Current world fertilizer trends and outlook to 2015

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
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Preface

This report presents the world nitrogen, phosphate and potassium fertilizer medium-term supply and demand projections for the period 2011-2015. The FAO/Fertilizer Organizations Working Group met in FAO, Rome in June 2011 to review the prospects for fertilizer demand and supply, and made the forecasts.

The Working Group comprised:

EFMA	European Fertilizer Manufacturers Association (unable to attend)
FAI	Fertiliser Association of India
IFA	International Fertilizer Industry Association
IFDC	International Center for Soil Fertility and Agricultural Development
IMPHOS	World Phosphate Institute
K+S	K+S KALI GmbH
TFI	The Fertilizer Institute (unable to attend)
FAO	Food and Agriculture Organization of the United Nations

Annex 1 presents explanatory notes on potential supply, demand and balance. Annexes 2, 3, and 4 present world and regional (listed in Annex 8) fertilizer demand forecasts for nitrogen, phosphate, and potash, respectively. Annexes 5, 6 and 7 present world and regional potential supply, demand and balance for the three primary nutrients. Name plate capacity, operating rates and demand for fertilizers vary from year to year.

All references relating to fertilizers are in terms of three primary nutrients, viz., nitrogen (N), phosphate (P_2O_5) and potash (K_2O). The fertilizer demand and supply data refer to the calendar year.

FAO, in collaboration with experts from the Working Group dealing with fertilizer production, consumption and trade, annually provides five-year forecasts of world and regional fertilizer supply, demand and potential balance. The contributions made by the members of the Working Group are gratefully acknowledged. Preparation of the document by Mr. T. K. Chanda, Additional Director, The Fertiliser Association of India is sincerely acknowledged. Editing of the document by Mr. Christian Nolte, Senior Officer, FAO and collection of data and assistance in compilation by Ms. Christina Vella Tomlin, FAO, Rome are gratefully acknowledged.

Executive summary

The world economy has been recovering from 2010 after the spike in commodity prices followed by deep recession experienced in the preceeding two years. The recovery is driven by improvement in financial conditions, buoyant activity in many emerging and developing economies, and growing confidence in advanced economies. World production of major crops is expected to increase in 2011 which may ease the prevailing tight market situation. World food prices have been strongly on the rise surpassing the earlier peak of 2008. Consumption of fertilizer nutrients increased significantly in 2010 and is expected to grow in a stabilized way during the following years of the forecast period. World demand for total fertilizer nutrients is estimated to grow at 2.0 percent per annum from 2011 to 2015. The demand for nitrogen, phosphate, and potash is forecast to grow annually by 1.7, 1.9, and 3.1 percent, respectively, during the period. Global total nutrient production rose significantly in 2010 keeping pace with world consumption. Over the next five years, the global capacity of fertilizer products, intermediates and raw materials would further increase.

The world potential nitrogen balance as a percentage of global total demand is expected to remain between 3 to 5 percent between 2011 and 2013 and is likely to increase to 7 percent in 2014 and 10 percent in 2015. The potential phosphate balance is likely to grow from 3 percent in 2011 to 6 per cent by 2015. The potential potash balance as a percentage of global total demand is expected to rise from 24 percent in 2011 to a high level of 44 percent in 2015.

The *Africa* region is likely to remain a major exporter of phosphate, followed by nitrogen but would continue to depend solely on import of potash. *North America* would increasingly rely on nitrogen fertilizer import. Its phosphate export may come down slowly and the potash balance of the sub-region is expected to increase. *Latin America* is expected to increase its export of nitrogen. Its import of phosphate and potash would continue to decline.The dependence of *East Asia* on nitrogen import is expected to remain modest over the years and import of potash would grow significantly during the period. The sub-region would, however, continue to be a net exporter of phosphate during the period. But the potential balance of phosphate would come down by 2015. *West Asia* is in surplus in all the three nutrients. It is a major contributor to global nitrogen supply. The sub-region has a small surplus of phosphate for exports which is expected to grow in the coming years. *South Asia* would continue to remain deficit in all the three nutrients during the forecast period. The deficit in nitrogen balance might reduce slightly by the end of the projected period if the plants under construction / planned are commissioned as per schedule. The deficit balance of phosphate and potash in the sub-region would continue to rise during the forecast period. The major contribution in *Europe* in the nitrogen, phosphate, and potash surplus is from *East Europe & Central Asia*. It has the largest potential balance of nitrogen and potash in the world. *West Europe* would continue to remain surplus in potash and deficit in nitrogen and phosphate. *Central Europe* would continue to be deficit in phosphate and potash. The surplus balance of nitrogen in the sub-region will marginally decline. The *Oceania* region would continue to be deficit in nitrogen and slowly move toward close to balance in 2015. With regard to phosphate and potash, the region would continue to remain deficit during the period.

The world fertilizer outlook

BACKGROUND

The global economic and financial situation impacts agriculture and demand for fertilizer. The world fertilizer outlook, therefore, needs to be viewed from the perspective of the world economic growth. The report begins with a background of the world economic growth; followed by developments in agricultural production; input (fertilizer) output prices; and thereafter presents the details of regional and global supply, demand, and potential balance of fertilizers in the coming years on a mid-term basis.

The world economy has been recovering from 2010 after the spike in commodity prices followed by deep recession experienced in 2008-09. Economic recovery is continuing as a result of improvement in financial conditions in varying degrees in various countries, buoyant activity in many emerging and developing economies, and growing confidence in advanced economies. According to the International Monetary Fund *(World Economic Outlook, April 2011)*, the global growth is projected to reach 4.4 percent and 4.5 per cent in 2011 and 2012, respectively, from 5 per cent achieved in 2010. Advanced economies are expected to grow by 2.4 percent in 2011 and 2.6 per cent in 2012 from 3 per cent in 2010. Growth in emerging and developing economies is projected to be 6.5 percent during 2011 and 2012 as against 7.3 per cent in 2010. The global recovery is continuing with varying speed and direction with large output gaps in advanced economies and closing gaps in emerging and developing economies. In advanced economies, investment is recovering due to low interest rates and improved financial conditions in some countries contributing to a rebound in industry growth. In large part of Latin America, Asia and in low-income countries in sub-Saharan Africa, the recovery has raised the output back to pre-crisis peak level. Some of these economies have already moved into higher output trajectory. Activity in these economies is being driven by favourable macroeconomic policies, rising exports and commodity prices, and in many cases, more capital inflows. However, the economic prospects in the Middle East are diverse and still uncertain. The activities in economies of Commonwealth of Independent States (CIS) are also rebounding. However, IMF forecasts that inflation pressure may broaden. In advanced economies, headline inflation is projected to return below 2 percent in 2011, settling at about 1½ percent during the course of 2012 as food and energy price hikes continue and wages increase only gradually. In emerging and developing economies, inflation pressure is broadening with the headline inflation at close to 7 percent in 2011 and expected to recede to below 5 percent in 2012.

Agricultural outlook

The *FAO Food Outlook*, June 2011 predicts an increase in world production of major crops in 2011 which is expected to ease the prevailing tight market situation. However, this is not expected to replenish stocks sufficiently. FAO's first forecast for world cereal production in 2011 points a record increase of 3.5 percent after a 1 percent decline in 2010. The main reasons for the projected increase are due to expectations of recoveries in yield and larger plantings.

Global wheat output is expected to be 3.2 percent up to nearly 674 million tonnes, in 2011 from last year's reduced crop, mostly reflecting improved yield prospects in the

Russian Federation. World production will not be sufficient to meet the expected demand, in spite of demand not rising as fast as in the previous season.

The outlook for coarse grains for nearly all major producing countries is favourable and world production is forecast to reach a new high of 1 165 million tonnes, up 3.9 percent from 2010. However, this expected output may be just sufficient to meet anticipated utilization in 2011/12. Most of this increase is expected in the United States and the Commonwealth of Independent States (CIS).

Global rice production is estimated to have risen by 1.8 percent to a new record in 2010. The early outlook for the 2011 crop is also positive, with the sector foreseen to grow by 2.6 percent under expectations of more normal weather conditions and steady support from governments. With global production outpacing consumption, world rice stocks in 2011 are forecast to reach their highest level since 2002. Under current prospects for a continued expansion of world output, world rice reserves may rise further in 2012.

Table 1 presents the world production of major crops in recent years and forecast for 2011/12.

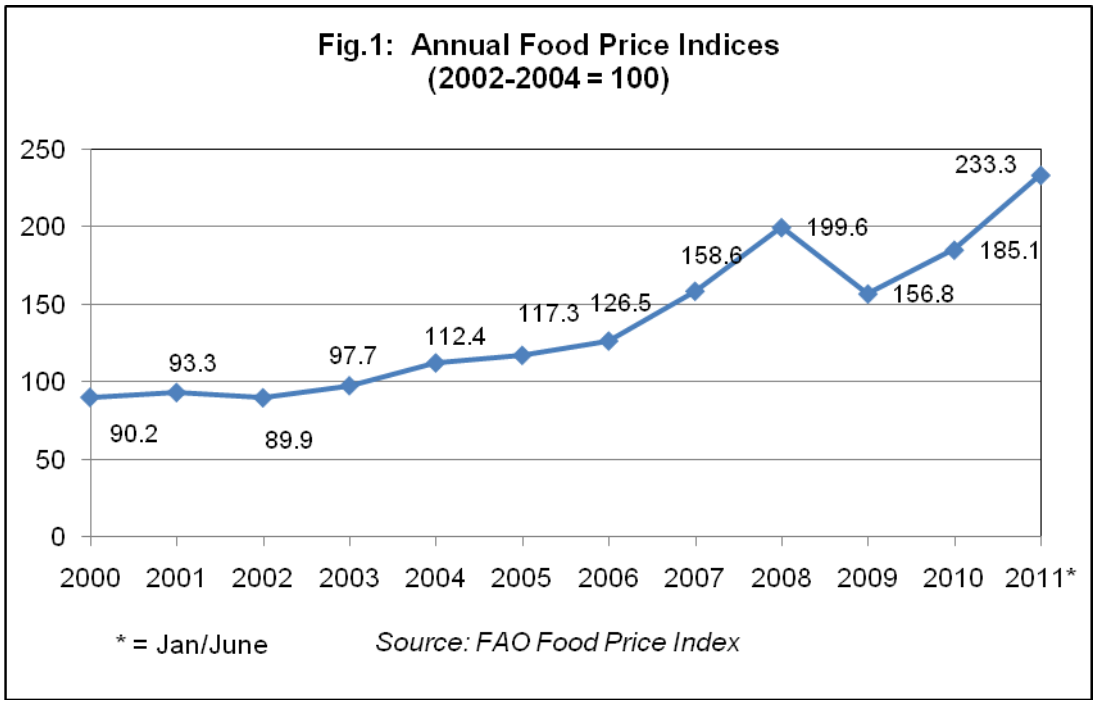
Table1
World production of major crops (million tonnes)

	2008/09	2009/10	2010/11 (estimate)	2011/12 (forecast)
Wheat	684.8	684.7	652.6	673.6
Coarse grain	1 142.4	1 122.3	1 121.3	1 165.4
Rice	458.5	455.6	463.8	475.9
Total cereals	2 285.5	2 262.7	2 237.6	2 314.9
Sugar	151.0	156.6	165.7	
Oil seeds	409.7	456.0	464.7	

Source: Various issues of Food Outlook, FAO, Rome

Input and output prices

The Food Price Index of the Food and Agriculture Organization of the United Nations (FAO) shows a strong upward movement, particularly since July 2010 as extreme weather condtitions in major producing countries resulted in smaller than expected harvests. Drought in Russia with the subsequent restrictions by the Government on grain export, unfavourable weather in the USA and Europe, heavy rains and floods in Pakistan and Australia led to reduced production of wheat and coarse cereals. Since the beginning of 2011, the index remains above the 2008 peak values, led by firm sugar, wheat, maize and vegetable oil prices. Rice prices, however, are significantly below their 2008 peak. Fig.1 shows the movement in annual food price indices from 2000 to the first half of 2011.



Besides a hike in food prices, energy prices also moved upward from 2010 as a result of higher demand outpacing supply. The average Brent crude price was $79.50 per barrel in 2010, an increase of 29% over 2009. Other benchmark crude prices registered similar increases. Very strong consumption growth and continuing OPEC production restraint led to push prices higher late in the year, with prices reaching a peak near US $ 94 per barrel at the end of the year. During the first half of 2011, the price of Brent crude crossed more than US$ 110 per barrel in a major part of the period. High crude oil prices provide strong incentives for biofuel production. They also pull agricultural commodity prices up, which in turn, provide strong incentives for higher fertilizer application rates. In recent years, the production of biofuels has boosted demand for food crops such as maize, wheat, sugarcane, and soybeans, pushing up their prices because of increased competition among the food, feed and fuel sectors.

Against the rising prices of agricultural commodities, the prices of fertilizers have also marked significant increase since 2010. For instance, the index (2002-04 =100) of FOB price of DAP increased from 176 in 2009 to 263 in 2010 and moved further up at 323 in the first half of 2011. Similar is the situation in respect to other fertilizers. The food price index in 2011 at 233 crossed the earlier peak of 200 in 2008. Under such scenario, the high agricultural commodity prices provide incentives for farmers in market-oriented economies to invest in fertilizers and other inputs for higher productivity. However, it is a disincentive to invest in fertilizers, particularly on P& K for farmers having smallholdings and producing the bulk of their food production for family consumption. There are a few other countries, less or not responsive to price signals, such as China and India, which have strong government support in the form of direct farm subsidy or input subsidy to increase productivity in order to ensure domestic food security. Table 2 shows output and fertilizer input price indices from 2007 to the first half of 2011.

Table 2
Output and fertilizer input price indices (2002-2004 =100)

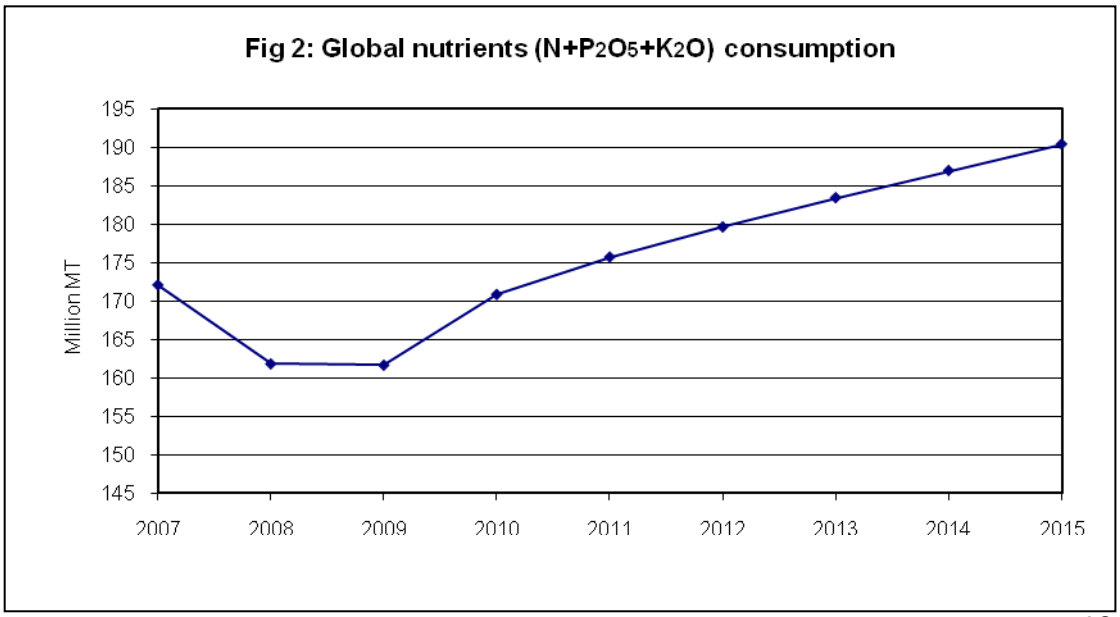
	2007	2008	2009	2010	2011(January-June)
Output price index[1]					
Cereals	167	238	174	183	257
Dairy	212	220	142	200	230
Meat	125	153	133	152	175
Oils & Fats	169	225	150	193	265
Sugar	143	182	257	302	371
Food	**159**	**200**	**157**	**185**	**233**
Fertilizer input price index[2]					
Urea	222	362	184	206	269
DAP	228	515	176	263	323
MOP	182	573	541	293	363

Source:
[1] **World** *Food Situation: Food Prices Index*, FAO, Rome, (http://www.fao.org/worldfoodsituation/FoodPricesIndex/en/)
[2] Calculated from average FOB prices quoted in various Fertilizer Trade Journals.

DEMAND

Demand for fertilizer nutrients

In light of the above background and keeping in view the factors which influence and likely to impact in future, the demand for fertilizer nutrients have been projected for the coming years. Total fertilizer nutrient ($N+P_2O_5+K_2O$) consumption estimated at 170.7 million tonnes in 2010 is forecast to reach 175.7 million tonnes in 2011. With a successive growth of 2.0 percent per year, it is expected to reach 190.4 million tonnes by the end of 2015. Fig.2 indicates the forecasts of world demand for total fertilizer nutrients from 2011 to 2015 against the backdrop of consumption in the preceding four years.



The forecasts of demand for three main plant nutrients covering regions and the world for 2011 to 2015 are presented in Annexes 2, 3 and 4. The global demand for fertilizer nutrients are summarized in Table 3.

Table 3
World demand for fertilizer nutrients, 2011-2015 (thousand tonnes)

Year	2011	2012	2013	2014	2015
Nitrogen (N)	105 348	107 374	109 299	111 109	112 909
Phosphate (P_2O_5)	41 679	42 562	43 435	44 245	45 015
Potash (K_2O)	28 679	29 682	30 683	31 594	32 453
Total (N+ P_2O_5+K_2O)	**175 706**	**179 618**	**183 417**	**186 948**	**190 377**

In 2011, the world demand for nitrogen, phosphate and potash is forecast to grow by 2.2, 2.8 and 5.3 percent, respectively, over the previous year. The world and regional annual growth rate in fertilizer demand between 2011 and 2015 is given in Table 4. The world demand for nitrogen, phosphate and potash is forecast to grow annually by 1.7, 1.9 and 3.1 percent, respectively, between 2011 and 2015.

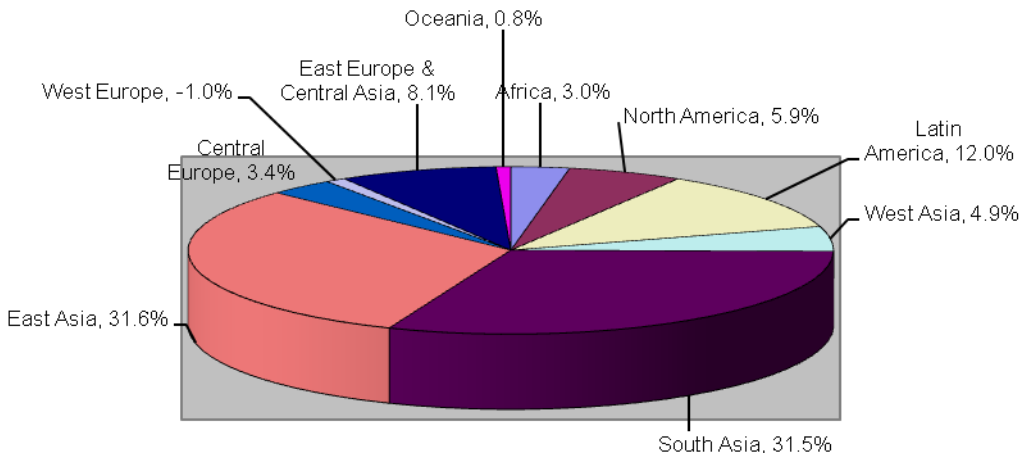
Table 4
World and regional growth in fertilizer demand, 2011 to 2015

Region	Annual growth rate (Compound)			
	N	P_2O_5	K_2O	Total ($N+P_2O_5+K_2O$)
World	**1.7%**	**1.9%**	**3.1%**	**2.0%**
Africa	1.9%	3.3%	4.3%	2.5%
America	1.6%	2.3%	2.3%	1.9%
- North America	0.8%	0.9%	1.2%	0.9%
- Latin America	3.1%	3.5%	3.3%	3.3%
Asia	1.9%	1.7%	4.0%	2.1%
- West Asia	2.9%	2.9%	6.7%	3.2%
- South Asia	2.6%	2.9%	2.7%	2.7%
- East Asia	1.4%	0.9%	4.4%	1.8%
Europe	1.3%	1.7%	2.1%	1.5%
- Central Europe	2.3%	4.5%	3.2%	2.8%
- West Europe	-0.2%	-0.7%	1.0%	-0.1%
- East Europe & Central Asia	3.5%	3.5%	3.2%	3.4%
Oceania	1.0%	2.8%	4.3%	2.1%

Nitrogen (N)
The world nitrogen fertilizer demand is expected to increase from a total of 105.3 million tonnes in 2011 to 112.9 million tonnes in 2015 at the annual growth of 1.7 percent. Of the overall increase in demand for 7.6 million tonnes nitrogen, 68 percent would be in Asia, 18 percent in America, 10 percent in Europe, 3 percent in Africa and 1 percent in Oceania.

Among the Asian countries, the bulk of the increase of world demand for nitrogen is expected in India (25 percent) and China (24 percent), followed by Pakistan (5 percent), Vietnam and Indonesia (3 percent each). In America, the major share of increase is expected in Brazil (6 percent) and USA (5 per cent). In Europe, the major share of increase is expected in East Europe & Central Asia (8 per cent), mainly contributed by Russia (4 per cent) and Ukraine (3 per cent). This is expected to be followed by Central Europe (3 percent). In West Europe, there may be a nominal decline in consumption during the period. The share of increase in Africa is expected to be around 3 per cent, to be contributed mainly by Egypt, Morocco, Nigeria and South Africa. Figure 3 shows the regional and sub-regional share of world increase in nitrogen consumption between 2011 and 2015.

Fig 3: Regional and sub-regional share of world increase in nitrogen fertilizer consumption, 2011-2015

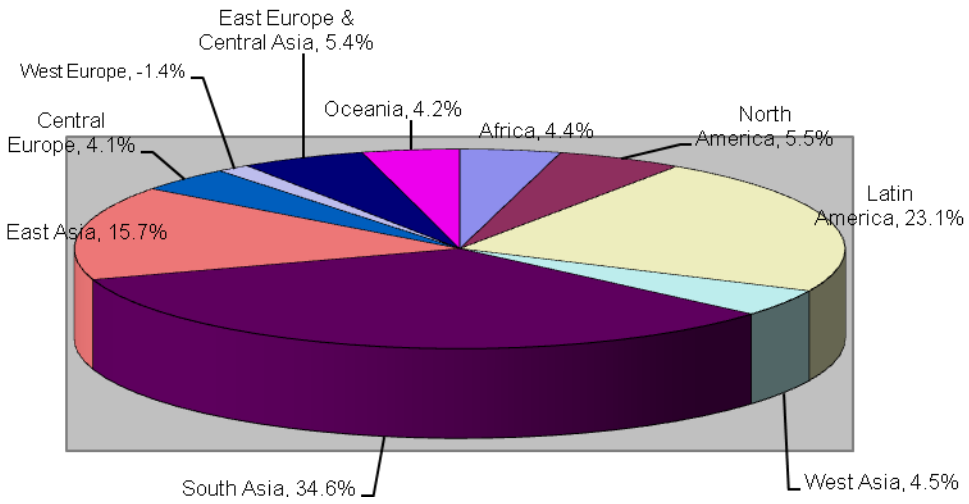


Phosphate (P_2O_5)

The Phosphate fertilizer consumption/demand includes H_3PO_4 (phosphoric acid) based fertilizer demand + non-H_3PO_4 fertilizer demand. The non-H_3PO_4 fertilizer demand includes P_2O_5 through single super phosphate, rock phosphate, etc. The world phosphate fertilizer demand is expected to increase from a total of 41.7 million tonnes in 2011 to 45.0 million tonnes in 2015 at a growth rate of 1.9 percent per year. Of the overall increase in demand for 3.3 million tonnes P_2O_5, 55 percent would be in Asia, 29 percent in America, 8 percent in Europe, 4 percent each in Africa and Oceania.

Among the Asian countries, about 28 percent of the growth in world demand of phosphate is expected in India, 9 percent in China, 5 percent in Pakistan, 3 per cent in Vietnam and 2 per cent in Indonesia. Among the major countries in America, 15 percent of the growth in world demand is projected to be in Brazil and 4 percent in USA. The share of East Europe & Central Asia is expected to be 5 per cent and of Central Europe to be 4 per cent. Figure 4 shows the regional and sub-regional share of world increase in phosphate consumption between 2011 and 2015.

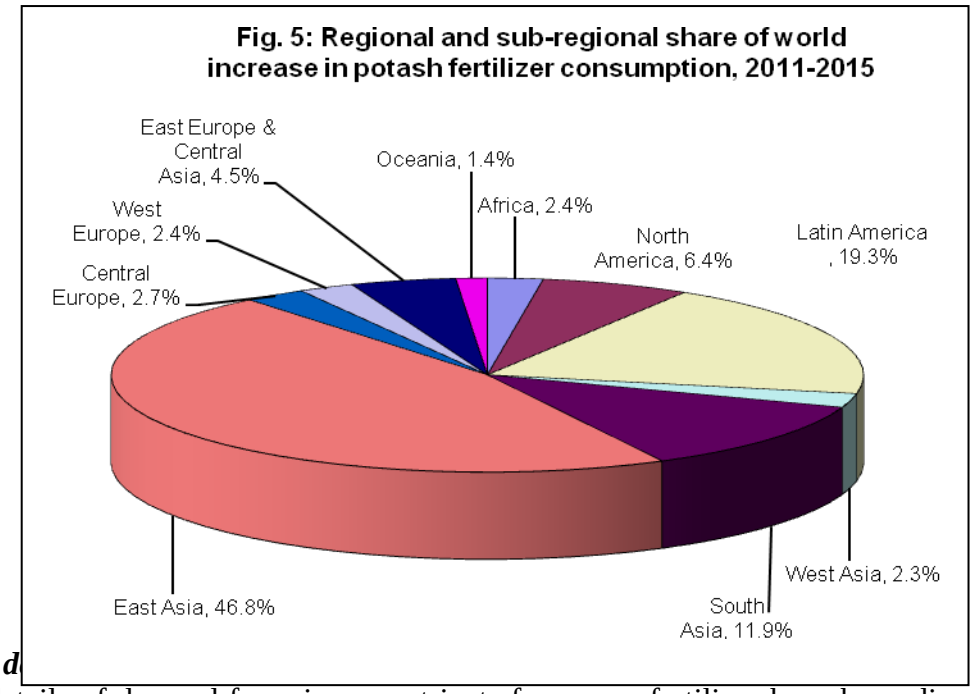
Fig 4: Regional and sub-regional share of world increase in phosphate fertilizer consumption, 2011-2015



Pot

Potassium fertilizer demand in 2011 is projected to show an increase of 5.3 percent over 2010. The world potash fertilizer demand is expected to increase from a total of 28.7 million tonnes in 2011 to 32.5 million tonnes in 2015 with an annual per annum growth of 3.1 per cent. Of the overall increase in demand for 3.8 million tonnes potash, 61 percent would be in Asia, 26 percent in America, 10 percent in Europe, 2 percent in Africa and 1 percent in Oceania.

Among the Asian countries, about 34 percent of the growth in world demand for potash is expected in China, 11 percent in India, Indonesia and Malaysia 5 per cent each, Vietnam 2 per cent and the balance in the rest of Asia. In America, the major share of the growth of about 15 percent is projected to be in Brazil and 6 percent in USA. In Europe, about 5 per cent of the growth in world demand for potash is expected in East Europe & Central Asia, followed by 3 per cent in Central Europe, and 2 per cent in West Europe. Figure 5 shows the regional and sub-regional share of world increase in potash consumption during 2011 to 2015.



Total d

The details of demand for primary nutrients for use as fertilizer have been discussed in the previous section. There is also some use of primary nutrients for purposes other than fertilizer, such as industrial use. In addition, nitrogen and phosphate are reported to be used as feed for cattle, poultry, and fish. Table 5 shows global total demand (fertilizer + non-fertilizer) for primary nutrients for 2011 to 2015.

Table 5
World total demand for primary nutrients, 2011-2015 (thousand tonnes)

Year	2011	2012	2013	2014	2015
Nitrogen (N)	130 844	133 951	136 846	139 517	141 682
Phosphate (P_2O_5)[1]	48 119	49 256	50323	51 180	51 940
Phosphate (P_2O_5)[2]	41 679	42 562	43 435	44 245	45 015
Potash (K_2O)	32 190	33 361	34 359	35 482	36 367
Total (N+ P_2O_5+K_2O)	204 713	209 874	214 640	219 244	223 064

[1] = Total P_2O_5 demand (H_3PO_4 based fertilizer + non-fertilizer, and non-H_3PO_4 fertilizer).
[2] = Total H_3PO_4 demand (fertilizer + non-fertilizer) expressed as P_2O_5.

Since the major share of phosphate fertilizer is based on H_3PO_4, and its supply and demand is of commercial importance, the following sections on supply and supply/demand balance are based on H_3PO_4 (i.e., excluding non- H_3PO_4 source).

SUPPLY

World fertilizer demand in 2010 was characterized by a stronger than anticipated recovery in traditional markets and a sustained level of consumption in emerging markets. Global total nutrient production rose by 10 per cent to 213.5 million tonne nutrients, keeping pace with the rise in world consumption. Over the next five years, global capacity and production of fertilizers would increase further. Table 6 shows the world supply of ammonia, phosphoric acid and potash during 2011 to 2015. Regional and sub-regional information is given in Annex 5, 6 and 7.

Table 6

World supply of ammonia, phosphoric acid and potash, 2011-2015 (thousand tonnes)

Year	2011	2012	2013	2014	2015
Ammonia (as N)	134 546	140 197	143 751	149 910	156 346
Phosphoric acid (as P_2O_5)	42 094	43 966	45 011	46 439	47 788
Potash (as K_2O)	39 835	42 539	45 033	48 304	52 345

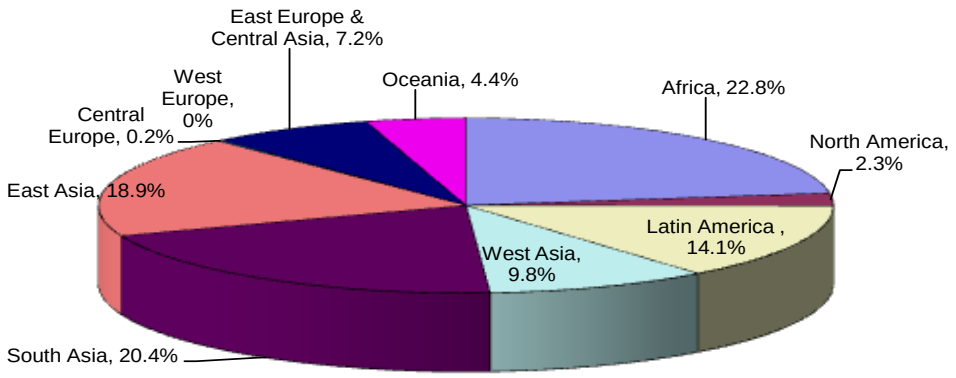
Nitrogen (N)

World ammonia capacity was 158.9 million tonnes (as N) in 2010. With the expected addition in capacity of about 4.3 million tonnes, the total ammonia capacity is likely to be 163.2 million tonnes (as N) in 2011. As a result of successive addition in capacity each year, total ammonia capacity is expected to rise to 188.7 million tonnes (as N) in 2015. The main additions to capacity would occur in East Asia, South Asia, Africa, West Asia and Latin America. Of the total increase of 25.5 million tonnes from 2011 to 2015, nearly 22 percent is expected to be added in East Asia and 19 per cent in South Asia. About 21 percent of the increase in world ammonia capacity is expected in Africa, 15 per cent in Latin America, 9 per cent in West Asia, 7 per cent in East Europe and Central Asia, 4 percent in Oceania and 2 per cent in North America. No increase in ammonia capacity is expected in West Europe. Central Europe will more or less maintain its existing capacity.

After taking into account operating rates, world supply of ammonia (as N) is estimated at 131 million tonnes in 2010 which would rise to 134.5 million tonnes in 2011. From 2011 to 2015, there would be a total addition in supply of 21.8 million tonnes. The total supply of ammonia (as N) would thereby rise to 156.3 million tonnes in 2015 (Table 6). Fig.6 shows the percentage contribution of various regions and sub-regions to the total increase in ammonia (as N) supply between 2011 and 2015.

According to the International Fertilizer Industry Association (IFA), Paris, between 2010 and 2015, 58 new urea plants are planned to come on stream, of which 17 would be located in China. South Asia will contribute 26 per cent of the net increase in urea capacity, followed by East Asia, Africa, West Asia, Latin America, EECA, and Oceania.

Fig 6: Regional and sub-regional share of world increase in ammonia (as N) supply, 2011-2015

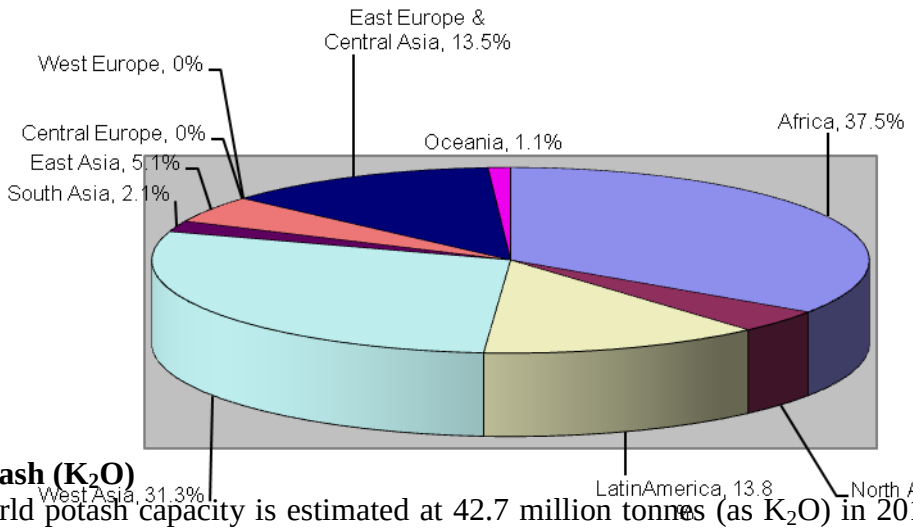


Phosphate (P_2O_5)

World phosphoric acid (as P_2O_5) capacity was about 48.5 million tonnes in 2010. A modest increase of 2.9 million tonnes is expected in 2011 with the total rising to 51.4 million tonnes. By 2015, it is expected to rise to 57.6 million tonnes. Of the total 6.2 million tonnes addition in world capacity between 2011 and 2015, 46 percent addition would take place in Asia, mainly in East Asia (China) and West Asia (Saudi Arabia and Jordan). About 37 percent capacity would be added in Africa (Morocco and Tunisia), 13 percent in Latin America, 8 per cent in East Europe & Central Asia and 1 per cent in Oceania. No addition in capacity is expected in Central and West Europe. In North America, the capacity may rather decline by 4.5 per cent. Expansions in China will account for one-third of this increase. According to IFA, between 2010 and 2015, close to 34 new phosphoric acid units are planned for completion, of which 15 would be located in China, 6 in Morocco and 3 in Saudi Arabia. Only two stand-alone merchant units are expected to come on stream. Over the next five years, close to 40 new units of MAP, DAP and TSP are planned to come on stream in eleven countries.

After taking into account operating rates, the world supply of phosphoric acid (as P_2O_5) is estimated at 39.6 million tonnes in 2010, which is estimated to rise to 42.1 million tonnes in 2011. A modest increase is expected annually, and by 2015, the total supply will be 47.8 million tonnes (Table 6). Fig.7 shows the percentage contribution of various regions and sub-regions to the total increase in phosphoric acid (as P_2O_5) supply between 2011 and 2015.

Fig 7: Regional and sub-regional share of world increase in phosphoric acid (as P_2O_5) supply, 2011-2015

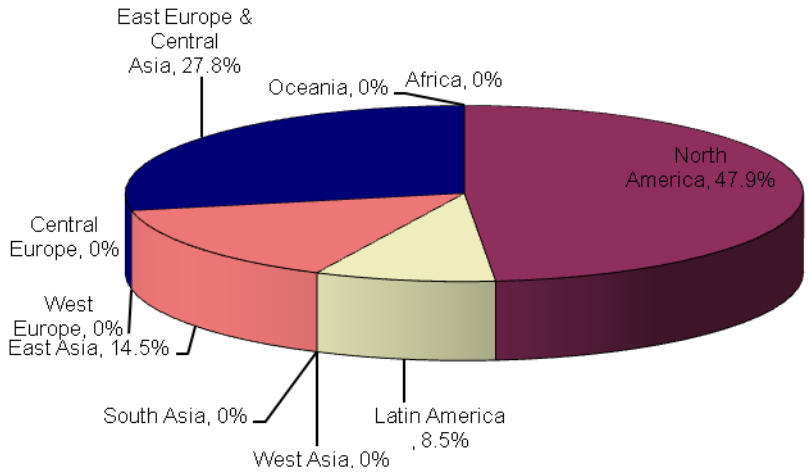


Potash (K_2O)

World potash capacity is estimated at 42.7 million tonnes (as K_2O) in 2010. A small increase of 1 million tonnes is expected in 2011 with the total rising to 43.7 million tonnes. By 2015, the total capacity is likely to be 59.6 million tonnes. Of the total increase in capacity of 15.9 million tonnes potash between 2011 and 2015, 39 percent would be in North America (Canada), 14 percent in Latin America (Argentina and Brazil), 33 percent in East Europe & Central Asia (Russia and Belarus) and 14 per cent in East Asia. About 30 additional potash-related projects are currently being under taken by existing producers, with completion planned between 2011 and 2015. The bulk of new potash capacity will be in the form of MOP.

After considering operating rates, world supply of potash (as K_2O) is estimated at 38.9 million tonnes in 2010, which would rise to 39.8 million tonnes in 2011. A good increase is expected annually from 2012 and by 2015, the total supply may touch 52.3 million tonnes (Table 6). Fig.8 shows the percentage contribution of various regions and sub-regions to the total increase in potash supply between 2011 and 2015.

Fig 8: Regional and sub-regional share of world increase in potash (as K_2O) supply, 2011-2015



SUPPLY/DEMAND BALANCE

Table 7 presents the world potential balance of nitrogen, phosphate (H_3PO_4 based P_2O_5), and potash (K_2O) for 2011 to 2015. The potential balance is derived on the basis of maximum availability (supply) over the projected total demand as shown below.

(i) Potential balance = supply–non-fertilizer demand–fertilizer demand.

(ii) Supply of each nutrient is referred as under:

N = N through ammonia, P_2O_5 = P_2O_5 through phosphoric acid, and

K_2O = K_2O through potash.

Unforeseen factors, such as, feedstock/raw material limitations, logistic problems, unscheduled shut down due to technical reasons, natural calamities (earth quake, mine flooding, etc.) are not considered in the balance. Consumption/demand projections are based on agronomic considerations (e.g. cropped area and application rate of fertilizer); market feed back; estimates by Industry Associations; growth models; econometric models; expert advice; etc. Table 7 indicates the world potential balance of nitrogen, phosphate, and potash for 2011 to 2015.

Table 7

World potential balance of nitrogen, phosphate and potash, 2011-2015 (thousand tonnes)

Year	2011	2012	2013	2014	2015
Nitrogen (N)	3702 (2.8)	6246 (4.7)	6905 (5.0)	10393 (7.4)	14664 (10.3)
Phosphate as P_2O_5 (H_3PO_4 based)	1147 (2.8)	1816 (4.3)	1745 (4.0)	2276 (5.2)	2874 (6.4)
Potash (K_2O)	7645 (23.7)	9178 (27.5)	10674 (31.1)	12822 (36.1)	15978 (43.9)

( ) = Potential balance as % of projected total demand (fertilizer + non-fertilizer).

Nitrogen (N)

The world nitrogen supply is expected to increase by 3.8 percent annually between 2011 and 2015. As against this, demand is projected to increase by 1.7 percent in the same period. Potential balance of nitrogen is expected to be 3.7 million tonnes in 2011 as against 3.8 million tonnes in the previous year. There would be an addition in the potential balance by about 2.5 million tonnes in 2012 with a small increase in 2013. A sweeping increase of 3 to 4 million tonnes per year is expected in the next two years up to 2015. with the total balance rising to 14.7 million tonnes by 2015.

The potential nitrogen balance as a percentage of global total demand is expected to remain between 3 to 5 percent between 2011 and 2013. With the expected higher availability from new capacities, it is likely to increase to 7 percent in 2014 and 10 percent in 2015. Any shortfall in supply due to slippage in commissioning in some of the projects or surge in demand could well be absorbed from the potential balance.

Phosphate (P_2O_5)

The world phosphate (H_3PO_4 based P_2O_5) supply is expected to increase by 3.2 percent per annum between 2011 and 2015. As against this, demand is projected to

increase by 2.4 percent in the same period. The potential balance of phosphate is expected to rise marginally from 1.1 million tonnes in 2011 to 2.9 million tonnes in 2015. The ratio of potential phosphate balance (H_3PO_4 based) as a percentage of global phosphate demand (H_3PO_4 based P_2O_5) is likely to grow from 3 to 6 per cent during the forecast period.

Potash (K_2O)

World potash balance was 8.4 million tonnes in 2010 which reduced to 7.6 million tonnes in 2011 in view of higher consumption in proportion to the increase in supply. The demand for potash is projected to increase by 3.1 percent between 2011 and 2015. The world potash supply is expected to increase by 7.1 percent during the same period. The potential balance is expected to rise significantly from 9.2 million tonnes in 2012 to 16 million tonnes in 2015. The potential potash (K_2O) balance as a percentage of global total demand is expected to rise from 28 percent in 2012 to a high level of 44 percent in 2015.

THE REGIONAL FERTILIZER SITUATION

Africa

Africa accounted for about 2.5 percent of world fertilizer consumption in 2010. Its share in world consumption of nitrogen is 2.7 percent, phosphate 2.4 percent and potash 1.7 percent. The main consumers of fertilizer in the region are Egypt, Morocco, Nigeria and South Africa. The growth rate in demand for nitrogen, phosphate, and potash is expected to be 1.9, 3.3, and 4.3 percent, respectively between 2011 and 2015. The fertilizer nutrient supply/demand balance indicates that the region would remain a major exporter of phosphate, followed by nitrogen. For potash, the region would continue to depend solely on import. Table 8 indicates fertilizer forecast for Africa for 2011 to 2015.

Table 8
Africa fertilizer forecast, 2011-2015 (thousand tonnes)

		2011	2012	2013	2014	2015
N	Supply	5 234	7 377	7 862	8 784	10 199
	Total demand	3 469	3 551	3 615	3 686	3 758
	Potential balance	1 765	3 826	4 247	5 098	6 441
P_2O_5 based on H_3PO_4	Supply	7 064	7 270	7 667	8 497	9 197
	Total demand	1 363	1 523	1 554	1 592	1 614
	Potential balance	5 701	5 747	6 113	6 905	7 583
K_2O	Supply	0	0	0	0	185
	Total demand	566	594	616	645	668
	Potential balance	-566	-594	-616	-645	-668

America

The share of America in the overall world consumption of fertilizer is 23 percent, of which North America constitutes 13 percent and Latin America 10 percent. The region would continue to remain in surplus in potash and in deficit in nitrogen and phosphate during the forecast period. Table 9 presents the fertilizer forecast for the America region for 2011 to 2015.

Table 9
America fertilizer forecast, 2011-2015 (thousand tonnes)

		2011	2012	2013	2014	2015
N	Supply	20 420	21 129	22 018	22 110	23 994
	Total demand	26 457	27 021	27 555	28 083	28 609
	Potential balance	-6 037	-5 892	-5 537	-5 973	-4 615
P_2O_5 based on H_3PO_4	Supply	10 920	11 090	11 166	11 176	11 456
	Total demand	11 269	11 502	11 815	12 087	12 290
	Potential balance	-349	-412	-649	-911	-834
K_2O	Supply	16 385	18 112	19 216	21 010	23 446
	Total demand	11 363	11 639	11 837	12 172	12 401
	Potential balance	5 022	6 473	7 379	8 838	11 045

North America
The share of North America in world consumption of nitrogen is 13.1 percent, phosphate 11.4 percent and potash 17.3 percent. The growth rate in demand for nitrogen, phosphate and potash is expected to be 0.8, 0.9 and 1.2 percent, respectively, between 2011 and 2015. The main consumers of fertilizer in the region are USA and Canada. The fertilizer nutrient supply/demand balance indicates that the sub-region would increasingly rely on nitrogen fertilizer import. Its phosphate export may come down slowly due to increase in demand and almost static supply. The potash balance of the region is expected to increase due to addition in potash capacity mainly in Canada.

Latin America
The share of Latin America in world consumption of nitrogen is 6.4 percent, phosphate 12.4 percent, and potash 18.4 percent. The per annum growth in demand for nitrogen, phosphate and potash is expected to be at 3.1, 3.5 and 3.3 percent, respectively between 2011 and 2015. The main consumers of fertilizer in the region are Brazil, Argentina and Mexico The fertilizer nutrient supply/demand balance indicates that export of nitrogen might increase from 2012 while import of phosphate and potash would continue to decline.

Asia
The Asia region is the largest consumer of fertilizer in the world. Total fertilizer nutrient consumption in Asia is 60 per cent of the world total, the bulk of which is in East Asia and South Asia. Table 10 presents fertilizer forecasts for the Asia region as a whole.

Table 10

Asia fertilizer forecast, 2011-2015 (thousand tonnes)

		2011	2012	2013	2014	2015
N	Supply	74 041	76 562	78 263	82 633	84 741
	Total demand	76 473	78 409	80 237	81 894	83 161
	Potential balance	-2 432	-1 847	-1 974	739	1 580
P_2O_5 based on H_3PO_4						
	Supply	19 048	20 125	20 617	21 043	21 241
	Total demand	23 406	24 122	24 811	25 308	25 791
	Potential balance	-4 358	-3 997	-4 194	-4 265	-4 550
K_2O	Supply	7 068	7 613	7 856	8 390	9 041
	Total demand	15 199	15 939	16 605	17 265	17 807
	Potential balance	-8 131	-8 326	-8 749	-8 875	-8 766

West Asia

The share of West Asia in world consumption of nitrogen is 3.0 percent, phosphate 3.0 percent and potash 0.9 percent. Total fertilizer consumption in West Asia is forecast to grow by 3.2 percent per year from 2011 to 2015. The demand for nitrogen and phosphate is expected to grow by 2.9 each and phosphate by 6.7 percent during the period. The sub-region is in surplus in all the three nutrients. It is a major contributor to global nitrogen supply. The sub-region has a small surplus of phosphate for exports which is expected to grow in the coming years.

South Asia

Fertilizer consumption in South Asia has been increasing at a fast pace. It is the second largest fertilizer consuming region in the world. Its share in world consumption of nitrogen, phosphate and potash is 20.5, 22.3 and 14.2 percent, respectively. Nitrogen, phosphate and potash consumption is expected to grow at 2.6, 2.9 and 2.7 percent, respectively per annum during 2011 to 2015. The sub-region would continue to remain deficit in all the three nutrients during the forecast period. The deficit in nitrogen balance might reduce slightly by the end of the projected period if the plants which are planned are commissioned as per schedule. The deficit balance of phosphate and potash would continue to rise during the forecast period.

East Asia

The East Asia sub-region is the largest fertilizer producing and consuming region in the world. Any development in East Asia and South Asia in regard to fertilizer application affects the global demand/supply situation significantly. The share of East Asia in global fertilizer consumption is 37.3 percent. The share of the sub-region in nitrogen consumption is 39 percent, phosphate 36.5 percent and potash 31.6 percent. Nitrogen, phosphate and potash consumption is expected to grow at 1.4, 0.9 and 4.4 percent, respectively per annum during 2011 to 2015. With the growth in nitrogen capacity in the sub-region, the dependence on nitrogen import is expected to remain modest over the years. The potash supply in the region is far lower than the demand. With the increasing demand for potash, import demand would grow significantly during the period. The sub-region would, however, continue to be a net exporter of phosphate during the period. But the potential balance would come down by 2015.

Europe

Table 11 presents fertilizer forecast for the Europe region as a whole. Europe's share in global fertilizer consumption is about 12.9 percent. The share of the region in nitrogen fertilizer consumption is 14 percent, phosphate 9 percent and potash 14.9 percent. Nitrogen, phosphate and potash consumption is expected to grow in the region at 1.3, 1.7 and 2.1 percent, respectively per annum during 2011 to 2015.

The potential balance of nitrogen is expected to increase at 0.7 percent per annum with the total quantum increase of about 325 thousand tonnes between 2011 and 2015. The potential balance of phosphate is expected to increase at 24.1 percent per annum with the total quantum increase of about 540 thousand tonnes between 2011 and 2015. The potential balance of potash is expected to show significant increase at 6.1 percent per annum with the quantum increase of about 3.1 million tonnes during 2011-2015.

Table 11
Europe fertilizer forecast, 2011-2015 (thousand tonnes)

		2011	2012	2013	2014	2015
N	Supply	33 307	33 468	33 947	34 303	34 914
	Total demand	22 253	22 639	22 963	23 260	23 535
	Potential balance	11 054	10 829	10 984	11 043	11 379
P_2O_5 based on H_3PO_4						
	Supply	4 581	5 000	5 049	5 179	5 350
	Total demand	4 188	4 253	4 313	4 379	4 417
	Potential balance	393	747	736	800	933
K_2O	Supply	16 382	16 814	17 961	18 904	19 858
	Total demand	4 776	4 889	4 983	5 069	5 152
	Potential balance	11 606	11 925	12 978	13 835	14 706

While the share of fertilizer consumption in West Europe is highest within the region, the rate of future growth is expected to be higher in East Europe & Central Asia and Central Europe. The East Europe & Central Asia sub-region is in surplus in all the three nutrients. It has the largest potential balance of nitrogen and potash in the world

West Europe would continue to remain surplus in potash and deficit in nitrogen and phosphate. Central Europe would continue to be deficit in phosphate and potash. On the other hand, the surplus balance of nitrogen will marginally decline in the sub-region.

Oceania

The share of Oceania in world consumption of total nutrients is 1.6 per cent only. Fertilizer consumption in Oceania is expected to grow by 2.1 percent annually from 2011 until 2015. Nitrogen, phosphate and potash consumption is likely to grow by 1, 2.8 and 4.3 percent, respectively during the period. The region would continue to be deficit in nitrogen and slowly move toward close to balance in 2015. With regard to phosphate and potash, the region would continue to remain deficit during the period. (Table 12)

Table 12
Oceania fertilizer forecast, 2011-2015 (thousand tonnes)

		2011	2012	2013	2014	2015
N	Supply	1 544	1 661	1 661	2 080	2 498
	Total demand	2 192	2 331	2 475	2 594	2 620
	Potential balance	-648	-670	-814	-514	-122
P_2O_5 based on H_3PO_4	Supply	481	481	512	544	544
	Total demand	721	751	773	796	803
	Potential balance	-240	-270	-261	-252	-259
K_2O	Supply	0	0	0	0	0
	Total demand	286	300	318	332	338
	Potential balance	-286	-300	-318	-332	-338

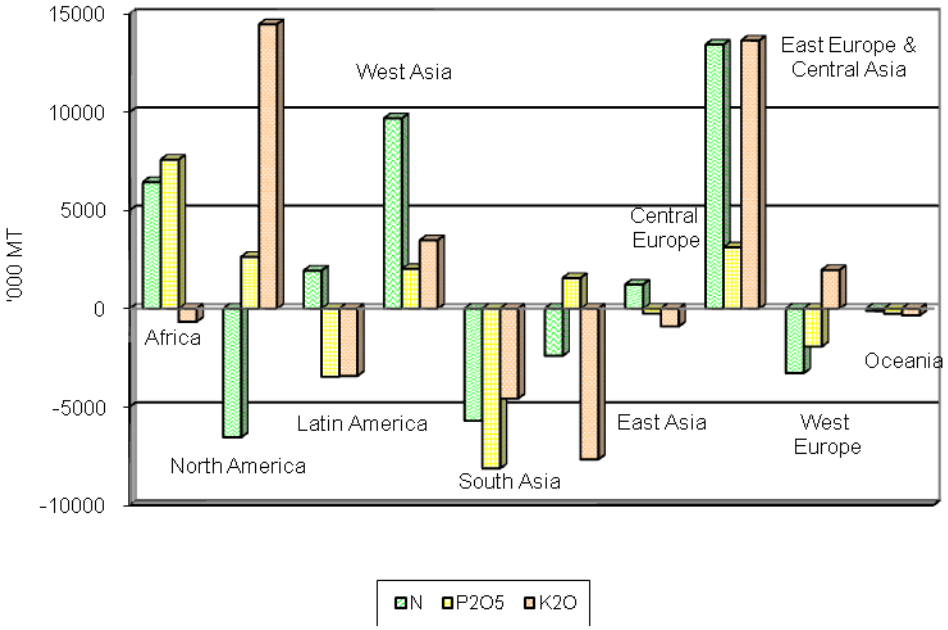
Table 13 presents the summary of regional potential balance of nitrogen, phosphate (H_3PO_4 based) and potash during 2011 to 2015.

Table 13
Regional and sub-regional potential balance of nitrogen, phosphate (P_2O_5 based on H_3PO_4) and potash (K_2O), 2011-2015 (thousand tonnes)

Region	Nutrient	2011	2012	2013	2014	2015
Africa	N	1 765	3 826	4 247	5 098	6 441
	P_2O_5	5 701	5 747	6 113	6 905	7 583
	K_2O	-566	-594	-616	-645	-668
North America	N	-6 027	-5 987	-6 080	-6 313	-6 546
	P_2O_5	3 071	2 774	2 728	2 681	2 634
	K_2O	8 773	10 411	11 538	12 686	14 470
Latin America	N	-11	95	543	340	1,931
	P_2O_5	-3 420	-3 185	-3 377	-3 592	-3 468
	K_2O	-3 751	-3 938	-4 159	-3 848	-3 426
West Asia	N	7 926	8 658	9 284	9 636	9 683
	P_2O_5	400	1,199	1,618	1,920	2,020
	K_2O	3 434	3 524	3 526	3 494	3 476
South Asia	N	-7 666	-7 416	-7 888	-5 519	-5 705
	P_2O_5	-7 108	-7 413	-7 726	-7 918	-8 127
	K_2O	-4 089	-4 220	-4 335	-4 450	-4 574
East Asia	N	-2 692	-3 089	-3 371	-3 378	-2 398
	P_2O_5	2 350	2 217	1 915	1 733	1 557
	K_2O	-7 476	-7 630	-7 939	-7 918	-7 668
Central Europe	N	1 468	1 408	1 332	1 283	1 224
	P_2O_5	-123	-158	-191	-222	-251
	K_2O	-798	-829	-860	-880	-901
East Europe & Central Asia	N	12 537	12 499	12 829	13 006	13 436
	P_2O_5	2 507	2 882	2 898	2 980	3 117
	K_2O	10 360	10 740	11 835	12 732	13 644
West Europe	N	-2 951	-3 078	-3 177	-3 246	-3 281
	P_2O_5	-1 990	-1 977	-1 971	-1 958	-1 933
	K_2O	2 044	2 014	2 003	1 983	1 963
Oceania	N	-648	-670	-814	-514	-122
	P_2O_5	-240	-270	-261	-252	-259
	K_2O	-286	-300	-318	-332	-338

Fig.9 indicates the regional potential N, P_2O_5 and K_2O balance situation in the terminal year of the forecast period, i.e., 2015.

Fig. 9: Regional nutrient balance in 2015



Annex 1

Explanatory notes on supply, demand and balance

In October 2006, the FAO/Fertilizer Organizations Working Group adopted a new protocol for the preparation of nutrient supply/demand balances based on the work of the IFA Production and International Trade Committee in 2005/06. The main objectives of the revised protocol were to take into account the resilient surplus between production and consumption and to update the parameters used for the computation of supply and losses.

i) All fertilizer references are in terms of plant nutrients: nitrogen (N), phosphate (P_2O_5) and potash. (K_2O). Even if for convenience P and K are stated, they actually refer to P_2O_5 and K_2O, respectively.
ii) Fertilizer demand and supply data refer to the calendar year.
iii) Definitions of the terms used and their relative criteria are listed below:

Capacity: name-plate capacity.

Supply: effective capacity, representing the maximum achievable production. Supply is computed from the "name-plate capacity" (theoretical capacity), multiplied by the highest operating rate achieved in the previous 5 years. For new plants, a ramp up of the operating rates was established for the first 3 years of operation, ranging from 85 to 100 percent.

Demand:
Fertilizer demand is the ability or the willingness of farmers to buy fertilizer at a given point in time. It is calculated on the basis of the probable consumption in one calendar year, taking into account the merge between two agricultural years.

Non-fertilizer demand**:** consumption for non-fertilizer use, referred to as industrial use. Net non-fertilizer demand excludes the use of products that are recovered as by-products from industrial processes and then used as fertilizers.

Total demand: Fertilizer demand + non-fertilizer demand.

Losses: The unavoidable losses during the life cycle of a product, from production to final consumption. The extent of loss is estimated as a percentage (between 2 and 3 percent) of total fertilizer and non-fertilizer demand.

Unspecified usage: Unspecified usage account for the historical residual tonnage from the production/consumption balances. The tonnage could be used either in fertilizer or in non-fertilizer products and equate to 4 per cent of other uses.

Potential balance: is the difference between supply and total demand (fertilizer demand + non-fertilizer demand). Regional balance is a medium-term indicator of potential changes in fertilizer nutrient demand and supply in the region. Changes in installed supply capacity, operating rates and demand vary annually.

Annex 2

World and regional nitrogen fertilizer demand forecasts (thousand tonnes N)

	2010[1]	2011	2012	2013	2014	2015	CAGR (%)
WORLD	**103 058**	**105 348**	**107 374**	**109 299**	**111 109**	**112 909**	**1.75**
AFRICA	**2 824**	**2 935**	**2 996**	**3 045**	**3 101**	**3 161**	**1.88**
AMERICA	**20 107**	**20 713**	**21 033**	**21 378**	**21 721**	**22 064**	**1.59**
North America	13 530	13 803	13 908	14 025	14 138	14 247	0.79
Latin America	6 577	6 911	7 125	7 353	7 583	7 817	3.13
ASIA	**64 395**	**65 411**	**66 827**	**68 142**	**69 349**	**70 552**	**1.91**
West Asia	3 045	3 010	3 167	3 246	3 317	3 380	2.94
South Asia	21 122	21 681	22 252	22 850	23 455	24 066	2.64
East Asia	40 228	40 720	41 408	42 047	42 577	43 107	1.43
EUROPE	**14 394**	**14 921**	**15 135**	**15 336**	**15 530**	**15 708**	**1.29**
Central Europe	2 631	2 696	2 762	2 833	2 895	2 949	2.27
West Europe	7 978	8 064	8 061	8 051	8 033	7 987	-0.24
East Europe & Central Asia	3 785	4 161	4 312	4 452	4 602	4 772	3.48
OCEANIA	**1 338**	**1 368**	**1 383**	**1 397**	**1 408**	**1 425**	**1.03**

[1] *= Estimated consumption; CAGR = Compound annual growth rate 2011 to 2015.*

Annex 3

World and regional phosphate fertilizer demand forecasts (thousand tonnes P_2O_5)

	2010[1]	2011	2012	2013	2014	2015	CAGR (%)
WORLD	**40 559**	**41 679**	**42 562**	**43 435**	**44 245**	**45 015**	**1.94**
AFRICA	**982**	**1 028**	**1 069**	**1 105**	**1 149**	**1 173**	**3.34**
AMERICA	**9 655**	**9 994**	**10 223**	**10 452**	**10 722**	**10 946**	**2.30**
North America	4 636	4 740	4 785	4 830	4 876	4 922	0.94
Latin America	5 019	5 254	5 438	5 622	5 847	6 025	3.48
ASIA	25 112	25 655	26 168	26 669	27 057	27 484	1.74
West Asia	1 235	1 272	1 339	1 383	1 408	1 423	2.85
South Asia	9 055	9 537	9 821	10 112	10 401	10 691	2.90
East Asia	14 822	14 846	15 009	15 174	15 248	15 371	0.87
EUROPE	**3 660**	**3 802**	**3 852**	**3 919**	**3 987**	**4 072**	**1.73**
Central Europe	681	719	756	790	823	857	4.49
West Europe	1 859	1 863	1 836	1 829	1 814	1 815	-0.65
East Europe & Central Asia	1 120	1 220	1 260	1 300	1 350	1 400	3.50
OCEANIA	**1 150**	**1 200**	**1 250**	**1 290**	**1 330**	**1 340**	**2.80**

[1] *= Estimated consumption; CAGR = Compound annual growth rate 2011 to 2015.*

Annex 4

World and regional potash fertilizer demand forecasts (thousand tonnes K_2O)

	2010[1]	2011	2012	2013	2014	2015	CAGR (%)
WORLD	**27 228**	**28 679**	**29 682**	**30 683**	**31 594**	**32 453**	**3.14**
AFRICA	**459**	**490**	**512**	**534**	**557**	**580**	**4.33**
AMERICA	**9 738**	**10 165**	**10 412**	**10 690**	**10 911**	**11 135**	**2.31**
North America	4 714	4 885	4 947	5 008	5 068	5 127	1.21
Latin America	5 023	5 280	5 465	5 682	5 843	6 009	3.29
ASIA	**12 696**	**13 543**	**14 157**	**14 745**	**15 320**	**15 844**	**4.00**
West Asia	242	297	322	346	367	385	6.67
South Asia	3 854	3 956	4 070	4 179	4 288	4 405	2.72
East Asia	8 600	9 290	9 765	10 220	10 665	11 055	4.44
EUROPE	**4 059**	**4 201**	**4 307**	**4 402**	**4 482**	**4 562**	**2.08**
Central Europe	720	750	780	810	830	850	3.18
West Europe	2 120	2 160	2 190	2 210	2 230	2 250	1.03
East Europe & Central Asia	1 219	1 291	1 337	1 382	1 422	1 462	3.16
OCEANIA	**277**	**280**	**294**	**312**	**325**	**331**	**4.27**

[1] *= Estimated consumption; CAGR = Compound annual growth rate 2011 to 2015.*

Annex 5

World and regional nitrogen supply demand and balance (thousand tonnes N)

	2010	2011	2012	2013	2014	2015
WORLD						
NH3 Capacity (as N)	158 851	163 195	171 542	175 901	182 676	188 713
NH3 Supply Capability (as N)	130 978	134 546	140 197	143 751	149 910	156 346
N Other Uses	24 132	25 496	26 577	27 547	28 408	28 773
N Available for Ferts.	106 846	109 050	113 620	116 204	121 502	127 573
N Fert. Consumption	103 058	105 348	107 374	109 299	111 109	112 909
Potential N Balance	3 788	3 702	6 246	6 905	10 393	14 664
AFRICA						
NH3 Capacity (as N)	5 915	5 981	8 601	8 845	9 984	11 431
NH3 Supply Capability (as N)	5 176	5 234	7 377	7 862	8 784	10 199
N Other Uses	512	534	555	570	585	597
N Available for Ferts.	4 664	4 700	6 822	7 292	8 199	9 602
N Fert. Consumption	2 824	2 935	2 996	3 045	3 101	3 161
Potential N Balance	1 840	1 765	3 826	4 247	5 098	6 441
AMERICA						
NH3 Capacity (as N)	22 400	22 435	23 297	24 424	24 424	26 804
NH3 Supply Capability (as N)	20 388	20 420	21 129	22 018	22 110	23 994
N Other Uses	5 388	5 744	5 988	6 177	6 362	6 545
N Available for Ferts.	15 000	14 676	15 141	15 841	15 748	17 449
N Fert. Consumption	20 107	20 713	21 033	21 378	21 721	22 064
Potential N Balance	-5 107	-6 037	-5 892	-5 537	-5 973	-4 615
North America						
NH3 Capacity (as N)	13 291	13 312	13 682	13 846	13 846	13 846
NH3 Supply Capability (as N)	12 010	12 029	12 369	12 520	12 520	12 520
N Other Uses	3 943	4 253	4 448	4 575	4 695	4 819
N Available for Ferts.	8 067	7 776	7 921	7 945	7 825	7 701
N Fert. Consumption	13 530	13 803	13 908	14 025	14 138	14 247
Potential N Balance	-5 463	-6 027	-5 987	-6 080	-6 313	-6 546
Latin America						
NH3 Capacity (as N)	9 109	9 123	9 615	10 578	10 578	12 958
NH3 Supply Capability (as N)	8 378	8 391	8 760	9 498	9 590	11 474
N Other Uses	1 445	1 491	1 540	1 602	1 667	1 726
N Available for Ferts.	6 933	6 900	7 220	7 896	7 923	9 748
N Fert. Consumption	6 577	6 911	7 125	7 353	7 583	7 817
Potential N Balance	356	-11	95	543	340	1 931

	2010	2011	2012	2013	2014	2015
ASIA						
NH3 Capacity (as N)	90 959	94 987	99 647	102 052	106 782	107 871
NH3 Supply Capability (as N)	70 749	74 041	76 562	78 263	82 633	84 741
N Other Uses	10 386	11 062	11 582	12 095	12 545	12 609
N Available for Ferts.	60 363	62 979	64 980	66 168	70 088	72 132
N Fert. Consumption	64 395	65 411	66 827	68 142	69 349	70 552
Potential N Balance	-4 032	-2 432	-1 847	-1 974	739	1 580
West Asia						
NH3 Capacity (as N)	11 903	13 083	13 977	14 886	15 445	15 445
NH3 Supply Capability (as N)	10 449	11 485	12 380	13 088	13 514	13 625
N Other Uses	547	549	555	558	561	563
N Available for Ferts.	9 902	10 936	11 825	12 530	12 953	13 062
N Fert. Consumption	3 045	3 010	3 167	3 246	3 317	3 380
Potential N Balance	6 857	7 926	8 658	9 284	9 636	9 683
South Asia						
NH3 Capacity (as N)	15 842	16 926	17 861	18 027	21 347	21 849
NH3 Supply Capability (as N)	14 154	15 122	15 963	16 112	19 112	19 564
N Other Uses	1 061	1 107	1 127	1 150	1 176	1 203
N Available for Ferts.	13 093	14 015	14 836	14 962	17 936	18 361
N Fert. Consumption	21 122	21 681	22 252	22 850	23 455	24 066
Potential N Balance	-8 030	-7 666	-7 416	-7 888	-5 519	-5 705
East Asia						
NH3 Capacity (as N)	63 214	64 978	67 809	69 139	69 990	70 577
NH3 Supply Capability (as N)	46 146	47 434	48 219	49 063	50 007	51 552
N Other Uses	8 778	9 406	9 900	10 387	10 808	10 843
N Available for Ferts.	37 368	38 028	38 319	38 676	39 199	40 709
N Fert. Consumption	40 228	40 720	41 408	42 047	42 577	43 107
Potential N Balance	-2 860	-2 692	-3 089	-3 371	-3 378	-2 398
EUROPE						
NH3 Capacity (as N)	37 938	38 104	38 179	38 762	39 203	39 859
NH3 Supply Capability (as N)	33 165	33 307	33 468	33 947	34 303	34 914
N Other Uses	7 043	7 332	7 504	7 627	7 730	7 827
N Available for Ferts.	26 122	25 975	25 964	26 320	26 573	27 087
N Fert. Consumption	14 394	14 921	15 135	15 336	15 530	15 708
Potential N Balance	11 728	11 054	10 829	10 984	11 043	11 379

	2010	2011	2012	2013	2014	2015
Central Europe						
NH3 Capacity (as N)	6 396	6 393	6 423	6 423	6 443	6 443
NH3 Supply Capability (as N)	4 978	4 976	5 002	5 002	5 021	5 021
N Other Uses	791	812	832	837	843	848
N Available for Ferts.	4 187	4 164	4 170	4 165	4 178	4 173
N Fert. Consumption	2 631	2 696	2 762	2 833	2 895	2 949
Potential N Balance	1 556	1 468	1 408	1 332	1 283	1 224
West Europe						
NH3 Capacity (as N)	10 028	10 028	10 028	10 028	10 028	10 028
NH3 Supply Capability (as N)	9 872	9 872	9 872	9 872	9 872	9 872
N Other Uses	4 566	4 759	4 889	4 998	5 085	5 166
N Available for Ferts.	5 306	5 113	4 983	4 874	4 787	4 706
N Fert. Consumption	7 978	8 064	8 061	8 051	8 033	7 987
Potential N Balance	-2 672	-2 951	-3 078	-3 177	-3 246	-3 281
East Europe and Central Asia						
NH3 Capacity (as N)	21 514	21 683	21 728	22 311	22 732	23 388
NH3 Supply Capability (as N)	18 315	18 459	18 594	19 073	19 410	20 021
N Other Uses	1 686	1 761	1 783	1 792	1 802	1 813
N Available for Ferts.	16 629	16 698	16 811	17 281	17 608	18 208
N Fert. Consumption	3 785	4 161	4 312	4 452	4 602	4 772
Potential N Balance	12 844	12 537	12 499	12 829	13 006	13 436
OCEANIA						
NH3 Capacity (as N)	1 639	1 688	1 818	1 818	2 283	2 748
NH3 Supply Capability (as N)	1 499	1 544	1 661	1 661	2 080	2 498
N Other Uses	803	824	948	1 078	1 186	1 195
N Available for Ferts.	696	720	713	583	894	1 303
N Fert. Consumption	1 338	1 368	1 383	1 397	1 408	1 425
Potential N Balance	-642	-648	-670	-814	-514	-122

Annex 6

World and regional phosphate supply demand and balance (thousand tonnes P_2O_5)

	2010	2011	2012	2013	2014	2015
WORLD						
H_3PO_4 capacity	48 520	51 395	52 882	54 951	56 621	57 631
H_3PO_4 supply capability	39 564	42 094	43 966	45 011	46 439	47 788
H_3PO_4 industrial demand	6 362	6 440	6 694	6 888	6 935	6 925
H_3PO_4 available for fertilizer	33 202	35 654	37 272	38 123	39 504	40 863
P Fert. consumption/demand	40 559	41 679	42 562	43 435	44 245	45 015
H_3PO_4 Fert. demand	33 316	34 507	35 456	36 378	37 228	37 989
Non-H_3PO_4 Fert. demand	7 243	7 173	7 106	7 057	7 017	7 026
Potential H_3PO_4 balance	-114	1 147	1 816	1 745	2 276	2 874
AFRICA						
H_3PO_4 capacity	7 693	8 153	8 153	9 053	10 013	10 463
H_3PO_4 supply capability	6 741	7 064	7 270	7 667	8 497	9 197
H_3PO_4 industrial demand	435	489	615	615	616	617
H_3PO_4 available for fertilizer	6 306	6 575	6 655	7 052	7 881	8 580
P Fert. consumption/demand	982	1 028	1 069	1 105	1 149	1 173
H_3PO_4 Fert. demand	830	874	908	939	976	997
Non-H_3PO_4 Fert. demand	152	154	160	166	172	176
Potential H_3PO_4 balance	5 476	5 701	5 747	6 113	6 905	7 583
AMERICA						
H_3PO_4 capacity	12 250	12 430	12 370	12 370	12 370	12 930
H_3PO_4 supply capability	11 379	10 920	11 090	11 166	11 176	11 456
H_3PO_4 industrial demand	2 081	2 089	2 094	2 178	2 183	2 187
H_3PO_4 available for fertilizer	9 298	8 831	8 996	8 988	8 993	9 269
P Fert. consumption/demand	9 655	9 994	10 223	10 452	10 722	10 946
H_3PO_4 Fert. demand	8 852	9 180	9 408	9 637	9 904	10 103
Non-H_3PO_4 Fert. demand	803	814	816	815	819	843
Potential H_3PO_4 balance	446	-349	-412	-649	-911	-834

Note: H_3PO_4 = Phosphoric acid

	2010	2011	2012	2013	2014	2015
North America						
H_3PO_4 capacity	9 861	9 861	9 581	9 581	9 581	9 581
H_3PO_4 supply capability	9 250	8 868	8 616	8 616	8 616	8 616
H_3PO_4 industrial demand	1 059	1 057	1 057	1 058	1 059	1 060
H_3PO_4 available for fertilizer	8 191	7 811	7 559	7 558	7 557	7 556
P Fert. consumption/demand	4 636	4 740	4 785	4 830	4 876	4 922
H_3PO_4 Fert. demand	4 636	4 740	4 785	4 830	4 876	4 922
Non-H_3PO_4 Fert. demand	0	0	0	0	0	0
Potential H_3PO_4 balance	3 555	3 071	2 774	2 728	2 681	2 634
Latin America						
H_3PO_4 capacity	2 389	2 569	2 789	2 789	2 789	3 349
H_3PO_4 supply capability	2 129	2 052	2 474	2 550	2 560	2 840
H_3PO_4 industrial demand	1 022	1 032	1 037	1 120	1 124	1 127
H_3PO_4 available for fertilizer	1 107	1 020	1 437	1 430	1 436	1 713
P Fert. consumption/demand	5 019	5 254	5 438	5 622	5 847	6 025
H_3PO_4 Fert. demand	4 216	4 440	4 622	4 807	5 028	5 181
Non-H_3PO_4 Fert. demand	803	814	816	815	819	843
Potential H_3PO_4 balance	-3 109	-3 420	-3 185	-3 377	-3 592	-3 468
ASIA						
H_3PO_4 capacity	21 280	23 645	25 172	26 226	26 496	26 496
H_3PO_4 supply capability	16 530	19 048	20 125	20 617	21 043	21 241
H_3PO_4 industrial demand	2 464	2 621	2 721	2 829	2 869	2 878
H_3PO_4 available for fertilizer	14 066	16 427	17 404	17 788	18 174	18 363
P Fert. consumption/demand	25 112	25 655	26 168	26 669	27 057	27 484
H_3PO_4 Fert. demand	20 103	20 785	21 401	21 982	22 439	22 913
Non-H_3PO_4 Fert. demand	5 009	4 870	4 768	4 688	4 617	4 571
Potential H_3PO_4 balance	-6 037	-4 358	-3 997	-4 194	-4 265	-4 550
West Asia						
H_3PO_4 capacity	2 323	3 756	3 795	4 355	4 420	4 420
H_3PO_4 supply capability	1 637	1 963	2 844	3 305	3 630	3 744
H_3PO_4 industrial demand	401	406	414	415	415	415
H_3PO_4 available for fertilizer	1 236	1 557	2 430	2 890	3 215	3 329
P Fert. consumption/demand	1 235	1 272	1 339	1 383	1 408	1 423
H_3PO_4 Fert. demand	1 124	1 157	1 231	1 272	1 295	1 309
Non-H_3PO_4 Fert. demand	111	114	107	111	113	114
Potential H_3PO_4 balance	112	400	1 199	1 618	1 920	2 020

	2010	2011	2012	2013	2014	2015
South Asia						
H_3PO_4 capacity	2 197	2 208	2 208	2 208	2 383	2 383
H_3PO_4 supply capability	1 465	1 514	1 514	1 514	1 584	1 636
H_3PO_4 industrial demand	263	277	284	291	297	302
H_3PO_4 available for fertilizer	1 202	1 237	1 230	1 223	1 287	1 334
P Fert. consumption/demand	9 055	9 537	9 821	10 112	10 401	10 691
H_3PO_4 Fert. demand	7 878	8 345	8 643	8 949	9 205	9 461
Non-H_3PO_4 Fert. demand	1 177	1 192	1 179	1 163	1 196	1 229
Potential H_3PO_4 balance	-6 676	-7 108	-7 413	-7 726	-7 918	-8 127
East Asia						
H_3PO_4 capacity	16 760	17 681	19 169	19 663	19 693	19 693
H_3PO_4 supply capability	13 428	15 571	15 767	15 798	15 829	15 861
H_3PO_4 industrial demand	1 800	1 938	2 023	2 123	2 157	2 161
H_3PO_4 available for fertilizer	11 628	13 633	13 744	13 675	13 672	13 700
P Fert. consumption/demand	14 822	14 846	15 009	15 174	15 248	15 371
H_3PO_4 Fert. demand	11 101	11 283	11 527	11 760	11 939	12 143
Non-H_3PO_4 Fert. demand	3 720	3 563	3 482	3 414	3 309	3 228
Potential H_3PO_4 balance	527	2 350	2 217	1 915	1 733	1 557
Europe						
H_3PO_4 capacity	6 697	6 567	6 587	6 622	7 062	7 062
H_3PO_4 supply capability	4 434	4 581	5 000	5 049	5 179	5 350
H_3PO_4 industrial demand	1 345	1 204	1 226	1 228	1 229	1 204
H_3PO_4 available for fertilizer	3 089	3 377	3 774	3 821	3 950	4 146
P Fert. consumption/demand	3 660	3 802	3 852	3 919	3 987	4 072
H_3PO_4 Fert. demand	2 875	2 984	3 027	3 085	3 150	3 213
Non-H_3PO_4 Fert. demand	785	818	825	834	837	859
Potential H_3PO_4 balance	214	393	747	736	800	933
Central Europe						
H_3PO_4 capacity	1 022	1 022	1 022	1 022	1 022	1 022
H_3PO_4 supply capability	546	511	511	511	511	511
H_3PO_4 industrial demand	48	52	53	54	54	55
H_3PO_4 available for fertilizer	498	459	458	457	457	456
P Fert. consumption/demand	681	719	756	790	823	857
H_3PO_4 Fert. demand	548	582	616	648	679	707
Non-H_3PO_4 Fert. demand	133	137	140	142	144	150
Potential H_3PO_4 balance	-50	-123	-158	-191	-222	-251

	2010	2011	2012	2013	2014	2015
West Europe						
H_3PO_4 capacity	895	555	555	555	555	555
H_3PO_4 supply capability	635	481	481	481	481	481
H_3PO_4 industrial demand	1 061	869	879	879	879	853
H_3PO_4 available for fertilizer	-426	-388	-398	-398	-398	-372
P Fert. consumption/demand	1 859	1 863	1 836	1 829	1 814	1 815
H_3PO_4 Fert. demand	1 599	1 602	1 579	1 573	1 560	1 561
Non-H_3PO_4 Fert. demand	260	261	257	256	254	254
Potential H_3PO_4 balance	-2 025	-1 990	-1 977	-1 971	-1 958	-1 933
East Europe & Central Asia						
H_3PO_4 capacity	4 780	4 990	5 010	5 045	5 485	5 485
H_3PO_4 supply capability	3 253	3 589	4 008	4 057	4 187	4 358
H_3PO_4 industrial demand	236	283	294	295	296	296
H_3PO_4 available for fertilizer	3 017	3 306	3 714	3 762	3 891	4 062
P Fert. consumption/demand	1 120	1 220	1 260	1 300	1 350	1 400
H_3PO_4 Fert. demand	728	799	832	865	911	945
Non-H_3PO_4 Fert. demand	392	421	428	436	439	455
Potential H_3PO_4 balance	2 289	2 507	2 882	2 898	2 980	3 117
OCEANIA						
H_3PO_4 capacity	600	600	600	680	680	680
H_3PO_4 supply capability	480	481	481	512	544	544
H_3PO_4 industrial demand	37	37	38	38	38	39
H_3PO_4 available for fertilizer	443	444	443	474	506	505
P Fert. consumption/demand	1 150	1 200	1 250	1 290	1 330	1 340
H_3PO_4 Fert. demand	656	684	713	735	758	764
Non-H_3PO_4 Fert. demand	495	516	538	555	572	576
Potential H_3PO_4 balance	-213	-240	-270	-261	-252	-259

Annex 7

World and regional potash supply demand and balance (thousand tonnes K_2O)

	2010	2011	2012	2013	2014	2015
WORLD						
Potash Capacity	42 722	43 734	47 979	51 234	55 974	59 635
Potash Supply Capability	38 942	39 835	42 539	45 033	48 304	52 345
Industrial Demand and other demand	3 294	3 511	3 679	3 676	3 888	3 914
Available for Fertilizer	35 648	36 324	38 860	41 357	44 416	48 431
Potash Fertilizer Consumption/demand	27 228	28 679	29 682	30 683	31 594	32 453
Potential K2O Balance	8 420	7 645	9 178	10 674	12 822	15 978
AFRICA						
Potash Capacity	0	0	0	0	0	0
Potash Supply Capability	0	0	0	0	0	0
Industrial Demand and other demand	76	76	82	82	88	88
Available for Fertilizer	-76	-76	-82	-82	-88	-88
Potash Fertilizer Consumption/demand	459	490	512	534	557	580
Potential K2O Balance	-535	-566	-594	-616	-645	-668
AMERICA						
Potash Capacity	18 025	18 350	20 505	21 650	25 420	26 695
Potash Supply Capability	16 005	16 385	18 112	19 216	21 010	23 446
Industrial Demand and other demand	1 133	1 198	1 227	1 147	1 261	1 266
Available for Fertilizer	14 872	15 187	16 885	18 069	19 749	22 180
Potash Fertilizer Consumption/demand	9 738	10 165	10 412	10 690	10 911	11 135
Potential K2O Balance	5 134	5 022	6 473	7 379	8 838	11 045
North America						
Potash Capacity	16 435	16 500	18 655	19 800	22 130	22 685
Potash Supply Capability	14 566	14 699	16 426	17 530	18 849	20 694
Industrial Demand and other demand	986	1 041	1 068	984	1 095	1 097
Available for Fertilizer	13 580	13 658	15 358	16 546	17 754	19 597
Potash Fertilizer Consumption/demand	4 714	4 885	4 947	5 008	5 068	5 127
Potential K2O Balance	8 866	8 773	10 411	11 538	12 686	14 470
Latin America						
Potash Capacity	1 590	1 850	1 850	1 850	3 290	4 010
Potash Supply Capability	1 439	1 686	1 686	1 686	2 161	2 752
Industrial Demand and other demand	147	157	159	163	166	169
Available for Fertilizer	1 292	1 529	1 527	1 523	1 995	2 583
Potash Fertilizer Consumption/demand	5 023	5 280	5 465	5 682	5 843	6 009
Potential K2O Balance	-3 731	-3 751	-3 938	-4 159	-3 848	-3 426

	2010	2011	2012	2013	2014	2015
ASIA						
Potash Capacity	6 917	7 552	8 487	8 697	9 247	9 833
Potash Supply Capability	6 558	7 068	7 613	7 856	8 390	9 041
Industrial Demand and other demand	1 537	1 656	1 782	1 860	1 945	1 963
Available for Fertilizer	5 021	5 412	5 831	5 996	6 445	7 078
Potash Fertilizer Consumption/demand	12 696	13 543	14 157	14 745	15 320	15 844
Potential K2O Balance	-7 675	-8 131	-8 326	-8 749	-8 875	-8 766
West Asia						
Potash capacity	3 665	4 020	4 020	4 020	4 020	4 020
Potash supply	3 542	3 819	3 945	3 975	3 975	3 975
Industrial and other demand	76	88	99	104	115	115
Available for fertilizer	3 466	3 731	3 846	3 871	3 860	3 860
K fert. consumption/demand	242	297	322	346	367	385
Potential K_2O balance	3 224	3 434	3 524	3 526	3 494	3 476
South Asia						
Potash capacity	0	0	0	0	0	0
Potash supply	0	0	0	0	0	0
Industrial and other demand	133	133	150	156	162	169
Available for fertilizer	-133	-133	-150	-156	-162	-169
K fert. consumption/demand	3 854	3 956	4 070	4 179	4 288	4 405
Potential K_2O balance	-3 987	-4 089	-4 220	-4 335	-4 450	-4 574
East Asia						
Potash capacity	3 252	3 532	4 467	4 677	5 227	5 813
Potash supply	3 016	3 249	3 668	3 881	4 415	5 066
Industrial and other demand	1 328	1 435	1 533	1 600	1 668	1 679
Available for fertilizer	1 688	1 814	2 135	2 281	2 747	3 387
K fert. consumption/demand	8 600	9 290	9 765	10 220	10 665	11 055
Potential K_2O balance	-6 912	-7 476	-7 630	-7 939	-7 918	-7 668
EUROPE						
Potash capacity	17 780	17 832	18 987	20 887	21 307	23 107
Potash supply	16 379	16 382	16 814	17 961	18 904	19 858
Industrial and other demand	542	575	582	581	587	590
Available for fertilizer	15 837	15 807	16 232	17 380	18 317	19 268
K fert. consumption/demand	4 059	4 201	4 307	4 402	4 482	4 562
Potential K_2O balance	11 778	11 606	11 925	12 978	13 835	14 706
Central Europe						
Potash capacity	0	0	0	0	0	0
Potash supply	0	0	0	0	0	0
Industrial and other demand	45	48	49	50	50	51
Available for fertilizer	-45	-48	-49	-50	-50	-51
K fert. consumption/demand	720	750	780	810	830	850
Potential K_2O balance	-765	-798	-829	-860	-880	-901

	2010	2011	2012	2013	2014	2015
West Europe						
Potash capacity	5 590	5 590	5 590	5 590	5 590	5 590
Potash supply	4 651	4 651	4 651	4 651	4 651	4 651
Industrial and other demand	424	447	447	438	438	438
Available for fertilizer	4 227	4 204	4 204	4 213	4 213	4 213
K fert. consumption/demand	2 120	2 160	2 190	2 210	2 230	2 250
Potential K_2O balance	2 107	2 044	2 014	2 003	1 983	1 963
East Europe and Central Asia						
Potash capacity	12 190	12 242	13 397	15 297	15 717	17 517
Potash supply	11 728	11 731	12 163	13 310	14 253	15 207
Industrial and other demand	73	80	86	93	99	101
Available for fertilizer	11 655	11 651	12 077	13 217	14 154	15 106
K fert. consumption/demand	1 219	1 291	1 337	1 382	1 422	1 462
Potential K_2O balance	10 436	10 360	10 740	11 835	12 732	13 644
OCEANIA						
Potash capacity	0	0	0	0	0	0
Potash supply	0	0	0	0	0	0
Industrial and other demand	6	6	6	6	7	7
Available for fertilizer	-6	-6	-6	-6	-7	-7
K fert. consumption/demand	277	280	294	312	325	331
Potential K_2O balance	-283	-286	-300	-318	-332	-338

Annex 8

Regional classification of countries and territories

AFRICA
Algeria
Angola
Burkina Faso
Burundi
Cameroon
Congo Dem. Rep.
Congo Rep. of
Côte d'Ivoire
Egypt
Ethiopia
Gabon
Gambia
Ghana
Guinea
Kenya
Libya Arab Jam.
Madagascar
Malawi
Mali
Mauritius
Morocco
Namibia
Niger
Nigeria
Rwanda
Senegal
Seychelles
South Africa
Sudan
Tanzania
United Rep of
Togo
Tunisia
Uganda
Zambia
Zimbabwe

AMERICA
Latin America
Central America & Caribbean
Antigua and Barbuda
Barbados
Belize
Costa Rica
Cuba
Dominica
El Salvador
Guatemala
Honduras
Jamaica
Mexico
Nicaragua
Panama
St Kitts and Nevis
Trinidad &Tobago

South America
Argentina
Bolivia
Brazil
Chile
Colombia
Ecuador
Guyana
Paraguay
Peru
Suriname
Uruguay
Venezuela

North America
Canada
United States of America

ASIA
East Asia
Brunei Darussalam
Cambodia
China Hong Kong
China Macao
China Mainland
Indonesia
Japan
Korea Rep
Malaysia
Mongolia
Myanmar
Philippines
Singapore
Taiwan Province of China
Thailand
Viet Nam

South Asia
Bangladesh
Bhutan
India
Maldives
Nepal
Pakistan
Sri Lanka

West Asia
Afghanistan
Bahrain
Cyprus
Iran Islamic Rep of
Iraq
Israel
Jordan
Kuwait
Lebanon
Oman
Qatar
Saudi Arabia
Syria Arab Rep.
Turkey
United Arab Emirates
Yemen

EUROPE
Central Europe
Albania
Bosnia and Herzegovina
Bulgaria
Croatia
Czech Republic
Hungary
Lithuania
Macedonia
Poland
Romania
Serbia
Slovakia
Slovenia

Eastern Europe and Central Asia
Armenia
Azerbaijan
Belarus
Estonia
Georgia
Kazakhstan
Kyrgyzstan
Latvia
Moldova Rep of
Russian Fed
Ukraine

Western Europe
Austria
Belgium
Denmark
Finland
France
Germany
Greece
Iceland
Ireland
Italy
Luxembourg
Malta
Netherlands
Norway
Portugal
Spain
Sweden
Switzerland
United Kingdom

OCEANIA
Australia
Fiji
French Polynesia
New Caledonia
New Zealand
Papua New Guinea
Samoa
Tonga