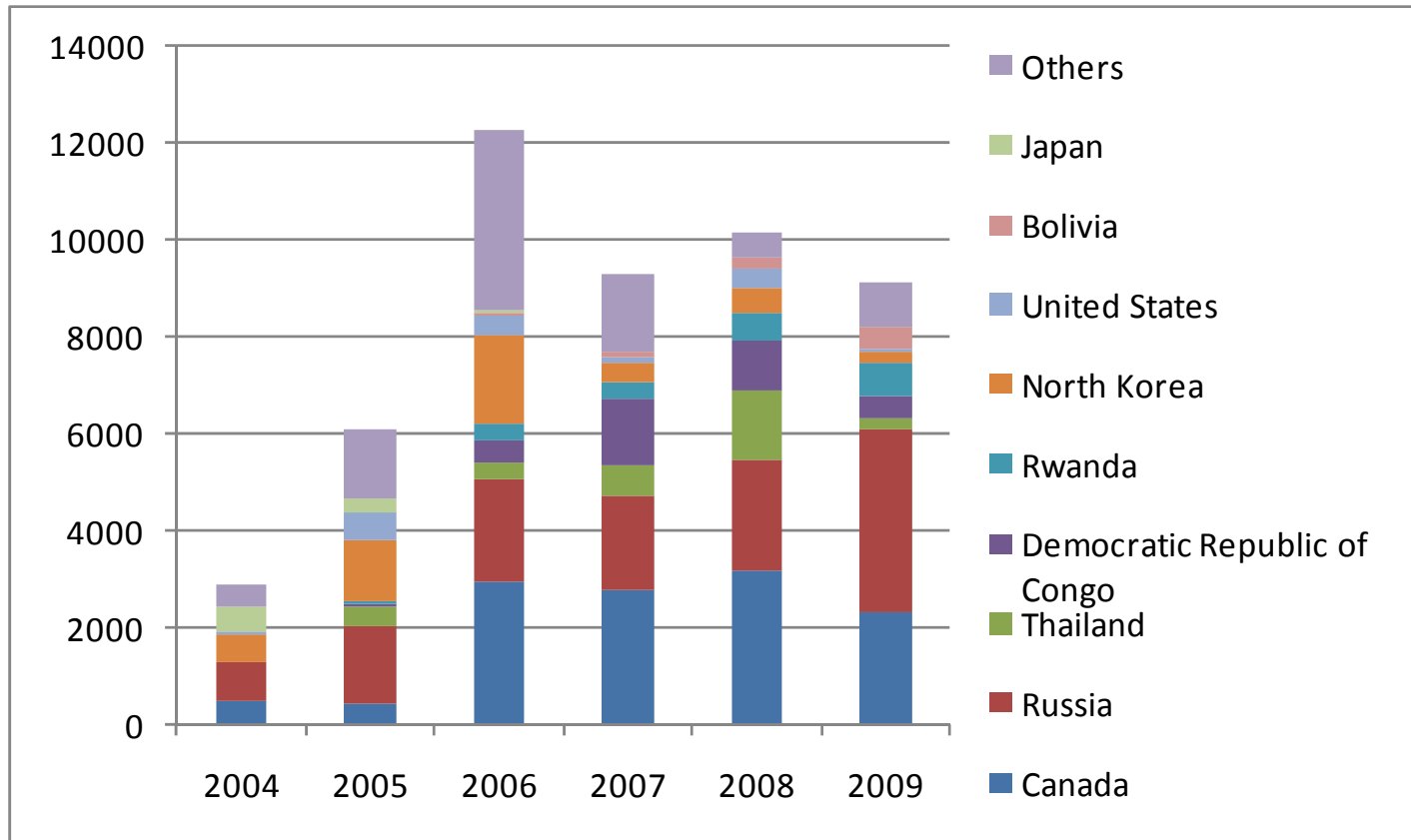
China's tungsten imports in 2005-2010
(Unit: ton metal content)



China's tungsten trade

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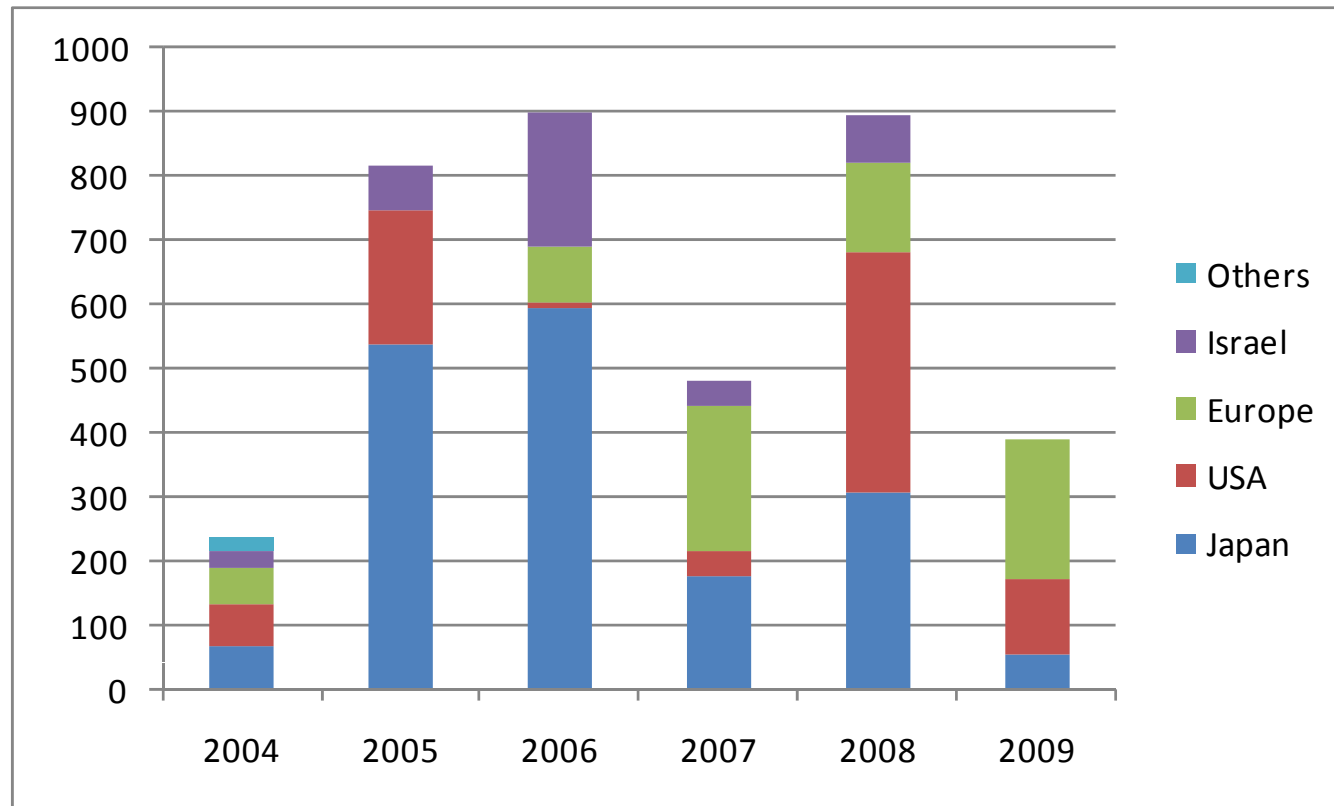
China's tungsten concentrate imports by country in 2004-2009 (Unit: ton)



China's tungsten trade

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China's tungsten scrap imports by country
in 2004-2009 (Unit: ton)



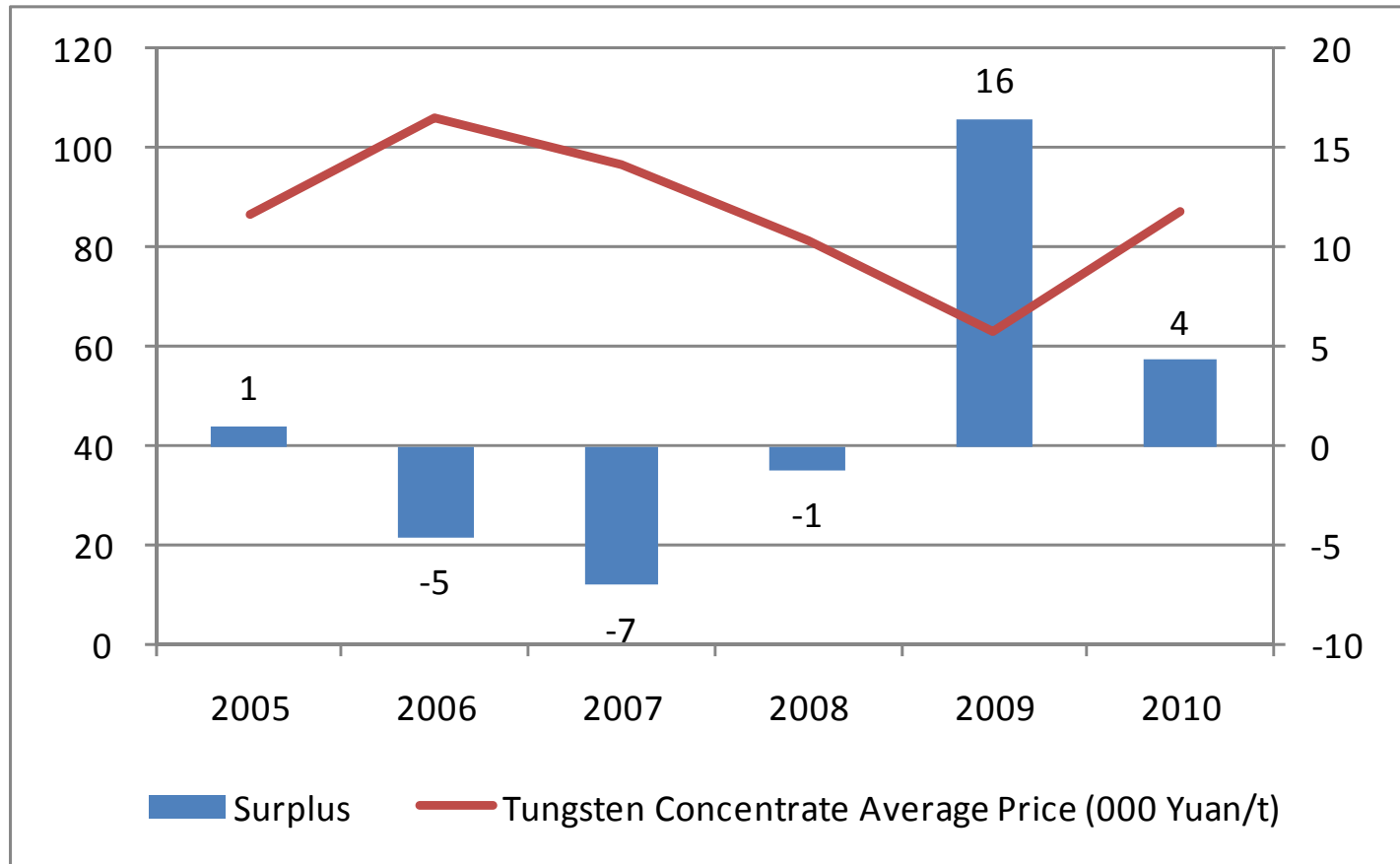
China's supply/demand balance in 2005-2010 (Unit: kt metal content)

	2005	2006	2007	2008	2009	2010
Output	47	41	41	44	51	54
Imports	4	7	5	6	5	3
Exports	27	28	26	24	13	22
Consumption	23	25	27	27	27	31
Surplus	1	-5	-7	-1	16	4
Annual average tungsten concentrate price (000 Yuan/t)	87	106	97	81	63	87

China's tungsten supply/demand balance

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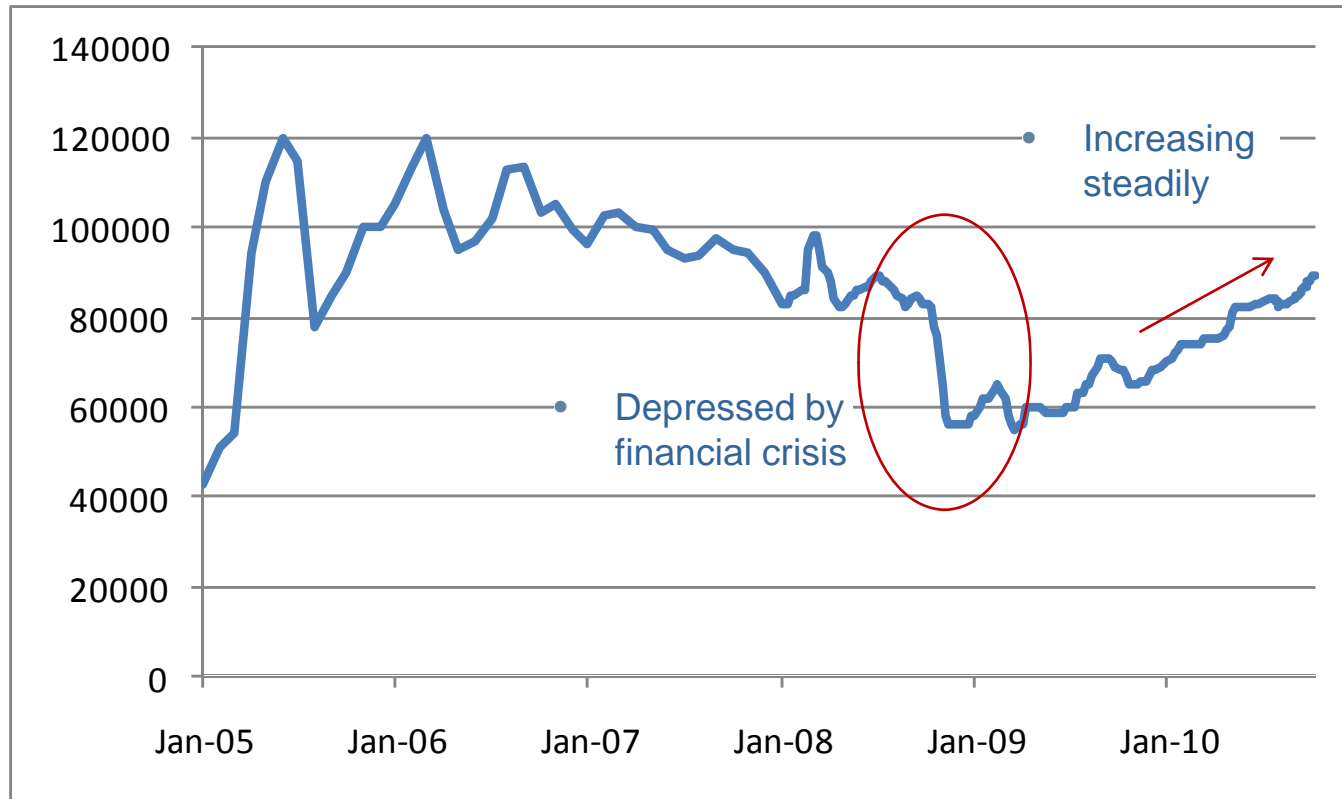
China's Supply/demand balance in 2005-2010
(Unit: kt metal content)



China's tungsten prices

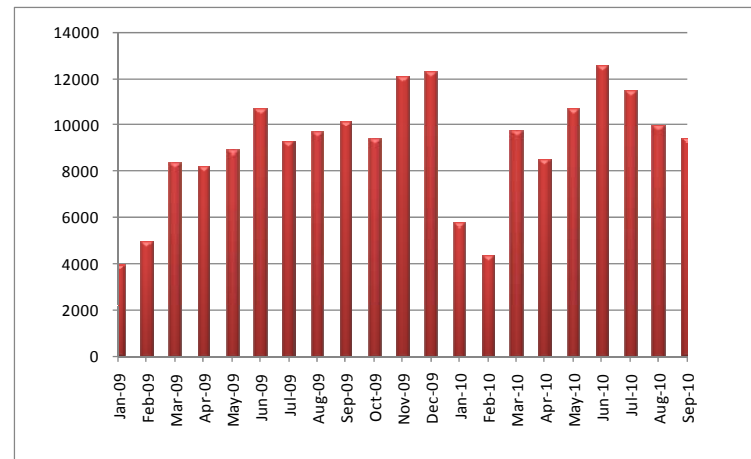
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China's tungsten prices in 2005-2010 (Unit: yuan/ton)



China's tungsten output will keep stable.

- Tungsten output in 2010 will rise only by 7% y-o-y to 106,000 tonnes (54, 000 tonnes tungsten metal content).
- Tungsten concentrate output peaked in June, and then fell back due to the following factors:
 - Jun.-Nov., Ten measures to regulate the industry.
 - July-Aug., Rainy season.
 - Sept.-, Power rationing.



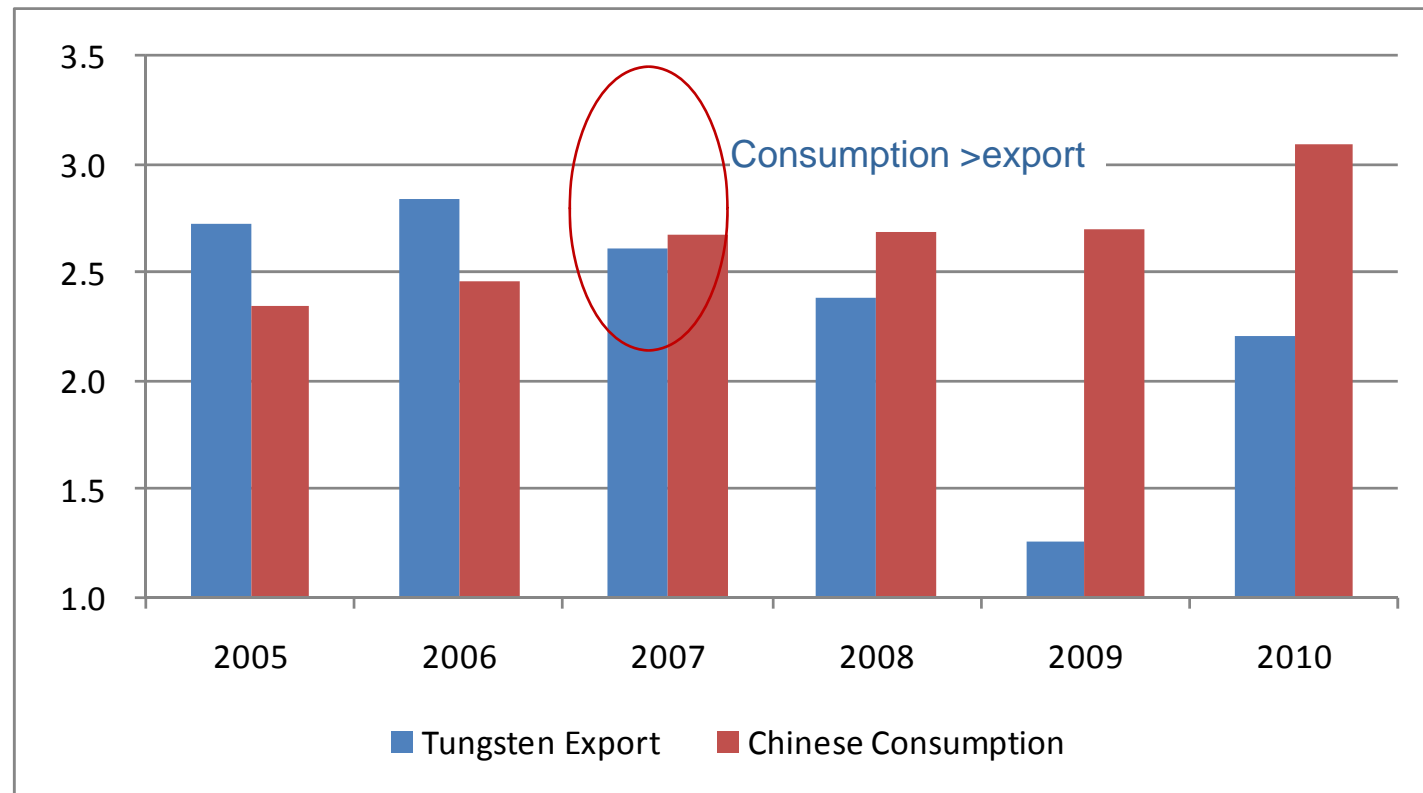
China's tungsten consumption in 2010 is expected to increase by 14% y-o-y to 30, 891 tonnes bolstered by robust domestic economy.

- We estimate Chinese total cemented carbide output will surge by 20% y-o-y in 2010, which results in tungsten consumption of 14, 439 tonnes.
 - It is forecasted that tungsten consumption from special steel industry will total 9, 670 tonnes in 2010, up by 10% y-o-y.
 - Tungsten demand from semis production was 4,114 tonnes in 2009 and may increase by 10% y-o-y to 4, 525 tonnes in 2010.
 - Tungsten consumption from chemicals industry is expected to rise by 10% y-o-y to 2, 256 tonnes in 2010.
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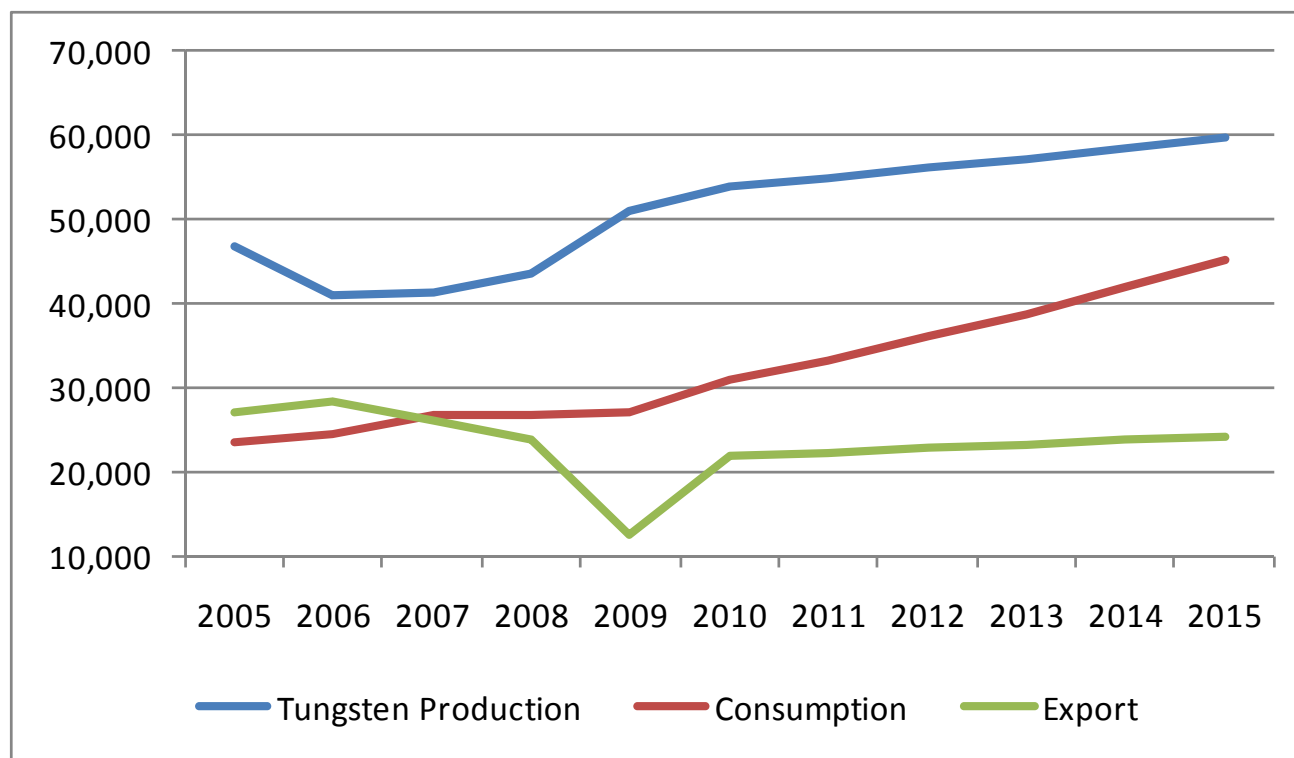
Tungsten exports will rebound and imports will shrink moderately.

- **China's tungsten exports began to rebound in 2010 bolstered by the recovery of world economy. In the first eight months, the exports amounted to 14,824 tonnes, up by 113.66% y-o-y. So, the exports in the whole year 2010 is expected to reach 22,000 tonnes.**
 - **China's tungsten imports totaled 2,332 tonnes in the first eight months 2010, down by 33.06% y-o-y. We estimate the imports in 2010 may be only 3,200 tonnes.**
-

China's tungsten consumption and exports in 2005-2010 (Unit: ton metal content)



China's tungsten output, consumption and exports in 2005-2015 (Unit: ton metal content)



Tungsten concentrate prices has been driven by strong fundamentals

- In H1 2010, China's tungsten concentrate prices were driven higher mainly due to brisker domestic consumption, increasing exports, restocking from domestic enterprises and so on.
 - In H2 2010, China's tungsten supply keeps tight. Some mines have fulfilled their yearly production plans and begun to carry out maintenance.
 - So, under intensified supply tightness, China's tungsten concentrate prices will rise further to exceed 100,000 yuan per ton in Q4 this year .
-

APT prices also climbs up substantially.

- Domestic APT supply was also seen tight, mainly due to lacking tungsten concentrate supply.
 - Currently, APT producers are selling based on their production. The APT price has reached 155,000 yuan per ton in Nov., and may reach 160,000yuan per ton before this year end.
 - Bolstered by rising production cost and strong demand, APT export price may peak at US\$300/mtu since 2008 under the following supporting factors:
 - Rising tungsten concentrate price
 - Increasing freight rate and appreciation of RMB
 - Shrinking export quota (15,700 tonnes in 2011 from 16,000 tonnes in 2010). Export quota of APT and AP in 2010 is 4,697 tonnes for the whole year of 2010, and the exports in the first eight months had amounted to 4,547 tonnes. So, the producers quoted at US\$295/mtu in early Nov.
 - Brisker demand from foreign markets
-

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Many thanks for your attention!

Contact

Ms. Xu Aihua

Tel: 0086-10-63970875; Email: xuahua@antaiko.com

Ms. Li Bingxin,

Tel: 0086-10-63970875; Email: libingxin@cnni.net.cn

Website: www.antaiko.com