



The Road of Sustainable Development for Phosphate Fertilizer Industry in China

China Phosphate Industry
Association

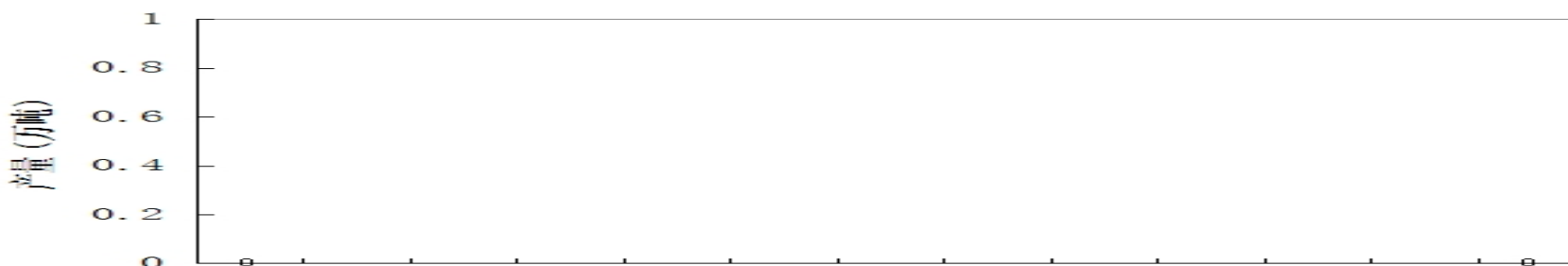
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2013. 9. Beijing

Remarkable Achievements

- Phosphate fertilizer industry in China has kept rapidly developing since 2000;
- Ranked first in the world, it's production over US in 2005, achieved balance between production and marketing in 2006, a surplus after 2007 and became large exporter for Ammonium phosphate & coarse whiting ;
- The P fertilizer output reached 1693 t P2O5 in 2012, about 40 percent of the world;
- yr during 2000–2012 increased 8.1 percent;
- The growth in the first year of 2013 was slow, upto 8.372 million t from Jan. to June P2O5, Slightly increased 0.9%.

2005—2012年磷肥产量及分品种情况



Product Structure of Phosphate fertilizer in China

- **2012, High concentration of phosphate & compound fertilizer**
- **took up 86% in 2012 from 35% in 2005**

Total yield of 16.93 million t P₂O₅ in 2012

- High concentration of phosphate & compound fertilizer took up 86.4% with 14.62 million t P₂O₅ ;
- AP output 12.60 million t P₂O₅ , took up 74.4%;
- DAP physical quantity 14.6 million t;
- MAP physical quantity 1328 million t
- TSP physical quantity 1.07 million t;
- Phosphate group NPK physical quantity 8.47 million t

2000年中国磷肥产品结构

0, 0.0%

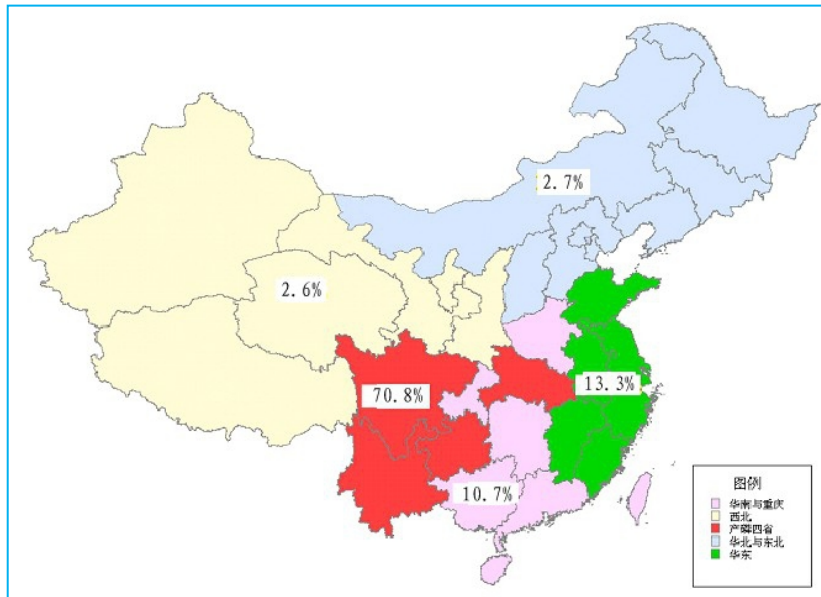


2012年中国磷肥产品结构

0, 0.0%

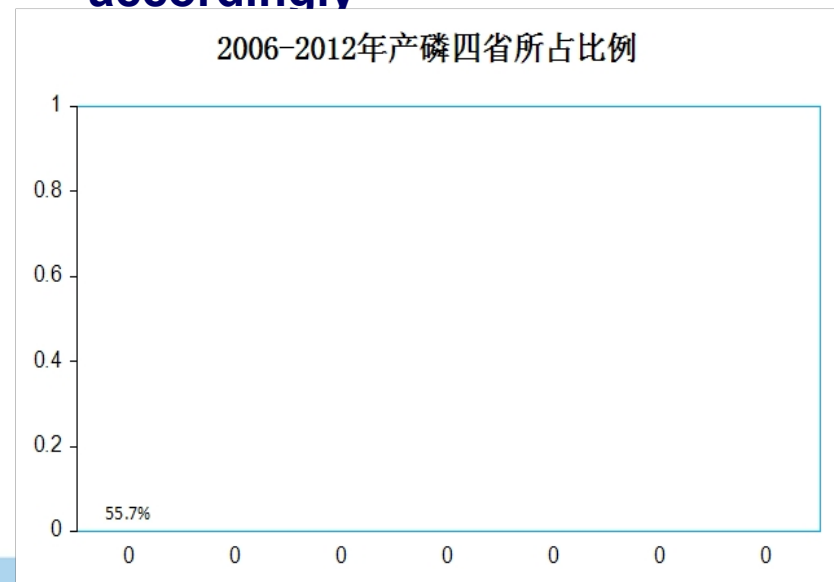


Industrial Distribution of Phosphate fertilizer in China



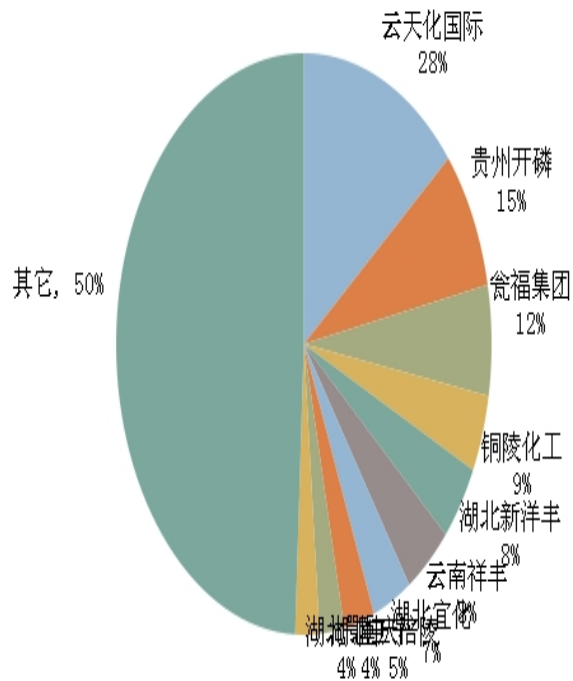
- output in Yunnan, Guizhou, Sichuan, Hubei took up 71% overall ;
- Hubei, Yunnan, Guizhou, Chongqing, Anhui ranked first five in 2012

- Two transfer basically realized: Basic fertilizer to Resources origin; Special fertilizer to end market
- Soil testing formula fertilization by Ministry of Agriculture enterprises produce accordingly



Concentration of Phosphate fertilizer in China

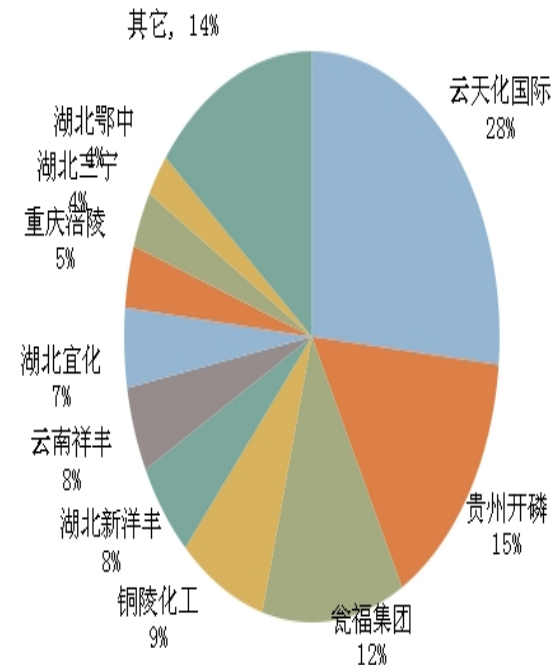
2012年中国磷肥产量前十名企业



- Accumulated net of first ten in 2012 attained 51% , increased by 2 percent

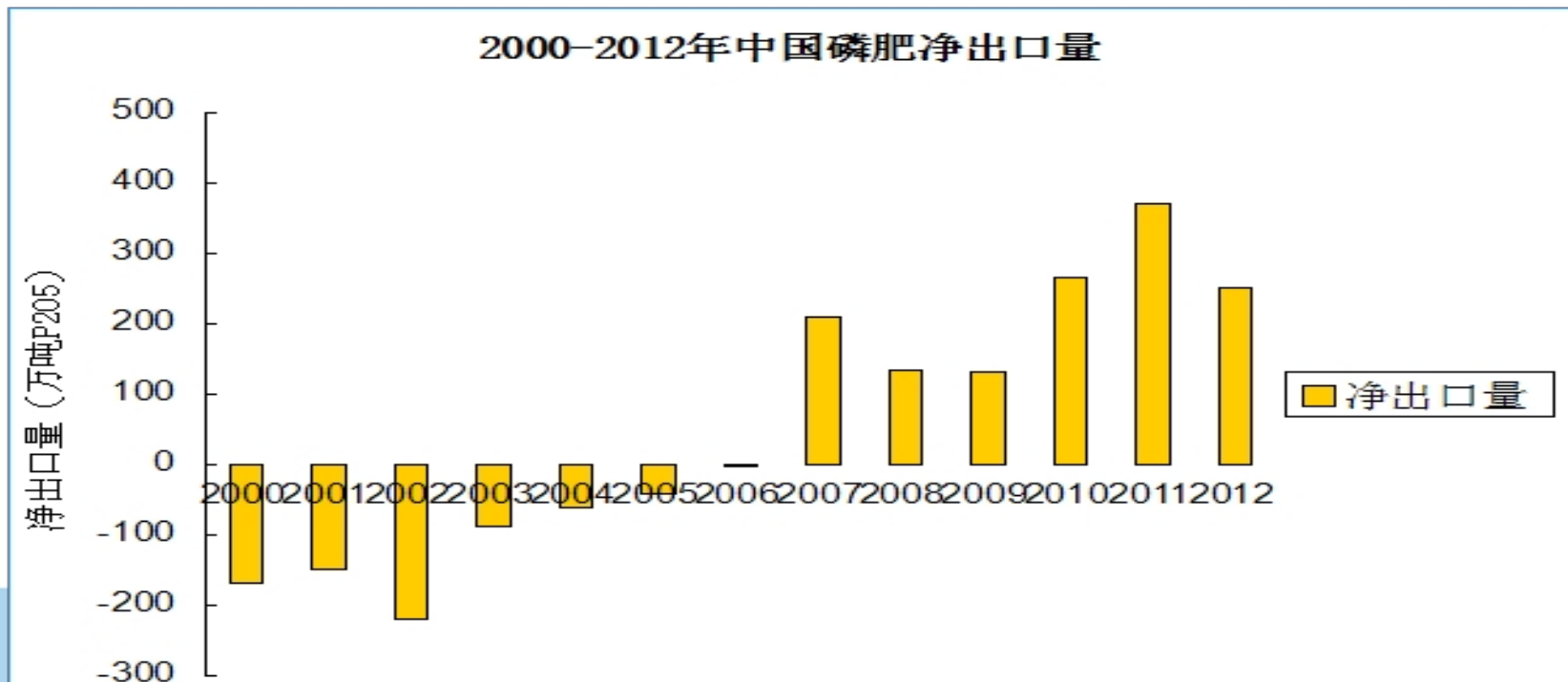
- First ten enterprise total output took up 85.8% in 2012, China DAP .
- Phosphate origin DAP reached 80.5% .

2012年中国DAP产量前十名企业

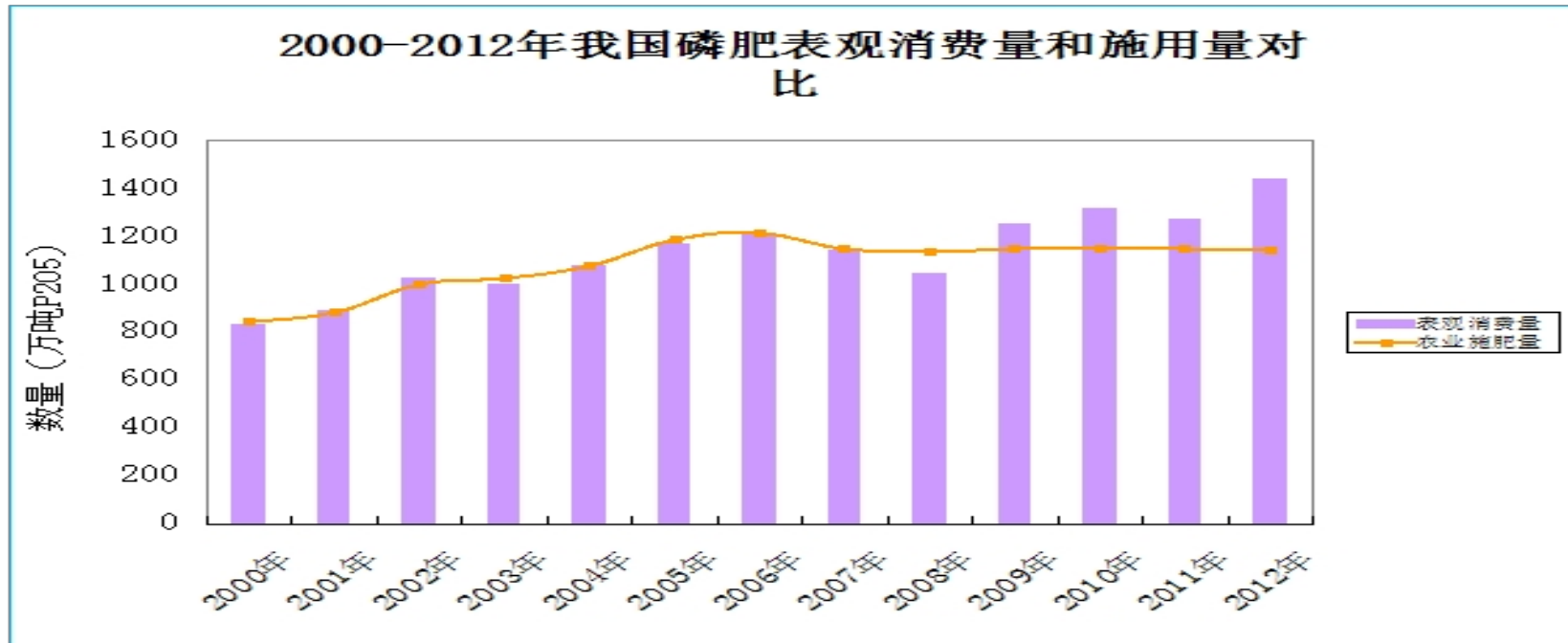


Import and Export

- Before 2006, China relied on total import, export rise except for 2008、2009, when affected by financial crisis, it showed decline in 2012;
- With net export 2.503 million t P₂O₅ in 2012, took up 14.8% of the output;
- Export AP/TSP 5.382 million t, approx took 21.6% of AP/TSP world trade volume



Apparent Consumption



- Application kept 12-13 million t P₂O₅ recently

Technical equipment status

- **By introduction and innovation of technology, Technical equipment of phosphate & compound fertilizer had substantial progress in domestic and large-scale, investment declined rapidly;**
- **Varied Production process indicators in large-scale enterprises reached the advanced international level, average Phosphate phosphorus yield up to 96% in Yun Tianhua e.x.**
- **Low and midum grade collophanite pilot and phosphoric by wet process、 Monoammonium phosphate、 varid specialized technical reach world advanced level, some key equipment go abroad;**
- **new fertilizers i.e.slow controlled release、 soluble fertilizer、 eco-fertilizer developed fast,**



Assurance improved in China phosphorus sulfur resource

- **Ranked only second to Morocco and Western Sahara,China phosphorus resource has comparative advantages;**
- **Advanced collophane selecting technology, Low and medium grade phosphate ore dressing industrial improved substantially, advanced underground mining recovery rate ;**
- **Heavy metals of phosphate rock and radioactive substance content lower than Morocco and U.S.A, thus creating the conditions for comprehensive utilization of ardealite**
- **Colored gas sulphuric acid production capacity greatly increased in China Oil and gas desulfurization capacity also improved gradually,China sulfur resources will also be enhanced**

Advanced Phosphate rock resources and Ardealite utilization

- **Advanced utilization of iodine and fluorine , Anhydrous Hydrogen Fluoride Project with 20 thousand t/year was set up by Wengfu Corp.Neither consume fluorite or sulfuric acid.Recycling project of 1million t iodine in Wengfu was the first set of industry equipment worldwide.**
- **Advanced phosphogypsum utilization, as low content of heavy phosphate rock and radioactive substance,kind of new construction material can made by phosphogypsum,sulphuric acid and cements production,Granular ammonium sulphate,soil conditioner from phosphogypsum. Phosphogypsum total utilization over 20%, it is predicted to reach 30-40% by 2015.**

Enhanced Wet-process phosphoric acid purification technology

- **Large scale production of industrial and food grade phosphate came into truth with wet-process phosphoric acid purification technology get improved gradually , capacity in Wengfu has reached about 0.5million t,with Liuguo、 Fuling、 Sanhuan、 Xingfa and Sanning added, The wet process phosphoric acid production capacity in China can attain more than millions t.**

Problems with industry development

- **The lack of Sulfuric and potassium resources:With more than 50 external dependency, China imported 10 million tons of sulfur every year.**

Excess production capacity significantly

As the straw returned and soil testing fertilization project was deepened,agriculture demand will decline on the basis of stable,this will lead imbalance between supply and demand market for a long time;

- **To meet the need for China agriculture,stable fertilizer price, China government carry on strictly limit policy i.e high tarriff on export of nirogen and phosphatic fertilizer and reduce export time.**
- **With rapid development of phosphatic fertilizer production in North Africa and**
- **West Asia, import and export structure will change, international competitive decline gradually.**

Suggestions

- **Enhance raw material capability.** Improve Phosphate rock selecting technology, enhance phosphate resources; The desulfurization production of petroleum and gas and new coal chemical industry projects improved, enhanced Sulfur resource support capability; China became the first large production of synthesis ammonia;
- **Dissolve the overcapacity, limit new project on industry access and credit financing, let existing enterprises optimize the allocation of resources, Encourage mergers and reorganization, close down outdated production facilities, improve industry concentration.**
- **To accelerate the process of marketization.** To some extent, it is suspicious of current electricity price preferential policies on small and medium-sized enterprises, which will be cancelled gradually; export policy on Phosphate & compound fertilizer will be relaxed to realize equal competition.

Suggestions

- **Extend the industrial chain, development of wet phosphoric acid Purification,replace low-medium phosphoric acid by furnace process and related products; Phosphate fertilizer enterprises should develop phosphate products,gradient utilization by fertilizer grade-feed grade-Food and pharmaceutical grade-electronic grade;**
- **Enhance comprehensive utilization of resources and energy,recycling on fluorine,iodine,rare earth and so on,Sulfuric acid slag,waste-heat and water utilization,developing the circular economy**
- **Enhance comprehensive utilization of phosphogypsum.**
- **On the basis of soil testing formulated fertilization, develop slow controlled release fertilizer and the water soluble fertilizer to promote mordern agriculture service.**
phosphorus can be used on next season crop as it is fixed in soil. As the mainly material of foliar 、soluble fertilizer ,工业级 MAP(monoammonium phosphate) and monopotassium phosphate are the develop direction of phosphate.



**Thanks for your
attention
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