



Food and Agriculture
Organization of the
United Nations

World
fertilizer
trends
and
outlook
to
2019

SUMMARY REPORT

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Preface

This report presents the world nitrogen phosphate and potassium fertilizer medium-term supply and demand projections for the period 2015–2019. The FAO/Fertilizer Organizations Working Group met in June 2015 to review the prospects for fertilizer demand and supply and prepared the forecasts.


The Working Group comprised:

- » Fertilizers Europe (unable to attend)
- » Fertiliser Association of India – FAI
- » International Fertilizer Industry Association – IFA
- » International Center for Soil Fertility and Agricultural Development – IFDC
- » K+S KALI GmbH – K+S
- » The Fertilizer Institute – TFI
- » Food and Agriculture Organization of the United Nations – FAO

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 and preparation of the FAO baseline data by Simona Mosco and Francesco Tubiello from the FAO Statistics Division are gratefully acknowledged. The document was prepared by Robert Mayo, and his contribution is sincerely acknowledged. The document was prepared under the supervision of Caterina Batello, Senior Officer FAO and overall direction by Clayton Campanhola, Director Plant Production and Protection Division FAO.

Summary

World fertilizer nutrient ($N+P_2O_5+K_2O$) consumption is estimated to reach 186.6 million tonnes in 2015, up by 1.1 percent over 2014. World demand for total fertilizer nutrients is estimated to grow at 1.6 percent per annum from 2015 to 2019. The demand for nitrogen, phosphate, and potash is forecast to grow annually by 1.2, 2.0 and 2.5 percent, respectively, during the period. Over the next five years, the global capacity of fertilizer products, intermediates and raw materials will increase further. The global total nutrient capacity ($N+P_2O_5+K_2O$) was 284 million tonnes in 2014, out of which the total supply was 240 million tonnes. During 2015, the total capacity is expected to increase by 2.9 percent and supply would grow by 1.6 percent. Over the next five years, global capacity and production of fertilizers would increase further.



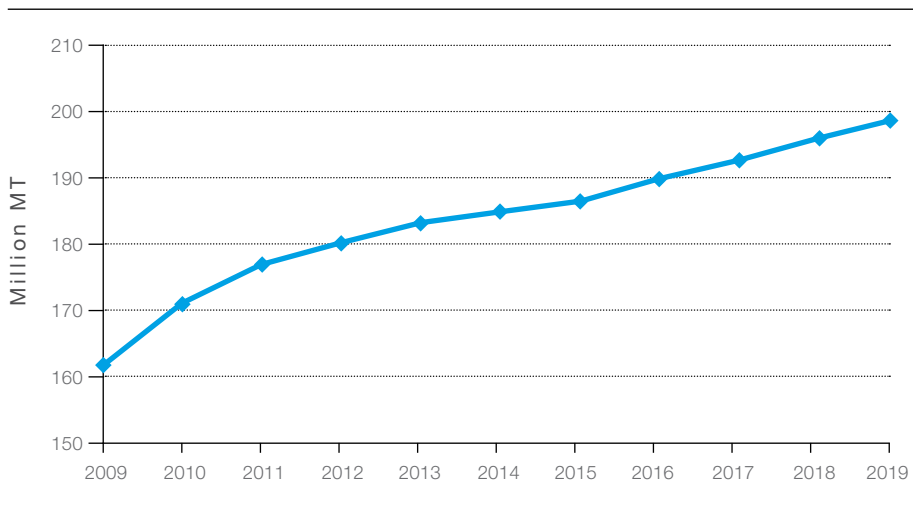
The world fertilizer **outlook**

DEMAND

Demand for fertilizer nutrients

Total fertilizer nutrient ($N+P_2O_5+K_2O$) consumption is estimated at 184.67 million tonnes in 2014 and is forecast to reach 186.6 million tonnes in 2015. With a successive growth of 1.6 percent per year, it is expected to reach 199 million tonnes by the end of 2019. Figure 1 indicates the forecasts of world demand for total fertilizer nutrients from 2015 to 2019, against the actual consumption in the preceding six years.

Figure 1. Global nutrients ($N+P_2O_5+K_2O$) consumption



The global demand for fertilizer nutrients is summarized in Table 1. The forecasts of demand for the three main plant nutrients in specific regions and the world for 2015 to 2019 are presented in Annexes 1, 2 and 3.

Table 1. World demand for fertilizer nutrients, 2015-2019 (thousand tonnes)

Year	2015	2016	2017	2018	2019
Nitrogen (N)	112 539	113 955	115 498	116 905	118 222
Phosphate (P ₂ O ₅)	42 113	42 865	43 785	44 652	45 527
Potash (K ₂ O)	31 973	32 802	33 629	34 452	35 257
Total (N+ P₂O₅+K₂O)	186 625	189 622	192 912	196 009	199 006

SUPPLY

The global total nutrient capacity (N+P₂O₅+K₂O) was 284 million tonnes in 2014, out of which the total supply was 240 million tonnes. During 2015, the total capacity is expected to increase by 2.9 percent and supply would grow by 1.6 percent. Over the next five years, global capacity and production of fertilizers would increase further. Table 2 shows world supply of ammonia, phosphoric acid and potash during 2015 to 2019. Region and sub-region wise detailed information is given in Annexes 1, 2 and 3.

Table 2. World supply of ammonia, phosphoric acid and potash, 2014-2018 (thousand tonnes)

Year	2015	2016	2017	2018	2019
Ammonia (as N)	153 766	159 490	164 724	168 056	171 433
Phosphoric acid (as P ₂ O ₅)	46 009	47 297	48 484	50 052	51 148
Potash (as K ₂ O)	44 028	45 428	47 512	49 917	51 835

SUPPLY/DEMAND BALANCES

The world potential balance of nitrogen, phosphate (H_3PO_4 based P_2O_5) and potash (K_2O) for the years 2015 to 2019 is presented in Table 3. The potential balance is derived from maximum availability (supply) over the projected total demand as follows:

- » (i) Potential balance = supply–non-fertilizer demand–fertilizer demand;
- » (ii) Supply of each nutrient is referred as under:
 - » N = N through ammonia,
 - » $\text{P}_2\text{O}_5 = \text{P}_2\text{O}_5$ through phosphoric acid, and
 - » $\text{K}_2\text{O} = \text{K}_2\text{O}$ through potash.

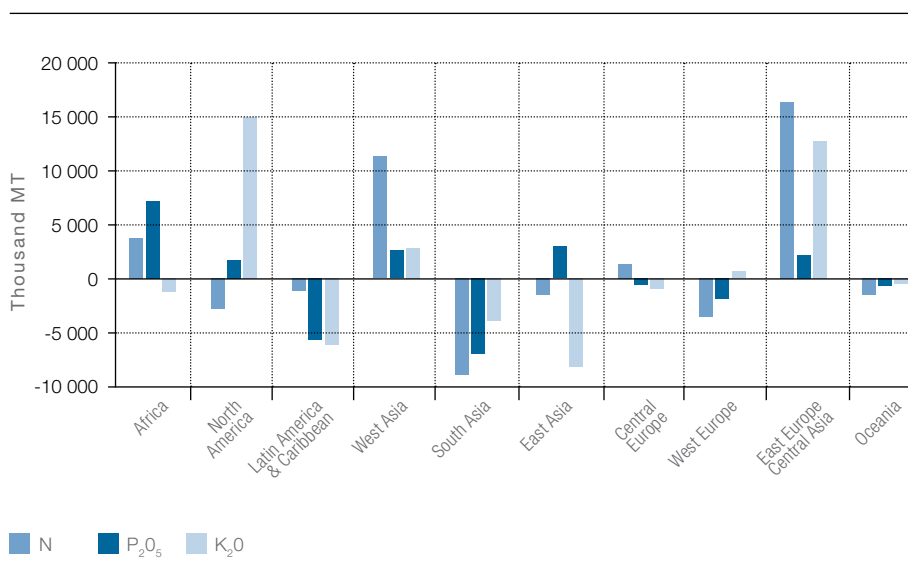
Unforeseen factors, such as feedstock/raw material limitations, logistic problems, unscheduled shut down due to technical reasons, natural calamities (earthquake, mine flooding, etc.) are not considered in the balance. Consumption/demand projections are based on agronomic considerations (e.g. cropped area and application rate of fertilizer), market feedback, estimates by industry associations, growth models, econometric models, expert advice, etc.

Table 3. World potential balance of nitrogen, phosphate and potash, 2015-2019 (thousand tonnes)

Year	2015	2016	2017	2018	2019
Nitrogen (N)	10 055	12 299	14 437	14 797	15 377
Phosphate as P_2O_5 (H_3PO_4 based)	1 664	2 075	2 175	2 713	2 913
Potash (K_2O)	8 109	8 564	9 701	11 165	12 157

Figure 2 indicates the regional potential N, P₂O₅ and K₂O balance situation in 2019: the terminal year of the forecast period.

Figure 2. Regional and subregional nutrient balances in 2019



Annexes

Annex 1

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

	2014 ¹	2015	2016	2017	2018	2019	CAGR (%)
WORLD	110 904	112 539	113 955	115 498	116 905	118 222	1.24
AFRICA	3 940	4 097	4 254	4 414	4 541	4 692	3.45
North Africa	1 797	1 860	1 903	1 946	1 991	2 037	2.30
Sub-Saharan Africa	2 143	2 237	2 351	2 467	2 550	2 655	4.37
AMERICAS	22 303	22 252	22 637	23 061	23 470	23 822	1.72
North America	14 216	14 116	14 255	14 396	14 523	14 594	0.84
Latin America & Caribbean	8 087	8 136	8 382	8 665	8 947	9 228	3.20
ASIA	67 560	69 081	69 970	70 843	71 626	72 342	1.16
West Asia	2 857	2 934	3 006	3 091	3 171	3 233	2.45
South Asia	21 305	22 221	22 636	23 148	23 650	24 139	2.09
East Asia	43 398	43 926	44 328	44 605	44 805	44 970	0.59
EUROPE	15 200	15 270	15 302	15 375	15 450	15 535	0.43
Central Europe	2 963	3 021	3 066	3 111	3 157	3 194	1.40
West Europe	8 315	8 231	8 115	8 036	7 954	7 891	-1.05
East Europe & Central Asia	3 922	4 018	4 121	4 228	4 339	4 450	2.59
OCEANIA	1 901	1 839	1 792	1 806	1 819	1 831	-0.11

¹ = Estimated consumption; CAGR = Compound annual growth rate 2015 to 2019.

Annex 2

World and regional phosphate fertilizer demand forecasts (thousand tonnes P₂O₅)

	2014 ¹	2015	2016	2017	2018	2019	CAGR (%)
WORLD	41 875	42 113	42 865	43 785	44 652	45 527	1.97
AFRICA	1 510	1 539	1 579	1 626	1 675	1 727	2.93
North Africa	613	613	620	629	642	658	1.77
Sub-Saharan Africa	897	925	959	997	1 033	1 069	3.68
AMERICAS	11 822	11 623	11 933	12 308	12 646	12 973	2.79
North America	4 948	4 822	4 903	4 942	4 992	5 032	1.07
Latin America & Caribbean	6 874	6 801	7 030	7 366	7 653	7 941	3.95
ASIA	23 397	23 805	24 161	24 576	24 986	25 417	1.65
West Asia	1 015	1 045	1 076	1 120	1 161	1 211	3.76
South Asia	7 590	7 967	8 220	8 528	8 843	9 166	3.57
East Asia	14 792	14 794	14 866	14 928	14 981	15 040	0.41
EUROPE	3 752	3 825	3 896	3 959	4 019	4 072	1.58
Central Europe	749	766	793	821	850	875	3.38
West Europe	1 894	1 881	1 887	1 883	1 875	1 864	-0.23
East Europe & Central Asia	1 109	1 178	1 216	1 255	1 294	1 333	3.14
OCEANIA	1 395	1 322	1 295	1 316	1 327	1 338	0.30

¹ = Estimated consumption; CAGR = Compound annual growth rate 2015 to 2019.

Annex 3

World and regional potash fertilizer demand forecasts (thousand tonnes K₂O)

	2014 ¹	2015	2016	2017	2018	2019	CAGR (%)
WORLD	31 890	31 973	32 802	33 629	34 452	35 257	2.47
AFRICA	629	667	731	802	864	928	8.61
North Africa	149	162	174	186	201	216	7.48
Sub-Saharan Africa	480	505	558	616	663	712	8.97
AMERICAS	11 538	11 242	11 548	11 853	12 171	12 486	2.66
North America	4 811	4 553	4 625	4 688	4 757	4 816	1.41
Latin America & Caribbean	6 727	6 689	6 923	7 166	7 414	7 670	3.48
ASIA	15 213	15 467	15 823	16 171	16 539	16 893	2.23
West Asia	258	265	276	286	302	318	4.71
South Asia	2 858	3 073	3 248	3 402	3 564	3 731	4.97
East Asia	12 097	12 130	12 299	12 488	12 674	12 844	1.44
EUROPE	4 120	4 226	4 328	4 420	4 490	4 556	1.90
Central Europe	656	682	709	743	772	797	3.99
West Europe	2 211	2 224	2 239	2 242	2 247	2 252	0.31
East Europe & Central Asia	1 253	1 321	1 381	1 435	1 472	1 508	3.37
OCEANIA	390	372	373	383	389	394	1.45

¹ = Estimated consumption; CAGR = Compound annual growth rate 2015 to 2019.

Annex 4

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

	2014	2015	2016	2017	2018	2019
WORLD						
NH ₃ capacity (as N)	177 121	183 893	193 420	197 421	199 358	202 323
NH ₃ supply capability (as N)	151 650	153 766	159 490	164 724	168 056	171 433
N other uses	29 014	31 173	33 236	34 788	36 355	37 833
N available for fertilizers	122 636	122 593	126 254	129 936	131 701	133 600
N fertilizer consumption	110 904	112 539	113 955	115 498	116 905	118 222
Potential N balance	11 732	10 055	12 299	14 437	14 797	15 377
AFRICA						
NH ₃ capacity (as N)	7 221	8 961	9 911	10 181	11 3745	11 601
NH ₃ supply capability (as N)	6 129	6 725	7 582	8 227	8 705	9 303
N other uses	550	564	579	587	595	605
N available for fertilizers	5 579	6 161	7 003	7 640	8 110	8 697
N fertilizer consumption	3 940	4 097	4 254	4 414	4 541	4 692
Potential N balance	1 639	2 065	2 749	3 226	3 568	4 006
AMERICAS						
NH ₃ capacity (as N)	24 181	24 915	28 207	29 423	29 423	30 381
NH ₃ supply capability (as N)	21 679	22 228	24 137	25 785	26 352	26 596
N other uses	5 631	5 818	5 999	6 170	6 330	6 467
N available for fertilizers	16 048	16 410	18 138	19 615	20 022	20 129
N fertilizer consumption	22 303	22 252	22 637	23 061	23 470	23 822
Potential N balance	-6 255	-5 842	-4 499	-3 445	-3 447	-3 693
North America						
NH ₃ capacity (as N)	14 235	14 967	17 749	17 961	17 961	18 578
NH ₃ supply capability (as N)	13 309	13 684	15 309	16 165	16 571	16 720
N other uses	4 276	4 400	4 505	4 625	4 720	4 815

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	2014	2015	2016	2017	2018	2019
N available for fertilizers	9 033	9 284	10 804	11 540	11 851	11 905
N fertilizer consumption	14 216	14 116	14 255	14 396	14 523	14 594
Potential N balance	-5 183	-4 833	-3 451	-2 855	-2 672	-2 689
Latin America & Caribbean						
NH ₃ capacity (as N)	9 945	9 947	10 458	11 462	11 462	11 804
NH ₃ supply capability (as N)	8 371	8 545	8 828	9 620	9 781	9 876
N other uses	1 355	1 418	1 494	1 545	1 610	1 652
N available for fertilizers	7 016	7 127	7 334	8 075	8 171	8 224
N fertilizer consumption	8 087	8 136	8 382	8 665	8 947	9 228
Potential N balance	-1 071	-1 009	-1 048	-590	-776	-1 004
ASIA						
NH ₃ capacity (as N)	104 871	108 809	112 480	113 863	114 521	115 518
NH ₃ supply capability (as N)	87 622	88 276	89 717	91 801	93 897	95 894
N other uses	15 059	16 789	18 413	19 621	20 884	22 073
N available for fertilizers	72 563	71 487	71 304	72 180	73 013	73 821
N fertilizer consumption	67 560	69 081	69 970	70 843	71 626	72 342
Potential N balance	5 003	2 406	1 334	1 337	1 388	1 479
West Asia						
NH ₃ capacity (as N)	14 440	14 440	15 894	16 453	16 453	16 453
NH ₃ supply capability (as N)	13 693	13 693	14 111	14 963	15 561	15 561
N other uses	637	651	668	676	684	690
N available for fertilizers	13 056	13 042	13 443	14 287	14 877	14 871
N fertilizer consumption	2 857	2 934	3 006	3 091	3 171	3 233
Potential N balance	10 199	10 108	10 437	11 196	11 707	11 639
South Asia						
NH ₃ capacity (as N)	17 696	18 513	18 554	18 554	18 594	18 594
NH ₃ supply capability (as N)	15 060	15 409	15 702	15 921	15 953	15 953
N other uses	551	565	580	596	613	631
N available for fertilizers	14 509	14 844	15 122	15 325	15 340	15 322
N fertilizer consumption	21 305	22 221	22 636	23 148	23 650	24 139
Potential N balance	-6 796	-7 377	-7 514	-7 823	-8 310	-8 817

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	2014	2015	2016	2017	2018	2019
East Asia						
NH ₃ capacity (as N)	72 734	75 856	78 032	78 856	79 474	80 470
NH ₃ supply capability (as N)	58 868	59 174	59 904	60 918	62 383	64 380
N other uses	13 871	15 573	17 165	18 349	19 587	20 752
N available for fertilizers	44 997	43 601	42 739	42 569	42 796	43 628
N fertilizer consumption	43 398	43 926	44 328	44 605	44 805	44 970
Potential N balance	1 599	-325	-1 589	-2 036	-2 009	-1 342
EUROPE						
NH ₃ capacity (as N)	39 014	39 374	40 989	42 120	42 205	42 989
NH ₃ supply capability (as N)	34 630	34 946	36 464	37 320	37 512	38 049
N other uses	6 833	6 963	7 108	7 244	7 368	7 497
N available for fertilizers	27 797	27 983	29 356	30 076	30 144	30 552
N fertilizer consumption	15 200	15 270	15 302	15 375	15 450	15 535
Potential N balance	12 597	12 713	14 054	14 701	14 694	15 016
Central Europe						
NH ₃ capacity (as N)	6 505	6 640	6 711	6 758	6 843	6 843
NH ₃ supply capability (as N)	5 170	5 259	5 308	5 458	5 486	5 587
N other uses	667	672	677	682	685	689
N available for fertilizers	4 503	4 587	4 631	4 776	4 801	4 898
N fertilizer consumption	2 963	3 021	3 066	3 111	3 157	3 194
Potential N balance	1 540	1 566	1 565	1 665	1 644	1 704
West Europe						
NH ₃ capacity (as N)	9 917	9 642	9 642	9 642	9 642	9 642
NH ₃ supply capability (as N)	9 421	9 297	9 297	9 298	9 299	9 299
N other uses	4 371	4 450	4 539	4 619	4 690	4 763
N available for fertilizers	5 050	4 847	4 758	4 679	4 609	4 536
N fertilizer consumption	8 315	8 231	8 115	8 036	7 954	7 891
Potential N balance	-3 265	-3 384	-3 357	-3 357	-3 345	-3 355

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	2014	2015	2016	2017	2018	2019
East Europe and Central Asia						
NH ₃ capacity (as N)	22 593	23 093	24 637	25 720	25 720	26 504
NH ₃ supply capability (as N)	20 039	20 391	21 860	22 565	22 727	23 163
N other uses	1 795	1 841	1 892	1 943	1 993	2 045
N available for fertilizers	18 244	18 550	19 968	20 622	20 734	21 118
N fertilizer consumption	3 922	4 018	4 121	4 228	4 339	4 450
Potential N balance	14 322	14 532	15 846	16 394	16 396	16 667
OCEANIA						
NH ₃ capacity (as N)	1 833	1 833	1 833	1 833	1 833	1 833
NH ₃ supply capability (as N)	1 591	1 591	1 591	1 591	1 591	1 591
N other uses	941	1 039	1 137	1 166	1 178	1 191
N available for fertilizers	650	552	454	425	413	400
N fertilizer consumption	1 901	1 839	1 792	1 806	1 819	1 831
Potential N balance	-1 251	-1 287	-1 338	-1 381	-1 406	-1 431

Annex 5

World and regional phosphate supply, demand and balance (thousand tonnes P₂O₅)

	2014	2015	2016	2017	2018	2019
WORLD						
H ₃ PO ₄ capacity	55 089	56 413	57 773	60 573	61 223	62 903
H ₃ PO ₄ supply capability	45 535	46 009	47 297	48 484	50 052	51 148
H ₃ PO ₄ industrial demand	6 347	6 567	6 766	7 038	7 297	7 415
H ₃ PO ₄ available for fertilizer	39 188	39 443	40 531	41 446	42 755	43 732
P fertilizer consumption/ demand	41 875	42 113	42 865	43 785	44 652	45 527
H ₃ PO ₄ fertilizer demand	37 550	37 778	38 456	39 271	40 042	40 819
Non-H ₃ PO ₄ fertilizer demand	4 325	4 335	4 408	4 514	4 610	4 708
Potential H ₃ PO ₄ balance	1 637	1 664	2 075	2 175	2 713	2 913
AFRICA						
H ₃ PO ₄ capacity	8 318	9 218	10 178	10 628	10 628	11 978
H ₃ PO ₄ supply capability	6 741	6 899	7 786	8 461	9 208	9 568
H ₃ PO ₄ industrial demand	506	503	524	546	567	568
H ₃ PO ₄ available for fertilizer	6 235	6 396	7 261	7 915	8 641	9 000
P fertilizer consumption/ demand	1 510	1 539	1 579	1 626	1 675	1 727
H ₃ PO ₄ fertilizer demand	1 359	1 385	1 421	1 463	1 508	1 555
Non-H ₃ PO ₄ fertilizer demand	151	154	158	163	168	173
Potential H ₃ PO ₄ balance	4 876	5 011	5 841	6 452	7 133	7 445
AMERICAS						
H ₃ PO ₄ capacity	12 466	11 739	11 739	11 739	12 339	12 579
H ₃ PO ₄ supply capability	10 660	10 002	10 105	10 137	10 257	10 409
H ₃ PO ₄ industrial demand	1 824	1 912	1 927	1 942	1 948	1 954

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	2014	2015	2016	2017	2018	2019
H ₃ PO ₄ available for fertilizer	8 836	8 090	8 177	8 195	8 309	8 456
P fertilizer consumption/ demand	11 822	11 623	11 933	12 308	12 645	12 973
H ₃ PO ₄ fertilizer demand	10 995	10 806	11 089	11 424	11 727	12 020
Non-H ₃ PO ₄ fertilizer demand	824	816	844	884	918	953
Potential H ₃ PO ₄ balance	-2 161	-2 716	-2 912	-3 229	-3 418	-3 565
North America						
H ₃ PO ₄ capacity	9 641	8 884	8 884	8 884	8 884	8 884
H ₃ PO ₄ supply capability	8 677	7 996	7 996	7 996	7 996	7 996
H ₃ PO ₄ industrial demand	965	979	981	982	983	984
H ₃ PO ₄ available for fertilizer	7 712	7 017	7 015	7 014	7 013	7 012
P fertilizer consumption/ demand	4 948	4 822	4 903	4 942	4 992	5 032
H ₃ PO ₄ fertilizer demand	4 948	4 822	4 903	4 942	4 992	5 032
Non-H ₃ PO ₄ fertilizer demand	0	0	0	0	0	0
Potential H ₃ PO ₄ balance	2 764	2 195	2 112	2 072	2 021	1 980
Latin America & Caribbean						
H ₃ PO ₄ capacity	2 825	2 855	2 855	2 855	3 455	3 695
H ₃ PO ₄ supply capability	1 983	2 007	2 109	2 142	2 262	2 414
H ₃ PO ₄ industrial demand	859	933	946	960	965	970
H ₃ PO ₄ available for fertilizer	1 124	1 074	1 163	1 181	1 296	1 443
P fertilizer consumption/ demand	6 874	6 801	7 030	7 366	7 653	7 941
H ₃ PO ₄ fertilizer demand	6 049	5 985	6 187	6 482	6 735	6 988
Non-H ₃ PO ₄ fertilizer demand	825	816	844	884	918	953
Potential H ₃ PO ₄ balance	-4 925	-4 911	-5 024	-5 301	-5 439	-5 545
ASIA						
H ₃ PO ₄ capacity	27 805	28 761	29 161	31 511	31 561	31 651
H ₃ PO ₄ supply capability	23 292	24 141	24 402	24 882	25 582	26 166
H ₃ PO ₄ industrial demand	3 056	3 219	3 381	3 578	3 770	3 881

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	2014	2015	2016	2017	2018	2019
H ₃ PO ₄ available for fertilizer	20 236	20 921	21 021	21 304	21 812	22 285
P fertilizer consumption/ demand	23 397	23 805	24 161	24 576	24 986	25 417
H ₃ PO ₄ fertilizer demand	21 108	21 477	21 799	22 174	22 545	22 936
Non-H ₃ PO ₄ fertilizer demand	2 289	2 328	2 362	2 402	2 440	2 481
Potential H ₃ PO ₄ balance	-871	-555	-778	-870	-733	-650
West Asia						
H ₃ PO ₄ capacity	4 244	4 259	4 259	5 759	5 759	5 799
H ₃ PO ₄ supply capability	3 061	3 323	3 323	3 623	4 223	4 707
H ₃ PO ₄ industrial demand	374	374	376	458	541	543
H ₃ PO ₄ available for fertilizer	2 688	2 949	2 948	3 165	3 682	4 165
P fertilizer consumption/ demand	1 015	1 045	1 076	1 120	1 161	1 211
H ₃ PO ₄ fertilizer demand	964	992	1 022	1 064	1 103	1 150
Non-H ₃ PO ₄ fertilizer demand	51	52	54	56	58	61
Potential H ₃ PO ₄ balance	1 723	1 957	1 925	2 101	2 579	3 015
South Asia						
H ₃ PO ₄ capacity	2 169	2 220	2 220	2 220	2 220	2 220
H ₃ PO ₄ supply capability	1 598	1 624	1 637	1 637	1 637	1 637
H ₃ PO ₄ industrial demand	228	236	242	252	258	264
H ₃ PO ₄ available for fertilizer	1 370	1 388	1 395	1 384	1 378	1 373
P fertilizer consumption/ demand	7 590	7 967	8 220	8 528	8 843	9 166
H ₃ PO ₄ fertilizer demand	6 831	7 170	7 398	7 675	7 959	8 249
Non-H ₃ PO ₄ fertilizer demand	759	797	822	853	884	917
Potential H ₃ PO ₄ balance	-5 461	-5 782	-6 003	-6 290	-6 580	-6 877
East Asia						
H ₃ PO ₄ capacity	21 392	22 282	22 682	23 532	23 582	23 632
H ₃ PO ₄ supply capability	18 633	19 194	19 442	19 622	19 722	19 822
H ₃ PO ₄ industrial demand	2 454	2 609	2 764	2 867	2 971	3 074

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	2014	2015	2016	2017	2018	2019
H ₃ PO ₄ available for fertilizer	16 178	16 585	16 678	16 755	16 751	16 748
P fertilizer consumption/ demand	14 792	14 794	14 866	14 928	14 981	15 040
H ₃ PO ₄ fertilizer demand	13 313	13 315	13 379	13 435	13 483	13 536
Non-H ₃ PO ₄ fertilizer demand	1 479	1 479	1 487	1 493	1 498	1 504
Potential H ₃ PO ₄ balance	2 866	3 270	3 299	3 320	3 268	3 212
EUROPE						
H ₃ PO ₄ capacity	5 900	6 095	6 095	6 095	6 095	6 095
H ₃ PO ₄ supply capability	4 422	4 547	4 584	4 584	4 584	4 584
H ₃ PO ₄ industrial demand	942	914	915	954	993	994
H ₃ PO ₄ available for fertilizer	3 480	3 634	3 669	3 630	3 591	3 590
P fertilizer consumption/ demand	3 752	3 825	3 896	3 958	4 019	4 072
H ₃ PO ₄ fertilizer demand	3 110	3 184	3 240	3 288	3 333	3 372
Non-H ₃ PO ₄ fertilizer demand	642	640	656	671	686	700
Potential H ₃ PO ₄ balance	370	450	429	342	259	218
Central Europe						
H ₃ PO ₄ capacity	704	704	704	704	704	704
H ₃ PO ₄ supply capability	350	368	368	368	368	368
H ₃ PO ₄ industrial demand	93	94	94	95	95	95
H ₃ PO ₄ available for fertilizer	257	274	274	273	273	272
P fertilizer consumption/ demand	749	766	793	821	850	875
H ₃ PO ₄ fertilizer demand	629	643	666	690	714	735
Non-H ₃ PO ₄ fertilizer demand	120	123	127	131	136	140
Potential H ₃ PO ₄ balance	-372	-369	-392	-416	-441	-463
West Europe						
H ₃ PO ₄ capacity	565	565	565	565	565	565
H ₃ PO ₄ supply capability	491	491	491	491	491	491

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	2014	2015	2016	2017	2018	2019
H ₃ PO ₄ industrial demand	515	498	498	536	573	573
H ₃ PO ₄ available for fertilizer	0	0	0	0	0	0
P fertilizer consumption/ demand	1 894	1 881	1 887	1 883	1 875	1 864
H ₃ PO ₄ fertilizer demand	1 705	1 693	1 698	1 695	1 688	1 678
Non-H ₃ PO ₄ fertilizer demand	189	188	189	188	188	186
Potential H ₃ PO ₄ balance	-1 729	-1 701	-1 706	-1 740	-1 770	-1 760
East Europe & Central Asia						
H ₃ PO ₄ capacity	4 631	4 826	4 826	4 826	4 826	4 826
H ₃ PO ₄ supply capability	3 581	3 689	3 726	3 726	3 726	3 726
H ₃ PO ₄ industrial demand	333	322	323	324	324	325
H ₃ PO ₄ available for fertilizer	3 248	3 367	3 403	3 402	3 402	3 401
P fertilizer consumption/ demand	1 109	1 177	1 216	1 255	1 294	1 333
H ₃ PO ₄ fertilizer demand	776	848	876	903	931	960
Non-H ₃ PO ₄ fertilizer demand	333	330	341	351	362	373
Potential H ₃ PO ₄ balance	2 471	2 519	2 528	2 499	2 470	2 441
OCEANIA						
H ₃ PO ₄ capacity	600	600	600	600	600	600
H ₃ PO ₄ supply capability	420	420	420	420	420	420
H ₃ PO ₄ industrial demand	20	19	18	18	19	19
H ₃ PO ₄ available for fertilizer	400	401	402	402	401	401
P fertilizer consumption/ demand	1 395	1 322	1 295	1 316	1 327	1 338
H ₃ PO ₄ fertilizer demand	977	925	907	921	929	937
Non-H ₃ PO ₄ fertilizer demand	419	397	389	395	398	401
Potential H ₃ PO ₄ balance	-576	-524	-505	-520	-527	-535

Annex 6

World and regional potash supply, demand and balance (thousand tonnes K₂O)

	2014	2015	2016	2017	2018	2019
WORLD						
Potash capacity	52 179	52 195	55 449	59 820	60 090	60 790
Potash supply capability	42 814	44 028	45 428	47 512	49 917	51 835
Industrial and other demand	3 850	3 946	4 061	4 181	4 300	4 421
Available for fertilizer	38 964	40 082	41 366	43 331	45 616	47 414
Consumption/demand	31 890	31 973	32 802	33 629	34 452	35 257
Potential K ₂ O balance	7 074	8 109	8 564	9 701	11 165	12 157
AFRICA						
Potash capacity	0	0	0	0	0	0
Potash supply capability	0	0	0	0	0	0
Industrial and other demand	85	88	92	96	100	103
Available for fertilizer	0	0	0	0	0	0
Consumption/demand	629	667	731	802	864	928
Potential K ₂ O balance	-714	-755	-823	-898	-964	-1 031
AMERICAS						
Potash capacity	21 336	22 378	25 471	26 026	26 026	26 026
Potash supply capability	15 801	17 715	18 853	20 687	21 938	23 191
Industrial and other demand	1 315	1 345	1 384	1 425	1 467	1 510
Available for fertilizer	14 486	16 370	17 468	19 261	20 471	21 681
Consumption/demand	11 538	11 242	11 548	11 853	12 171	12 486
Potential K ₂ O balance	2 948	5 128	5 920	7 408	8 300	9 195
North America						
Potash capacity	19 213	20 255	23 348	23 903	23 903	23 903
Potash supply capability	14 217	16 044	17 182	18 929	20 094	21 347
Industrial and other demand	1 124	1 153	1 186	1 220	1 256	1 292
Available for fertilizer	13 093	14 891	15 995	17 709	18 838	20 055
Consumption/demand	4 811	4 553	4 625	4 688	4 757	4 816
Potential K ₂ O balance	8 281	10 338	11 370	13 021	14 081	15 239

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	2014	2015	2016	2017	2018	2019
Latin America & Caribbean						
Potash capacity	2 123	2 123	2 123	2 123	2 123	2 123
Potash supply capability	1 584	1 671	1 671	1 757	1 844	1 844
Industrial and other demand	191	192	198	205	212	218
Available for fertilizer	1 394	1 479	1 473	1 553	1 632	1 626
Consumption/demand	6 727	6 689	6 923	7 166	7 414	7 670
Potential K ₂ O balance	-5 333	-5 209	-5 450	-5 613	-5 781	-6 044
ASIA						
Potash capacity	10 034	10 252	10 402	11 002	11 020	11 020
Potash supply capability	9 326	9 492	9 666	10 078	10 190	10 290
Industrial and other demand	1 828	1 874	1 928	1 986	2 041	2 097
Available for fertilizer	7 594	7 727	7 852	8 216	8 279	8 329
Consumption/demand	15 213	15 467	15 823	16 171	16 539	16 893
Potential K ₂ O balance	-7 619	-7 740	-7 971	-7 955	-8 260	-8 564
West Asia						
Potash capacity	3 960	3 960	3 960	3 960	3 960	3 960
Potash supply	3 579	3 579	3 579	3 579	3 579	3 579
Industrial and other demand	94	97	100	103	106	109
Available for fertilizer	3 485	3 482	3 479	3 476	3 473	3 470
K fertilizer consumption/ demand	258	265	276	286	302	318
Potential K ₂ O balance	3 227	3 218	3 204	3 190	3 171	3 152
South Asia						
Potash capacity	0	0	0	0	0	0
Potash supply	0	0	0	0	0	0
Industrial and other demand	97	109	114	123	130	136
Available for fertilizer	0	0	0	0	0	0
K fertilizer consumption/ demand	2 858	3 073	3 248	3 402	3 564	3 731
Potential K ₂ O balance	-2 955	-3 181	-3 362	-3 525	-3 694	-3 867
East Asia						
Potash capacity	6 074	6 292	6 442	7 042	7 060	7 060
Potash supply	5 747	5 913	6 087	6 499	6 611	6 711
Industrial and other demand	1 638	1 669	1 715	1 759	1 805	1 851
Available for fertilizer	4 109	4 245	4 373	4 740	4 806	4 860

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	2014	2015	2016	2017	2018	2019
K fertilizer consumption/ demand	12 097	12 130	12 299	12 484	12 674	12 844
Potential K ₂ O balance	-7 987	-7 885	-7 926	-7 744	-7 867	-7 984
EUROPE						
Potash capacity	20 809	19 565	19 576	22 792	23 044	23 744
Potash supply	17 686	16 821	16 909	16 747	17 789	18 354
Industrial and other demand	614	632	649	667	685	704
Available for fertilizer	17 121	16 238	16 310	16 133	17 158	17 707
K fertilizer consumption/ demand	4 120	4 226	4 328	4 420	4 490	4 556
Potential K ₂ O balance	13 001	12 012	11 982	11 713	12 669	13 151
Central Europe						
Potash capacity	0	0	0	0	0	0
Potash supply	0	0	0	0	0	0
Industrial and other demand	48	49	51	53	55	56
Available for fertilizer	0	0	0	0	0	0
K fertilizer consumption/ demand	656	682	709	743	772	797
Potential K ₂ O balance	-703	-731	-760	-795	-826	-853
West Europe						
Potash capacity	5 619	5 630	5 041	5 052	5 074	5 074
Potash supply	4 056	4 109	3 678	3 706	3 719	3 719
Industrial and other demand	483	495	509	522	536	550
Available for fertilizer	3 573	3 614	3 169	3 184	3 183	3 169
K fertilizer consumption/ demand	2 211	2 224	2 239	2 242	2 247	2 252
Potential K ₂ O balance	1 362	1 390	931	942	937	917
East Europe and Central Asia						
Potash capacity	15 190	13 935	14 535	17 740	17 970	18 670
Potash supply	13 631	12 712	13 231	13 041	14 070	14 635
Industrial and other demand	83	87	90	92	95	97
Available for fertilizer	13 548	12 624	13 141	12 949	13 975	14 538
K fertilizer consumption/ demand	1 253	1 321	1 381	1 435	1 472	1 508
Potential K ₂ O balance	12 295	11 304	11 761	11 514	12 503	13 030

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	2014	2015	2016	2017	2018	2019
OCEANIA						
Potash capacity	0	0	0	0	0	0
Potash supply	0	0	0	0	0	0
Industrial and other demand	8	7	7	7	8	8
Available for fertilizer	0	0	0	0	0	0
K fertilizer consumption/ demand	390	372	373	383	388	393
Potential K ₂ O balance	-398	-379	-380	-390	-396	-401

Annex 7

Technical notes on supply, demand and balances

1. 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.
2. Fertilizer demand and supply data refer to the calendar year.
3. Definitions of the terms used and their relative criteria are listed below:

Capacity:

nameplate 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. Nameplate capacity operating rates and demand for fertilizers vary from year to year.

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 nutrient (N, P_2O_5 or K_2O) that is recovered as by-product from industrial processes and then used as fertilizer.

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 accounts 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 percent 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 8

Regional classification of countries and territories

AFRICA	
North Africa	Algeria Egypt Libya Morocco Sudan Tunisia
Sub-Saharan Africa	Angola Benin Botswana Burkina Faso Burundi Cameroon Capo Verde Central African Republic Comoros Congo Dem. Rep. Congo Rep. of Côte d'Ivoire Djibouti Equatorial Guinea Eritrea Ethiopia Gabon Gambia Ghana Guinea Guinea-Bissau Kenya Lesotho Liberia Madagascar Malawi Mali Mauritania Mauritius Mozambique

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	Namibia Niger Nigeria Rwanda Senegal Seychelles Sierra Leone Somalia South Africa South Sudan Swaziland Togo Uganda United Rep of Tanzania Zambia Zimbabwe
AMERICAS	
Latin America & Caribbean	Antigua and Barbuda Argentina Bahamas Barbados Belize Bolivia Brazil Chile Colombia Costa Rica Cuba Dominica Dominican Republic Ecuador El Salvador Grenada Guatemala Guyana Haiti Honduras Jamaica Mexico Nicaragua Panama

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	Paraguay Perù Saint Kitts and Nevis Saint Lucia Saint Vincent and the Grenadines Suriname Trinidad & Tobago Uruguay Venezuela
North America	Canada United States of America
ASIA	
East Asia	Brunei Darussalam Cambodia China China, Hong Kong SAR China, Macao SAR China, Taiwan Province of Indonesia Japan Korea Rep Lao People's Democratic Republic Malaysia Mongolia Myanmar Philippines Singapore Thailand Timor-Leste Viet Nam
South Asia	Bangladesh Bhutan India Maldives Nepal Pakistan Sri Lanka
West Asia	Afghanistan Bahrain Cyprus

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	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 Macedonia Montenegro Poland Romania Serbia Slovakia Slovenia
Eastern Europe and Central Asia	Armenia Azerbaijan Belarus Estonia Georgia Kazakhstan Kyrgyzstan Latvia Lithuania Moldova Russian Fed Tajikistan Ukraine Uzbekistan

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Western Europe	Andorra Austria Belgium Denmark Finland France Germany Greece Iceland Ireland Italy Luxembourg Malta Monaco Netherlands Norway Portugal San Marino Spain Sweden Switzerland United Kingdom
OCEANIA	
	Australia Cook Islands Fiji French Polynesia Kiribati Marshall Islands Micronesia (Federated States of) Nauru Niue New Caledonia New Zealand Palau Papua New Guinea Samoa Tonga Tuvalu Vanuatu

World
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to
2019

SUMMARY REPORT

World
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This report presents the world nitrogen, phosphate and potassium fertilizer medium-term supply and demand projections for the period 2015-2019. FAO, in collaboration with experts from the FAO/Fertilizer Organizations Working Group dealing with fertilizer production, consumption and trade, annually provides five-year forecasts of world and regional fertilizer supply, demand and potential balance.