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## Fertilizer Outlook 2010 - 2014

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This public summary report was prepared by Patrick Heffer, Director of the IFA Agriculture Committee, and Michel Prud'homme, Director of the IFA Production and International Trade Committee. The first part looks at the global context and agricultural situation. The second part provides global and regional fertilizer consumption projections for the period 2009/10 to 2014/15. The third part provides IFA projections of fertilizer supply and supply/demand balances for the period 2010 to 2014.

This report is available to the general public on the IFA web site (<u>http://www.fertilizer.org</u>) or by request to the IFA Secretariat.

The Fertilizer Outlook draws on the final versions of two reports presented at the 78<sup>th</sup> IFA Annual Conference held in Paris in June 2010: the IFA report *Medium-Term Outlook for World Agriculture and Fertilizer Demand: 2009/10-2014/15* (A/10/81), and the IFA report *Global Fertilizers and Raw Materials Supply and Supply/Demand Balances: 2010-2014* (A/10/63b). These two comprehensive reports are strictly reserved for IFA members.

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#### PART 1 – GLOBAL ECONOMIC CONTEXT AND AGRICULTURAL SITUATION

#### 1.1. Global Context

### Economic growth is returning, but significant risks remain

Following a deep recession in 2008/09, the global economic recovery is evolving better than was anticipated a year ago. Growth in gross domestic product (GDP) started to pick up in the second quarter of 2009. According to the International Monetary Fund (IMF), world output is expected to expand by 4.2% in 2010 and 4.3% in 2011, following a 0.6% contraction in 2009. Emerging and developing economies have been less impacted by the downturn and are, on average, recovering much faster. This rapid improvement in the economic outlook has been made possible by strong monetary and fiscal policy measures to sustain growth and employment. Priority is now being given to containing and reducing public debt. It is anticipated that the effectiveness of austerity measures in many of the advanced economies will affect confidence and growth in years to come, particularly in Europe.



The current economic and financial situation is expected to impact fertilizer demand in several ways. A return to more stable commodity prices makes it less risky for farmers to invest in fertilizers than a year ago; this is resulting in a more rapid recovery in phosphate (P) and potassium (K) fertilizer demand than had been foreseen.

However, current turbulence in the financial market could result in greater speculation in agricultural commodities. Consumption of meat and dairy products stagnated in 2009; it is forecast to expand again in 2010 along with income growth in emerging Asia.

Crude oil prices are projected to remain firm and to provide strong incentives for biofuel production.

### The policy focus is on economic recovery and climate change

The Food and Agriculture Organization of the United Nations (FAO) estimates that the number of undernourished people jumped from 920 million in 2008 to 1.02 billion in 2009 as a result of the rapid succession of the food crisis and the global recession. The relatively high food prices currently observed are likely to hamper the purchasing power and nutritional status of low-income populations in 2010. Despite the potential for another food crisis, food security is not a priority on the multilateral policy agenda. Similarly, the Doha Round of Trade Negotiations seems to be losing momentum despite the consensus that it should be completed urgently. In the current context, two issues are at the top of the policy agenda in international for a: putting in place the right measures to boost economic recovery, reduce public debt and create well-functioning financial markets; and taking action to mitigate climate change.

#### 1.2. Agricultural Situation

### Agricultural market fundamentals remain positive

After two consecutive bumper crops, it is anticipated that the 2010 world cereal output will reach a new record at 2.28 billion metric tonnes (Bt), according to FAO, or 2.26 Bt according to the United States Department of Agriculture (USDA). This would be a 1.5-2.0% increase over the previous year. World cereal utilization, at some 2.25 Bt, is seen as rising by 2.0-2.5%.



World Cereal Production and Utilization (Mt)

Global inventories would therefore remain almost unchanged at the end of the 2010/11 marketing campaign and the stock-to-use ratio would evolve only marginally.



In response to relatively stable supply/demand conditions since the beginning of 2009, international cereal prices have remained fairly constant, above pre-crisis levels.

Forecasts for the other major crops point to relatively tight market conditions in the short term for oilseeds and cotton. Sugar is following a different trend: after a spike at the end of 2009, sugar prices are declining in response to large plantings and expected growing inventories.

Biofuel production, using cereals, sugar cane and oilseeds as feedstock, is a key driver of the outlook: in 2009, about one-third of US maize, 55% of Brazilian cane and two-thirds of EU rapeseed served as raw material for ethanol and biodiesel.

In 2009, average meat and dairy product consumption per person was impacted by the global downturn. This, in turn, affected world production. With the good economic prospects in emerging Asia, livestock production should rebound in 2010.

In the medium term, increasing agricultural production will be required to meet global demand for food, feed, fibre and bioenergy. Yield gains are expected to contribute to most of the output growth, as scope for expanding cultivated land in the next five years is limited.

Most of the potential for increasing the cultivated land area is in South America and Sub-Saharan Africa, but the weakness of infrastructures in these regions is a constraint.

Moreover, from an environmental point of view (for example, climate change, biodiversity), sustainable intensification of currently cultivated land is the best option.

According to the Organisation for Economic Cooperation and Development (OECD), FAO and the Food and Agricultural Policy Research Institute (FAPRI), world cereal, oilseed, cotton and sugar inventories are not seen as evolving much over the next five years, and international prices would remain firm. Meat and dairy product production would grow at sustained rates in response to world demand.

#### PART 2 – GLOBAL FERTILIZER DEMAND

### Farmers are reinvesting in P and K fertilizers

Because of highly fluctuating crop and fertilizer prices, farmers in most countries – with India providing a noticeable exception – reduced or postponed investments in agricultural inputs in 2008/09. Demand for seeds and nitrogen (N) fertilizers is relatively inelastic. Therefore, farmers have been reducing their applications of P and K fertilizers and of crop protection products.

World P and K fertilizer consumption in 2008/09 is estimated to be down by 11 and 20%, respectively. With a return to more favourable and more stable market conditions, farmers are seen as reinvesting in P and K fertilizers to maintain or improve the fertility of their soils.

World P fertilizer demand is forecast to be up by 9% in 2009/10, with K fertilizer demand remaining almost unchanged. In 2010/11, demand would continue its recovery, with growth rates of 4.5 and 18% for P and K fertilizers, respectively. Only Western and Central Europe is expected to experience a weak recovery.

# World fertilizer demand is rebounding in 2009/10 and seen as firm in the medium term

World fertilizer consumption declined by 7% in 2008/09, to 156.7 million metric tonnes (Mt) nutrients. N fertilizers were much less affected (-1.8%) than P and K fertilizers (-11 and -20%, respectively). Drops in consumption were registered in all the regions except South Asia, Eastern Europe and Central Asia, and Africa.

<sup>78&</sup>lt;sup>th</sup> IFA Annual Conference, Paris, May - June 2010 "Fertilizer Outlook 2010 - 2014" M. Prud'homme & P. Heffer

With the progressive economic recovery, world fertilizer demand began to pick up in 2009/10. It is seen as up by 3.7% in this period, to 162.5 Mt, with increases of 3.1 and 8.8% for N and P fertilizers, respectively, and a 1.2% decline for K fertilizers. Demand would grow in all the regions except Latin America, Oceania, and Eastern Europe and Central Asia. It would remain strong in South Asia and would rebound in East Asia, North America, and Western and Central Europe.

World demand in 2010/11 is forecast to increase by 4.8% to 170.4 Mt. Demand for N, P and K fertilizers is seen as up by 1.9, 4.5 and 18%, respectively. Fertilizer consumption would increase in all the regions except West Asia, where a small drop of 0.8% would mostly be due to early purchases of fertilizers in the last two months of 2009 in Turkey. East Asia, South Asia and Latin America would be the main regions contributing to the increase in world N demand. The highest growth in demand for both P and K fertilizers would occur in East Asia. Significant growth in demand for K fertilizer is also forecast in North America and Latin America.

Historical and Anticipated Annual Variation in Regional Fertilizer Demand between 2007/08 and 2010/11 (Mt nutrients)



In the medium term, the positive agricultural outlook is expected to stimulate fertilizer demand. World demand is projected to be 188.3 Mt in 2014/15, corresponding to an average annual growth rate of 2.5% from the base year (average consumption between 2007/08 and 2009/10). Because of its strong contraction in 2008/09, K fertilizer demand is anticipated to rise at higher rates (+4.3% per annum) than demand for N (+1.8% p.a.) and P (+3.1% p.a.) fertilizers.

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	Ν	$P_2O_5$	K <sub>2</sub> O	Total
07/08	101.2	38.4	28.9	168.5
08/09	99.3	34.2	23.2	156.7
09/10 (e)	102.4	37.2	22.9	162.5
Change	+3.1%	+8.8%	-1.2%	+3.7%
10/11 (f)	104.4	38.9	27.1	170.4
Change	+1.9%	+4.5%	+18.4%	+4.8%
2014/15 (f)	112.1	44.0	32.2	188.3
Average Annual Change*	+1.8%	+3.1%	+4.3%	+2.5%

(e) estimated; (f) forecast

\*Compared to the average 2007/09 to 2009/10 Source: Heffer, IFA, June 2010

#### Asia and the Americas drive the mediumterm outlook

At the regional level, the bulk of the increase in demand would come from Asia and, to a lesser extent, from the Americas. East Asia and South Asia together would account for 59% of total growth. If Latin America and North America are added, the four regions together would account for 82% of the projected increase in demand in the next five years.

Projected Medium-Term Evolution of Regional Fertilizer Demand (Mt nutrients)



Source: Heffer, IFA, June 2010

In East Asia, growth in regional demand is seen as slowing down as China approaches a 'mature' market status for N and P fertilizers. K fertilizer demand is projected to increase sharply as demand rebounds in China, Malaysia and Indonesia. Average regional demand is seen as increasing by 1.9% p.a. The evolution of the agricultural and environmental policy context in China could significantly influence the outlook. Regional fertilizer demand is projected to continue to increase firmly in South Asia, with an average growth rate of 3.8% p.a., as larger amounts are required to meet countries' food security goals.

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If urea is included in the Nutrient Based Subsidy scheme in India, the outlook could be impacted.

North America is seen as recovering relatively quickly from the sharp market contraction recorded in 2008/09. This positive outlook is driven by strong demand for maize from the US ethanol industry. Average growth over the next five years is forecast at 2.0% p.a.

Fertilizer demand in Latin America is expected to rebound from 2010. Argentina and Brazil are anticipated to strengthen their position on the international agricultural market. Regional fertilizer demand is projected to be up by 3.1% p.a.

The market in Western and Central Europe is seen as remaining depressed during the next five years. Regional demand is forecast as up by 1.1% p.a., but it would remain at about 1.6 Mt below its 2007/08 level. P and K fertilizer demand is expected to continue to be weak.

Agricultural production in Eastern Europe and Central Asia is expanding rapidly in response to market opportunities and supportive policy. As a result, regional fertilizer demand is seen as growing firmly, at 4.1% p.a.

Fertilizer demand in West Asia is expected to grow modestly, as the potential for increasing crop production in this region is limited. Consumption is projected to be up by 2.0% p.a.

Several African countries are paying increasing attention to agricultural intensification and fertilizer use. Some have introduced or are considering the use of fertilizer subsidies. Fertilizer demand is seen as gaining momentum in the region, with a growth rate of 4.2% p.a. There are, however, large differences between countries.

Agriculture in Oceania was strongly hit by two consecutive droughts in Australia and by the economic downturn. Fertilizer demand is projected to recover slowly, returning to its 2007/08 level in 2014/15 (+1.9% p.a.).

### The forecast remains subject to major uncertainties

IFA's baseline fertilizer demand forecast is subject to major uncertainties. Some of the main ones are the evolution of the financial and economic context, the evolution of policy priorities in China, the evolution of the fertilizer subsidy scheme in India, the outcome of current discussions on the environmental impact of biofuels, and the evolution of crop prices and currency exchange rates.

#### PART 3 – GLOBAL FERTILIZER SUPPLY

The conditions in the global fertilizer market stabilized in 2009, as fertilizer demand started to recover by mid-year in the main consuming countries. However, sales and production dropped to levels unprecedented over a decade due to important inventory carry-overs in worldwide distribution systems. Production decreased mostly in the case of potash and phosphate products, while output of nitrogen products rose moderately. Global capacity increased in key exporting regions, but at modest rates compared with those of the previous years. Completion of a few projects was postponed due to a combination of soft market conditions and technical delays.

World nutrient production dropped 8% to 194 Mt, the lowest level since 2003. In the nitrogen sector world ammonia production was rather stable, while urea output expanded moderately due to its rising share in the global nitrogen fertilizer mix. Phosphate rock production decreased by 7% and potash production by 40%.



## Strong recovery of fertilizer demand worldwide in the short term and sustained

growth in the near term

According to the *IFA Agriculture Committee*, global fertilizer demand in <u>Calendar Year 2009</u> is projected to be 159.8 Mt *nutrients*, which indicates the emergence of a recovery with a 1.1% increase over the previous year. In 2008, global fertilizer demand dropped by 6% compared with 2007.

Demand prospects in the medium term are quite positive, with global fertilizer consumption expanding at an annual rate of 3.5% between 2009 and 2014. The strength of this growth is partially due to a recovery that will last until mid-2010, when the level of consumption in 2007 will be fully regained. Between 2010 and 2014, world fertilizer consumption is projected to grow at an average annual rate of 2.3%, which is more in line with the historical growth rate of 2.1% in the past decade.

World Fertilizer Consumption Calendar Year Basis								
Mt nutrients 2009 2010 2014 2009/14 variation								
Nitrogen N	101.8	103.9	111.7	2.0%				
Phosphorus P <sub>2</sub> 0 <sub>5</sub>	36.0	38.6	43.7	4.5%				
Potassium K <sub>2</sub> O	22.1	26.6	31.9	8.2%				
Total	159.8	169.1	187.3	3.5%				

#### P. Heffer, IFA, June 2010

Demand increases are projected for all three major nutrients. Since consumption of potash and phosphate was severely depressed in 2008, the recovery of demand for these nutrients will register important growth in 2010 and 2011. Beyond 2011, demand for P and K fertilizers would then increase at an average annual rate of 3 and 4%, respectively.





Global nutrient uses showed a slight recovery in 2009, following a 6% drop in 2008. In the near term, global nutrient demand is projected to increase at an average rate of 3.5% per annum between 2009 and 2014.

#### Factors impacting future supply

On the **supply** side, world capacity increased moderately in 2009. The combination of depressed economic and financial conditions, sluggish international demand and the severe downward corrections on fertilizer prices impacted the planning and construction of most new projects. Capacity growth in the short to medium term is seen as expanding at a slower pace than projected in 2009.

Delays and some cancellations have reduced the announced expansion of capacity and the commissioning of new projects by 6 to 24 months. However, interest in investing in the fertilizer sector appears unabated. In the past year, several new projects have been announced for the near term since many countries continue to promote new capacity and to foster self-sufficiency.

The recent economic slowdown would have been expected to create the proper conditions for rationalization and consolidation in the fertilizer industry. A wave of acquisitions and mergers has characterized the restructuring of the sector over the past 12 months. It is anticipated that this trend will continue in the short term.

Several factors have the potential to influence future global fertilizer supply:

- Energy prices, which are relatively low compared with the peaks of 2008, have moved upward since the beginning of 2010. However, no major variations are expected in the short term.
- Government policies relative to resources and exports would affect investments, trade patterns and market conditions. The implementation of high taxes on the resources sector would reduce the attractiveness of investing in new large-scale projects, slow capacity growth and eventually promote developments abroad. Export taxes have affected export availability in international markets.
- Environmental concerns have resulted in new regulations in a greater number of countries on atmospheric emissions from the manufacture of nitrogen products; on soil and water pollution from phosphate production and potash mining; and on the disposal of phosphogypsum and waste salts. The emergence of new regulations influences the investments level of and increases compliance costs. Legislation aimed at reducing carbon emissions may impact the competitiveness of the nitrogen industry in a few countries and may also lead to carbon leakage and higher production costs.

#### 3.1. Nitrogen Outlook

The financial crisis and the subsequent widespread economic recession since late 2008 have had a dampening impact on investments and construction plans.

The bullish demand prospect for nitrogen products in early 2008 resulted in a flurry of announcements of new projects, leading to a projection of massive capacity growth in the near future. In 2009, several projects were postponed and a few were cancelled. The same situation seems to prevail in 2010, with more caution being given to the scheduling of new projects.

### Increasing nitrogen capacity in China, West Asia and North Africa

According to IFA, global ammonia capacity is projected to increase between 2009 and 2014 at an annual growth rate of 4%, equating to a net expansion of 37.4 Mt NH<sub>3</sub> over 2008. Close to 65 new plants are under construction or planned to be commissioned during this period, of which about 23 new facilities in China alone. Only a fraction of the overall net capacity increase will be as merchant ammonia supply since the majority of these projects are associated with increases in downstream capacity for urea and, to some extent, industrial AN and processed phosphates.

Global ammonia capacity is projected to be 224.1 Mt  $NH_3$  in 2014. The main additions to capacity would occur in East Asia (China and Viet Nam), Africa (Algeria and Egypt), West Asia (Qatar, Iran and Saudi Arabia) and South Asia (India and Pakistan). Several other countries will add capacity or are expected to restart mothballed or idled units.

#### Seaborne ammonia trade in balance in 2014

IFA estimates that global seaborne trade in 2009 was  $15.1 \text{ Mt NH}_3$ , accounting for 85% of global ammonia trade. The remaining 15% is considered to be continental trade, comprising shipments within Europe and within North America. Global seaborne ammonia availability would only grow by a net 1.7 Mt, to 19 Mt in 2014, but demand would grow equally so that the global seaborne ammonia market will remain quite balanced.

### A large potential nitrogen surplus, accelerating after 2012

The global nitrogen supply/demand balance will show a potential surplus of close to 4.7 Mt N in 2010, rising to 11.1 Mt N in 2013 and accelerating to 16.7 Mt N in 2014. The potential surplus in 2010 is equivalent to 3.6% of global supply, compared to 10% in 2014.



#### World Nitrogen Supply/Demand Balance (million metric tonnes N)

	2010	2011	2012	2013	2014
Supply					
Capacity	158.7	163.8	170.2	176.1	184.2
Total Supply*	134.7	139.6	144.3	150.3	158.5
Demand					
Fertilizer Demand	103.9	106.1	108.0	109.9	111.7
Non-fertilizer Demand	23.0	24.2	25.1	25.8	26.6
Distribution Losses	3.2	3.3	3.3	3.4	3.5
Total Demand	130.0	133.6	136.4	139.1	141.7
Balance	<u>4.7</u>	<u>6.0</u>	<u>7.9</u>	<u>11.1</u>	<u>16.7</u>
% of Supply	3%	4%	6%	7%	10%

Source: M. Prud'homme, IFA, June 2010

### Much of the growth in ammonia capacity is associated with new urea capacity

Urea is the major example of sectoral growth in the nitrogen industry. Between 1999 and 2009, close to 90% of growth in the manufacture of nitrogen products came from urea. This predominance is reflected in urea capacity developments, which closely match those of ammonia.

#### Despite multiple delays and a few project cancellations, global urea capacity will expand by a net 30% between 2009 and 2014

Between 2009 and 2014, about 55 new plants are planned to come on stream, of which about 20 in East Asia. Global urea capacity is forecast to grow by 51.3 Mt, or 30% over 2009, to reach 222 Mt in 2014. This corresponds to a compound annual growth rate of 6%.

On a regional basis, East Asia will contribute 32% of the net increase in capacity. The other main sources of new capacity are South Asia (24%), West Asia (13%), Latin America (8%), EECA (8%) and Africa (7%). Excluding China, global urea capacity would increase by 36%, or 38 Mt, to reach 144.6 Mt in 2014.

### A large potential urea surplus, accelerating after 2012

Taking into account historical operating rates by country and the ramp-up rates of new projects with a high probability of realization, world urea supply is estimated to be 148.6 Mt in 2009, 155.6 Mt in 2010 and 193.4 Mt in 2014, with average annual growth of 6% over 2009.

As regards urea demand, the market will continue to recover in 2010 and demand is expected to accelerate thereafter. Global urea demand is forecast to increase from 146.4 Mt in 2009 to 151.2 Mt in 2010 and 174.6 Mt in 2014, representing net growth of 28 Mt over 2009 or 3.8% per annum. The bulk of this increase would come from the use of fertilizer urea, expanding 17% over 2009 to reach 152.6 Mt in 2014.

The derived urea supply/demand balance for the period 2010 to 2014 shows a sustained surplus, averaging 5 Mt/a through 2012. The potential surplus would then increase rapidly, from 9 Mt in 2013 to 19 Mt in 2014. The potential surplus in the period 2010 to 2014 is relatively marginal, representing 3% of global supply, but this ratio will then expand quickly to 10% in 2014. The large potential imbalance in 2014 would be caused by massive additions to capacity through an increasing number of projects and a relative slowing of growth in nitrogen fertilizer application.

### World Urea Supply/Demand Balance

(million metric tonnes urea)

	2010	2011	2012	2013	2014
Supply					
Capacity	179.1	188.3	198.5	206.9	222.1
Total Supply*	155.6	162.9	169.9	179.1	193.4
Demand					
Fertilizer Demand	133.7	139.5	143.6	148.8	152.6
Non-fertilizer Use	17.5	18.9	19.9	20.9	21.9
Total Demand	151.2	158.3	163.5	169.7	174.5
Balance	<u>4.4</u>	<u>4.5</u>	<u>6.4</u>	<u>9.4</u>	<u>18.9</u>
% of Supply	3%	3%	4%	5%	10%
-					

Source: M. Prud'homme, IFA, June 2010

### 3.2. Phosphate Outlook

### New supply of phosphate rock and large exportable tonnage expected

World phosphate rock capacity is projected to increase by an overall 20%, from 190 Mt in 2009 to 228 Mt in 2014. This growth in potential production would result from a combination of expansions at existing operations, new mines opened by current producers, and new capacity added by emerging suppliers.



On a regional basis, future rock supply is projected to increase in almost all regions although additions would mainly be in Africa, West Asia and East Asia. Productive capacity is projected to decline in North America. New supply from emerging suppliers would add close to 17 Mt, of which more than half would be available for exports. However, most new plans suppliers downstream have for processing in the longer term. If all these projects proceed as planned, there will be no shortage of phosphate concentrates in the medium term.

### Limited addition of "merchant grade" phosphoric acid supply in the near term

Global phosphoric acid capacity is forecast to increase by a net 9.2 Mt to 55.5 Mt  $P_2O_5$ between 2009 and 2014. About 90% of this net expansion would be earmarked for domestic markets and the rest sold under contracted offtake agreements. The main additions to domestic capacity would be in China, Morocco and Saudi Arabia. New merchant capacity is expected to come on stream from stand-alone units in Jordan, Morocco and Tunisia.

The net addition to merchant grade acid capacity is estimated at 1.6 Mt  $P_2O_5$ , of which 1.5 Mt would come from four large stand-alone units. No new tonnage of non-committed merchant grade acid capacity is expected to be available before 2014.

# Relatively balanced market conditions for phosphoric acid-based products through 2014

The global potential supply of phosphoric acid is estimated at 39.4 Mt  $P_2O_5$  in 2009, 39.6 Mt in 2010 and 47.1 in 2014. Global demand is forecast to grow at an annual rate of 5% over 2009, to reach 43.7 Mt  $P_2O_5$  in 2014.

World Phosphoric Acid Supply / Demand Balance : 2010-2014

#### Supply : 40 Mt to 47 Mt P2O5 : 4.8% per annum 50 45 Industrial P 40 35 30 25 P Fertilizers 20 15 10 5 0 2010 2011 2012 2013 2014 Source: IFA PIT C ttee, May 2010

The global phosphoric acid supply/demand balance between 2010 and 2014 shows a potential marginal surplus of 2.0 Mt  $P_2O_5$  in 2010, about 5% of available supply. This slight imbalance would increase moderately to 2.7 Mt in 2012 and 3.4 Mt in 2014 with the commissioning of announced projects.

### World Phosphoric Acid Supply/Demand Balance

(million metric tonnes  $P_2O_5$ )

	2010	2011	2012	2013	2014
Supply					
Capacity	47.8	51.0	52.5	53.8	55.5
Total Supply*	39.6	41.5	43.3	45.3	47.1
Demand					
Fertilizer Demand	31.3	32.8	34.2	35.5	36.6
Non-fertilizer Use	5.5	5.6	5.6	6.0	6.2
Distribution Losses	0.7	0.8	8.0	0.8	0.9
Total Demand	37.6	39.2	40.6	42.3	43.6
Balance	<u>2.0</u>	<u>2.3</u>	<u>2.7</u>	<u>3.0</u>	<u>3.4</u>
% of Supply	5%	6%	6%	7%	7%

Source: M. Prud'homme, IFA, June 2010

#### Major capacity expansions for DAP, but demand growth would absorb most of this new capacity through 2014

Over the next five years, close to 40 new MAP, DAP and TSP units are expected to be constructed in ten countries, half of them in China alone. New facilities are planned in Africa (Algeria, Morocco and Tunisia), West Asia (Saudi Arabia), Asia (Bangladesh China, Indonesia and Viet Nam), Latin America (Brazil and Venezuela) and EECA (Kazakhstan).

The global capacity for the main processed phosphate fertilizers is projected to be 42.3 Mt  $P_2O_5$  in 2014, representing a net increase of 8.2 Mt  $P_2O_5$  over 2009. Expansion of DAP capacity would account for three-quarters of this increase.

Global supply/demand balance for DAP shows relatively balanced market conditions through 2014, with annual potential surpluses averaging 2.5 Mt DAP, equating to less than 8% of potential supply. During the period 2010 to 2014, it is estimated that all new supply additions will be absorbed by growing demand requirements.

#### 3.3. Potash Outlook

### Collapse of potash sales in 2009 and recovery starting in 2010

Potash demand in the fertilizer and industrial sectors in 2009 was soft. Potassium fertilizer consumption dropped for a second consecutive year with a decline of 8.6% over 2008, following one of 16% over 2007. Global potash sales collapsed, as major carry-over stocks were available in several consuming countries at the beginning of 2009.

### Widespread interest in new potash capacity, but most projects are delayed

In 2010, close to 100 projects were tracked in about 25 countries. More than 180 exploration licenses have been issued in Canada alone over the past three years. In the medium term, the IFA 2010 potash capacity survey identified 20 expansion projects by current producers and about eight greenfield projects by new producers. The main result of the 2010 IFA potash capacity survey is that a significant reduction of anticipated growth in capacity is expected between 2009 and 2014.

### Increasing capacity through 2014, mostly added by established producers

Global potash capacity is forecast to increase from 41.6 Mt  $K_20$  in 2009 to 54.7 Mt in 2014. This represents an additional 13 Mt of capacity, mostly in Canada and Russia. New tonnage will also emerge in Argentina, Chile, China, the Republic of Congo, Israel, Jordan and Laos.

### Moderate capacity growth in the short term, accelerating in the near term

On an annual basis, capacity additions will be moderate in 2010 and 2011, with a total of 2.0 Mt  $K_2O$ . Capacity growth would accelerate thereafter. Close to 8.4 Mt of new capacity is expected in 2012/13, and another 2.5 Mt in 2014. Much of these later additions, if concluded as planned, would be in ramp-up stages and would have the potential to add significant production only after 2014.

The world potash supply is projected to increase from 37.1 Mt  $K_2O$  in 2009 to 38 Mt in 2010, reaching 45.9 Mt in 2014. This represents 24% growth over 2009 (4.7% per annum). Half of this net increase in supply would occur in 2013 and 2014.

### Sustained demand growth matching supply growth

Global demand for potash is estimated at 24.8 Mt  $K_2O$  in 2009, 29.9 Mt in 2010 and 35.8 Mt in 2014. This represents average growth of 9% per annum.



The resulting supply/demand balance shows a reduction of potential large surpluses in the short term, expanding quickly after 2012. Assuming a one-year slippage on new capacity, growth in supply would then be fully absorbed by the projected increase in potash demand.

#### World Potash Supply/Demand Balance (million metric tonnes K<sub>2</sub>O)

	2010	2011	2012	2013	2014
Supply					
Capacity	42.9	43.8	47.9	52.1	54.7
Total Supply*	38.0	39.2	41.4	42.9	45.8
Demand					
Fertilizer Demand	26.6	28.5	29.8	30.9	31.9
Non-fertilizer Use	2.4	2.6	2.7	2.8	2.9
Distribution Losses	0.9	0.9	1.0	1.0	1.0
Total Demand	29.9	32.0	33.5	34.7	35.8
Potential Balance	<u>8.1</u>	<u>7.1</u>	<u>7.9</u>	<u>8.2</u>	<u>10.0</u>
% of Supply	21%	18%	19%	19%	22%

Source: M. Prud'homme, IFA, June 2010

78<sup>th</sup> IFA Annual Conference, Paris, May - June 2010 "Fertilizer Outlook 2010 - 2014" M. Prud'homme & P. Heffer

#### 3.4. Sulphur Outlook

Between 2009 and 2014, world production of elemental sulphur is projected to grow at an average annual rate of 8%, to 67.1 Mt S in 2014. Close to 60% of the 19 Mt increase would be generated in the natural gas processing sector. Sulphur importing countries would contribute 8 Mt S, or 40% of the world's net supply increment between 2009 and 2014, while sulphur exporting countries would add 11 Mt.

Significant production growth is expected in East Asia, West Asia, EECA and North America. Together, these four regions would account for 85% of the net increase in production between 2009 and 2014.

### Quick recovery in sulphur consumption in the fertilizer and industrial sectors

Global consumption of elemental sulphur is projected to grow at an annual rate of 6% over 2009, reaching 62.1 Mt S in 2014. This increase would result from a quick recovery in consumption of sulphuric acid in the manufacture of phosphoric acid-based fertilizers and its growing use in ore leaching.

Global sulphuric acid consumption, which accounts for 84% of total sulphur demand, is forecast to grow at an annual rate of 5% over 2009. The manufacture of fertilizers, which contributes half of total sulphuric acid use, is projected to increase at an annual rate of 4.5% over 2009.

# Balanced sulphur market conditions in the short term, shifting to increasing potential surpluses after 2012

In the short term, the sulphur market appears to be in balance, given the strength of the recovery in the phosphate sector and the shortfall in production from announced projects.

A moderate surplus of 2.0-2.3 Mt is seen in 2011 and 2012, assuming new supply was then available from delayed projects. At the end of the forecast period, a significant surplus may emerge on the basis of a large increment of supply in 2014. However, if future sulphur production grows at lower rates than anticipated due to delays in large projects, tight sulphur market conditions will prevail through 2013.



#### World Elemental Sulphur Supply/Demand Balance

(million metric tonnes S)

	2010	2011	2012	2013	2014
Sulphur Demand					
Sulphur for sulphuric acid	43.9	46.2	49.5	52.4	54.9
Non-sulphuric acid uses	6.6	6.8	6.9	7.1	7.2
Total Demand	50.5	53.0	56.4	59.5	62.1
Sulphur Supply					
Oil recovered	23.2	24.7	26.0	27.6	28.6
Gas recovered	23.9	25.9	28.0	29.7	33.2
Others, including Frasch	3.6	4.4	4.7	4.9	5.2
Total Supply	50.6	55.1	58.7	62.3	67.1
Potential Balance	<u>0.1</u>	<u>2.1</u>	<u>2.3</u>	<u>2.8</u>	<u>5.0</u>
% Balance/Supply	0.2%	4%	4%	5%	7%
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Source: M. Prud'homme, IFA, June 2010

#### 3.5. Medium-term Trade Prospects

Global trade will recover its 2007 level within the next two years, as world fertilizer demand rebounds quickly and registers sustained growth through 2014.

In the short term, world supply/demand conditions are expected to include resilient annual potential surpluses of phosphate rock, potash and urea due to the emergence of large capacity in the main exporting regions. Over the next five years, market conditions for phosphate fertilizers, notably DAP, merchant phosphoric acid, merchant ammonia and sulphur, are seen as relatively balanced due to firm demand growth and a gradual increase in capacity. Over the period 2009 to 2014, global trade will expand by 15 to 33%, depending on the nutrient products and regions. International trade of urea and merchant ammonia is projected to expand by 15 and 20%, respectively, between 2009 and 2014. Phosphate imports would increase by an overall 3-4 Mt  $P_2O_5$  (15% over 2009). There could be an overall increase in global potash imports of 35% between the 2008/09 average and 2014.

- West Europe is seen as experiencing an increasing import reliance on nitrogen, urea and phosphate products while maintaining a stable potash surplus. The bulk of the increase in urea demand will come from the industrial sector, which will account for more than half of total urea consumption in 2014.
- Central Europe will continue to experience a deficit in phosphate and potash (Poland) while maintaining a slight nitrogen surplus.
- EECA will remain a major exporting region for all three major nutrients, but will have an expanding surplus of potash and urea.
- North America will register a massive increase in its potential potash surplus due to emerging capacity in Canada; however, this region will increase its imports of nitrogen products, especially urea, while stabilizing its phosphate surplus.
- Latin America will remain one of the world's major importing regions, with increasing requirements for urea, potash and phosphate fertilizers through 2014. However, its nitrogen balance shows a rising surplus due to new capacity expected in Peru and Venezuela.
- South Asia (essentially Bangladesh, India and Pakistan) will become the world's leading importing region, with expanding import demand through 2014 for urea and phosphate products (DAP). It will rank as the world's second largest potash importing region, with imports exceeding 5 Mt K<sub>2</sub>O in 2014.

- East Asia will be the world's largest potash importing region (8.5 Mt  $K_2O$  in 2014), based on firm demand in China and South-east Asia. Imports of nitrogen products, urea and phosphate fertilizers in East Asia are seen as declining due to rising and sustained surpluses in China and the commissioning of new capacity in Viet Nam and Indonesia.

- In the other regions, West Asia and Africa will increase their export-oriented urea and DAP surpluses due to new capacity developments in Algeria, Egypt, Iran, Morocco, Qatar and Saudi Arabia. The potential potash surplus will also expand in West Asia, as new capacity is commissioned in Israel and Jordan. Oceania is expected to become self-sufficient in nitrogen and urea in 2014 if the announced projects in Australia are fully realized, but this region will remain in deficit for phosphate and potash products.