

PERSPECTIVES A MOYEN TERME DE L'OFFRE ET DE LA DEMANDE MONDIALES EN ENGRAIS: 2019 - 2023

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Content

Outlook for global fertilizer demand

- ✓ Global economic, agricultural and policy environment
- ✓ Medium-term outlook for fertilizer demand

Outlook for global fertilizer supply

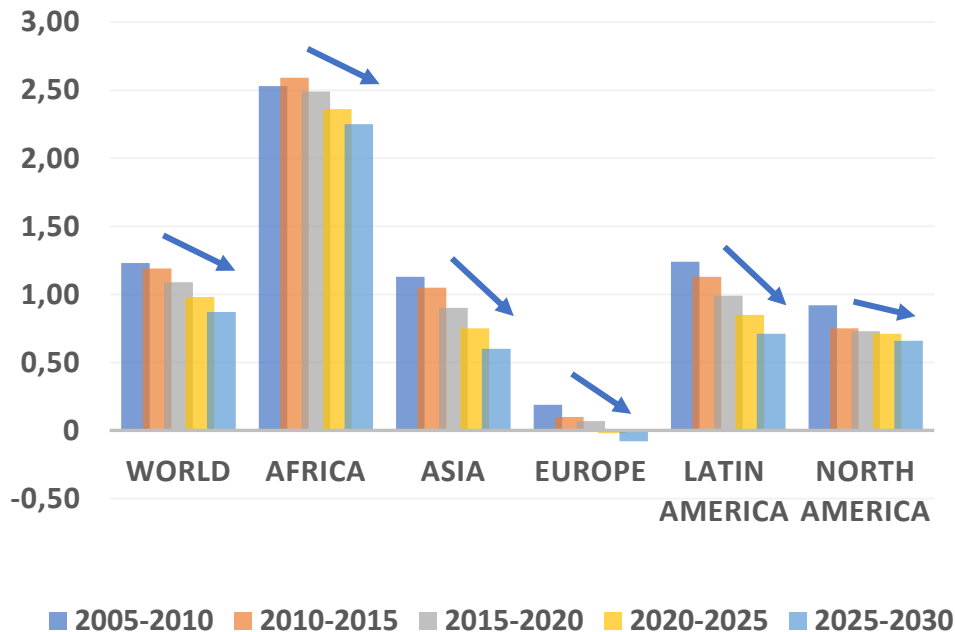
- ✓ Outlook for Nitrogen Market
- ✓ Outlook for Phosphate Market
- ✓ Outlook for Potash Market
- ✓ Outlook for Supply/Demand Balances

Key take-aways

FERTILIZER AGRICULTURAL DEMAND OUTLOOK

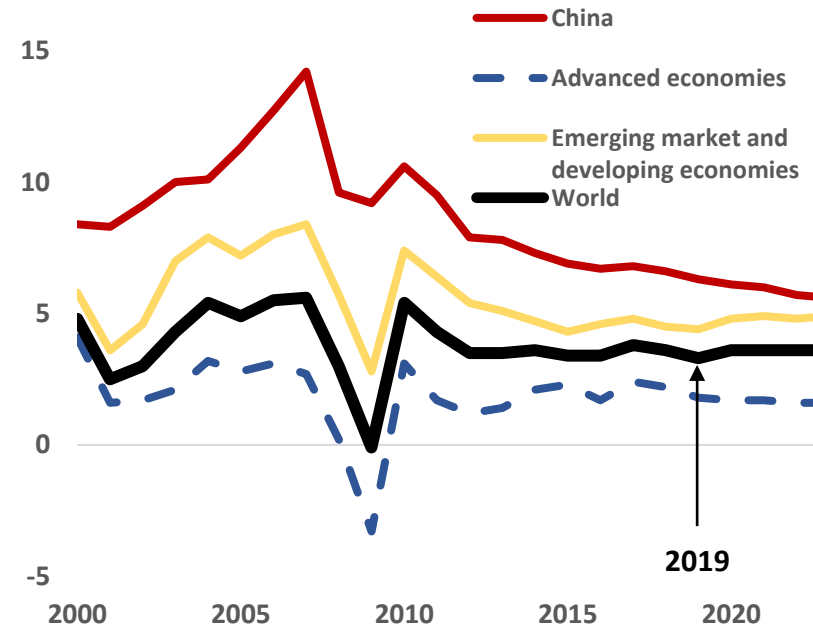
The Main Factors Driving Global Food Demand Are Not Growing As Fast As Before

Population Annual Growth Rate by region (%)



Source UNFPA, 2017

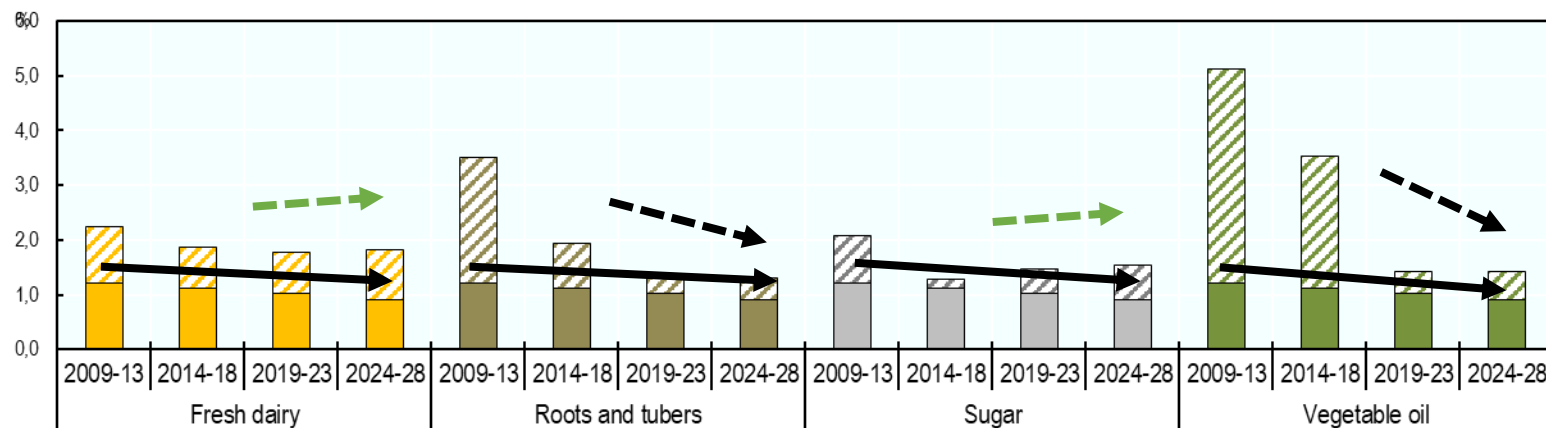
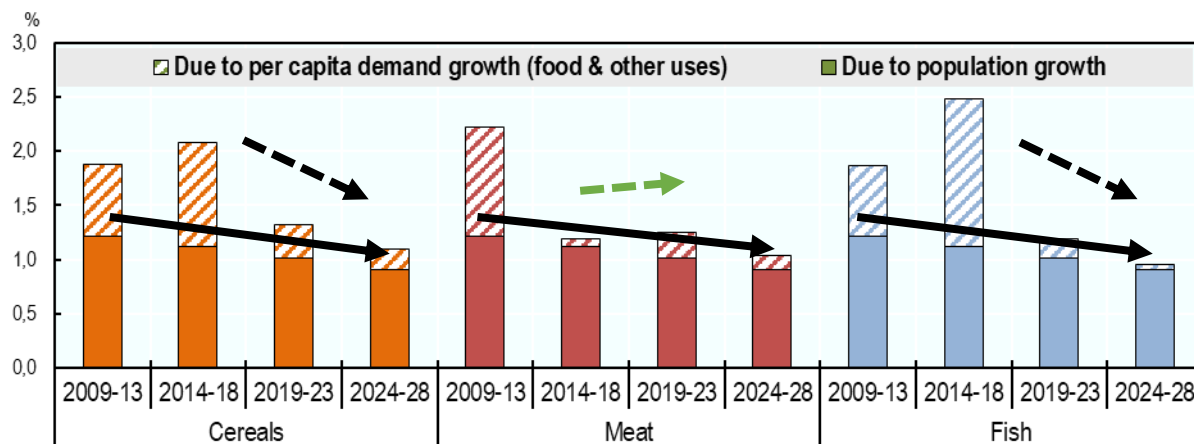
GDP Growth (%)



Source IMF, April 2019

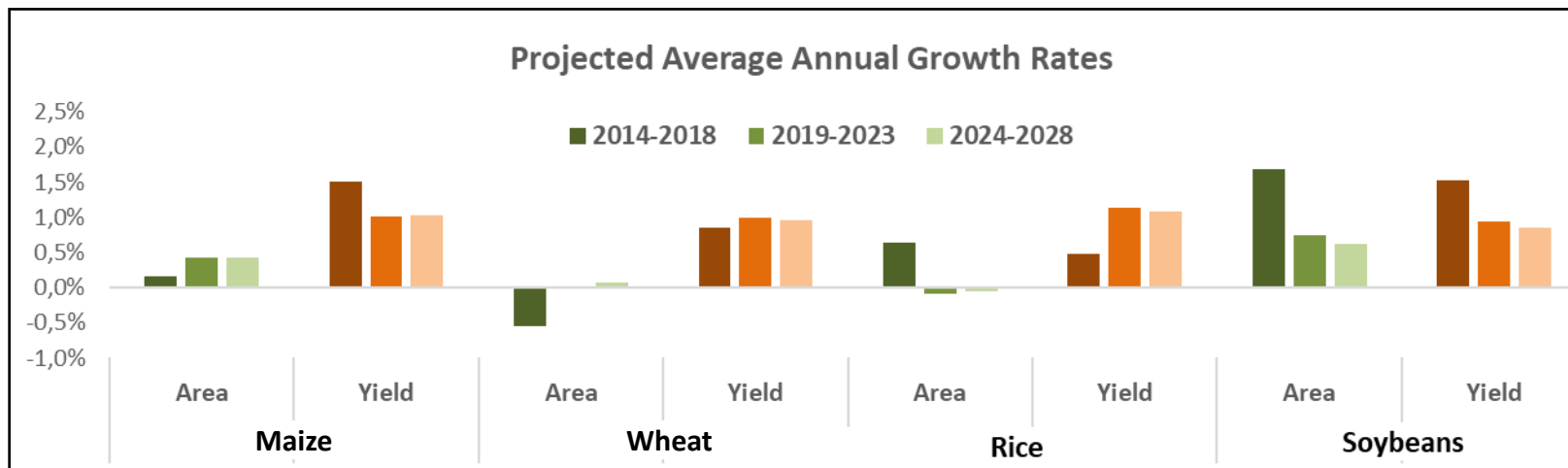
Global Food Demand Will Continue to Increase, but More Slowly

- **Slower growth**
- **Main driver = population growth, which is slowing**
- **Secondary driver = per capita demand: slower growth, except for meat, fresh dairy and sugar.**

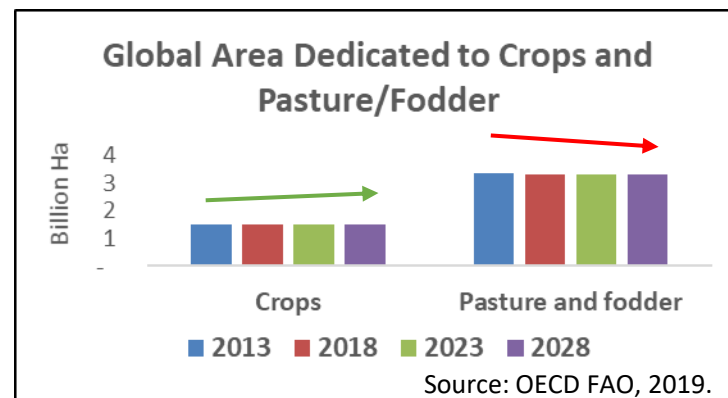


Source: OECD FAO, 2019.

Future Expansion in Global Agricultural Production Will Be Driven by Yields



- Production growth will be driven mostly by **yield improvements**
- **Area dedicated to crops to expand slightly**; area dedicated to pasture and fodder to contract slightly



Increasing Calls to Improve Fertilizer Efficiency and Limit Nutrient Losses to the Environment

International Level



First ever Global Nitrogen Resolution (UN Environment)

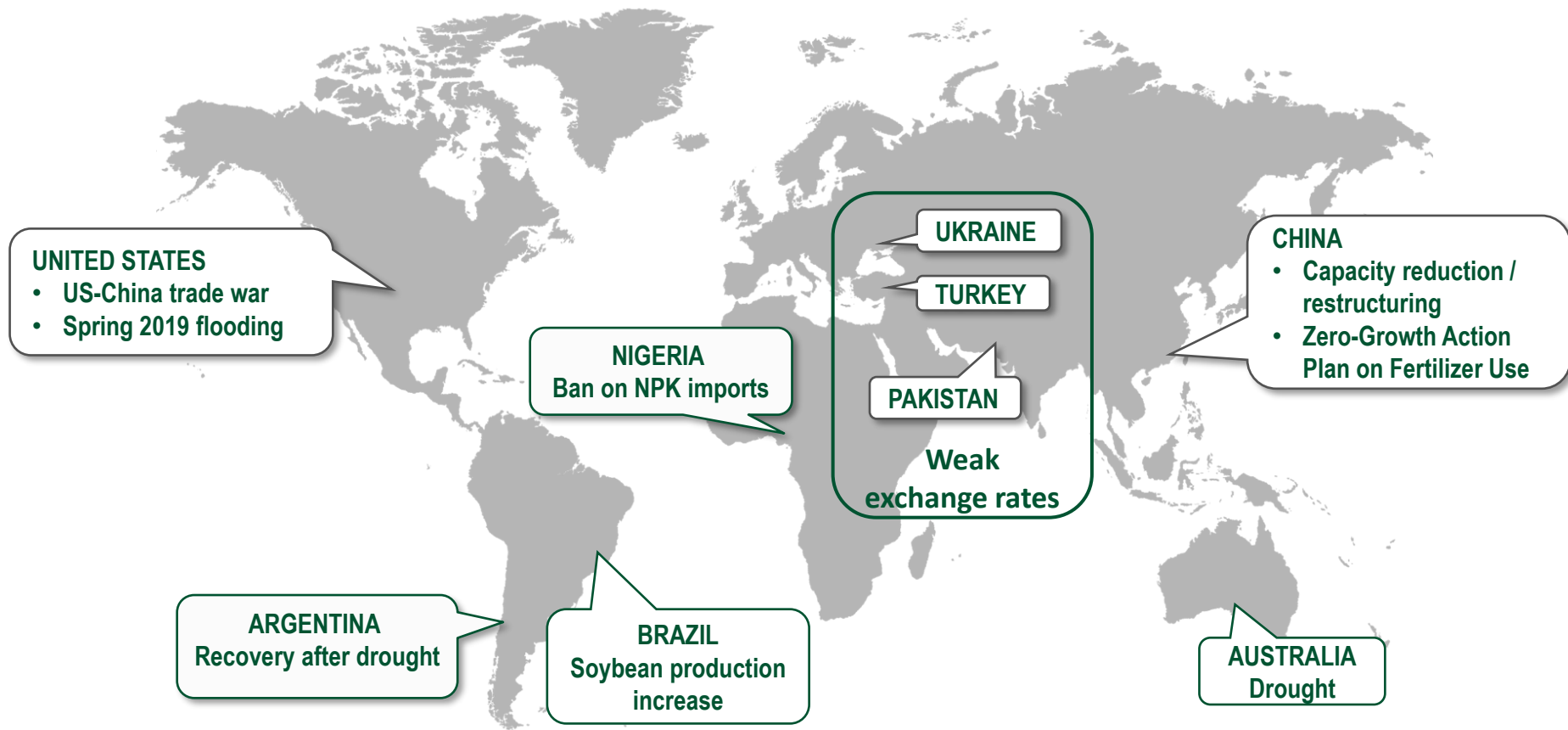
First International Code of Conduct for Fertilizers (FAO)

UN Environment considers impacts of fertilizers on human health

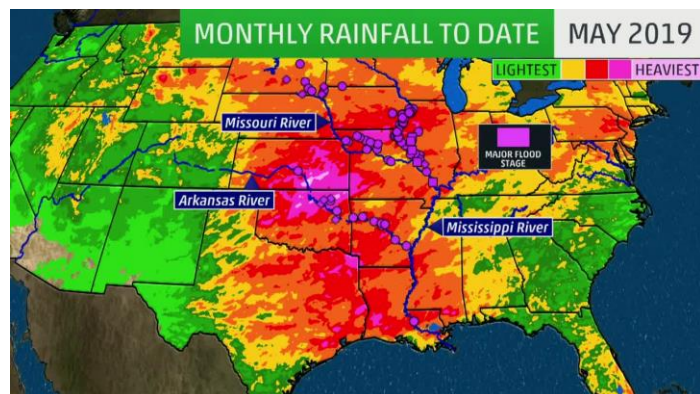
Countries citing increasing scrutiny on fertilizer use in IFA May 2019 survey:

- Australia
- Canada
- China
- Many EU countries
- New Zealand
- Turkey

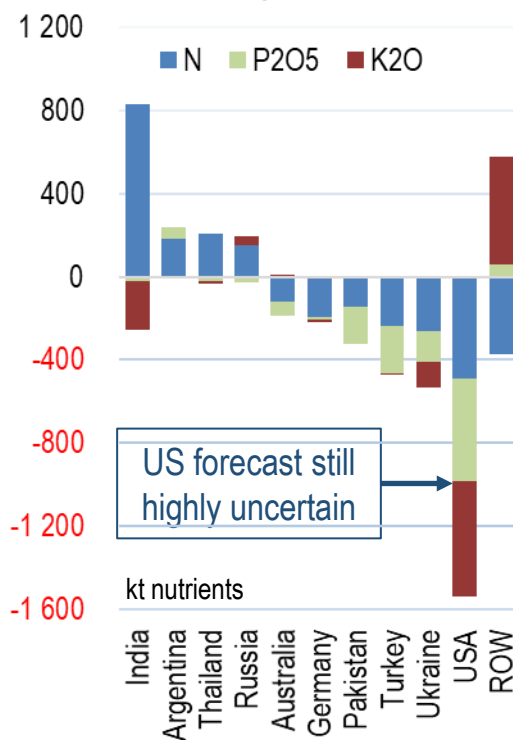
Demand Development Trends in 2018/2019+



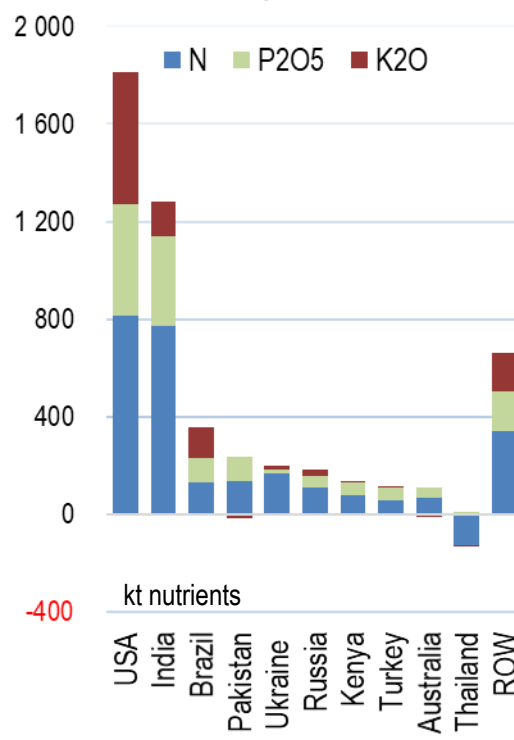
The US and India Influence Short-Term Fertilizer Demand



Main Changes in 2018/19



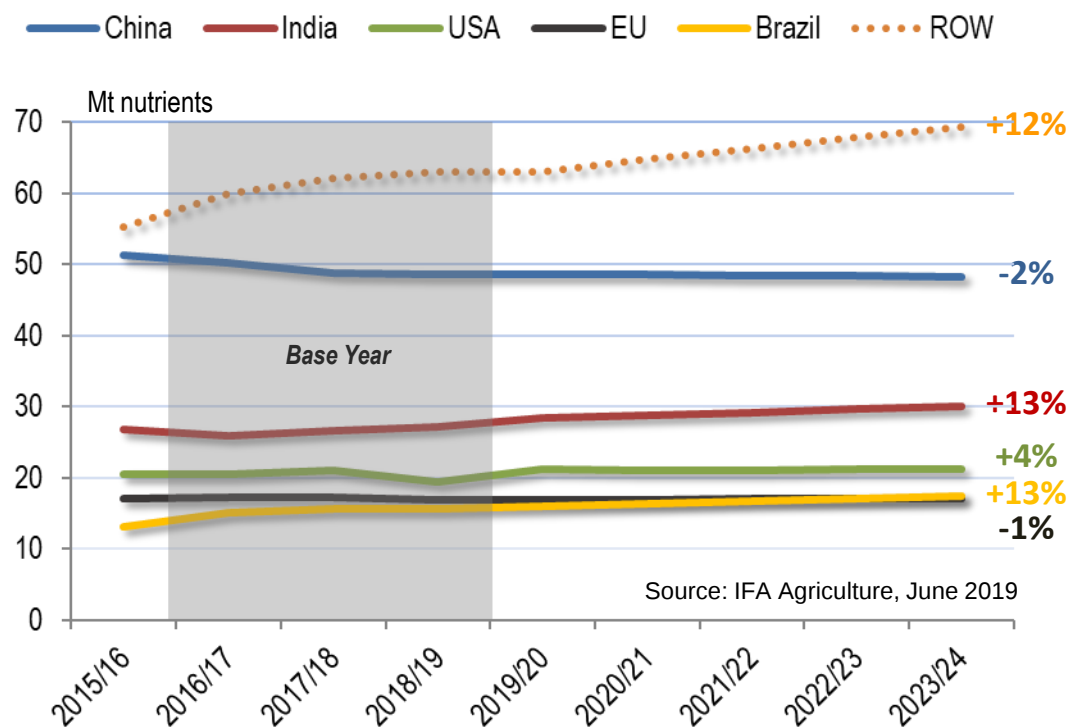
Main Changes in 2019/20



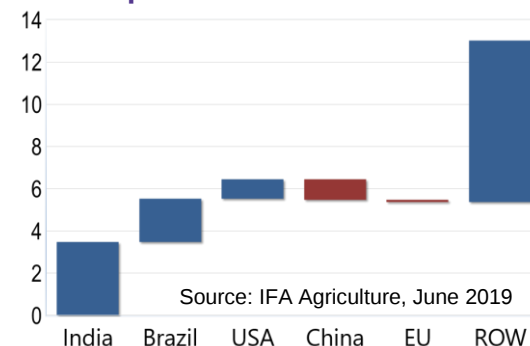
Source: IFA Agriculture, June 2019

Medium Term: Firm Demand Growth in Brazil and India, But Not Only

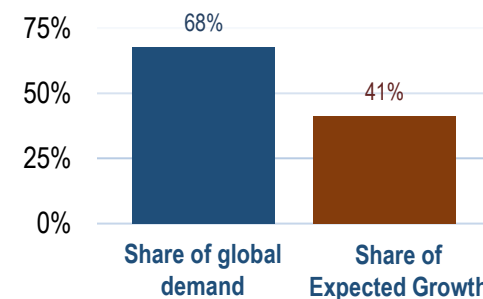
Fertilizer Demand Outlook for the Top-5 Fertilizer Markets



Anticipated Increase in Demand



Contribution of the Top-5 Markets



Where Is Demand Seen Growing in the Rest of the World?

Anticipated Changes between the Base Year and 2023/24

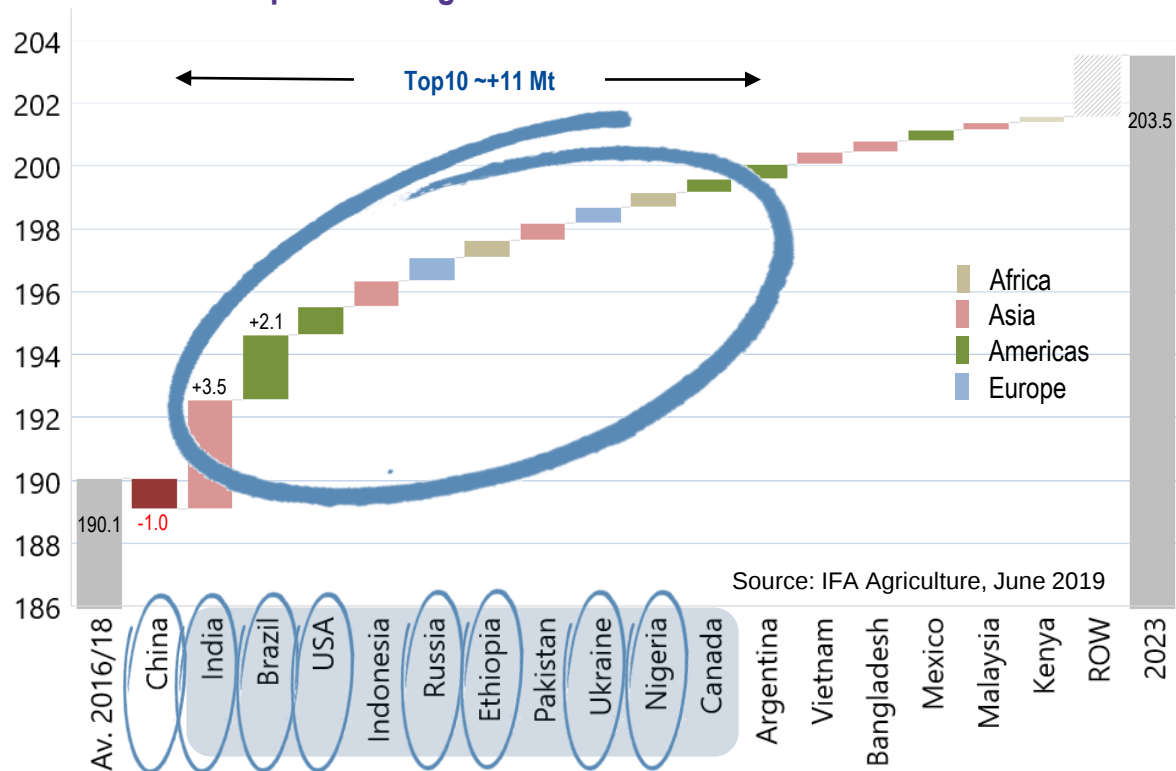
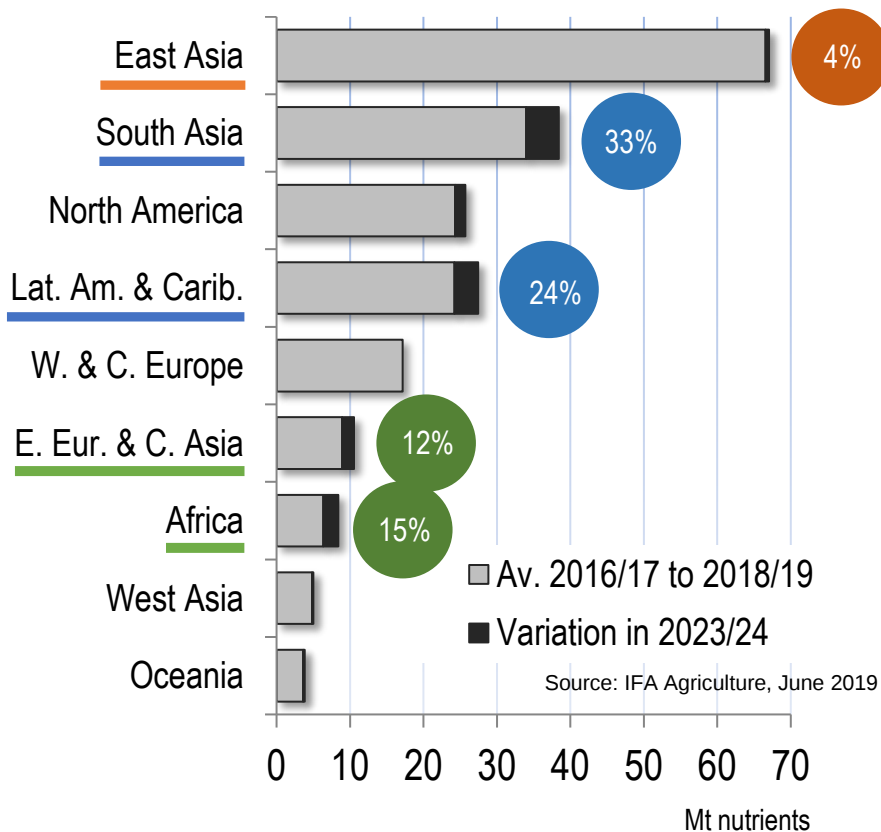


Diagram illustrating changes >200 kt nutrients

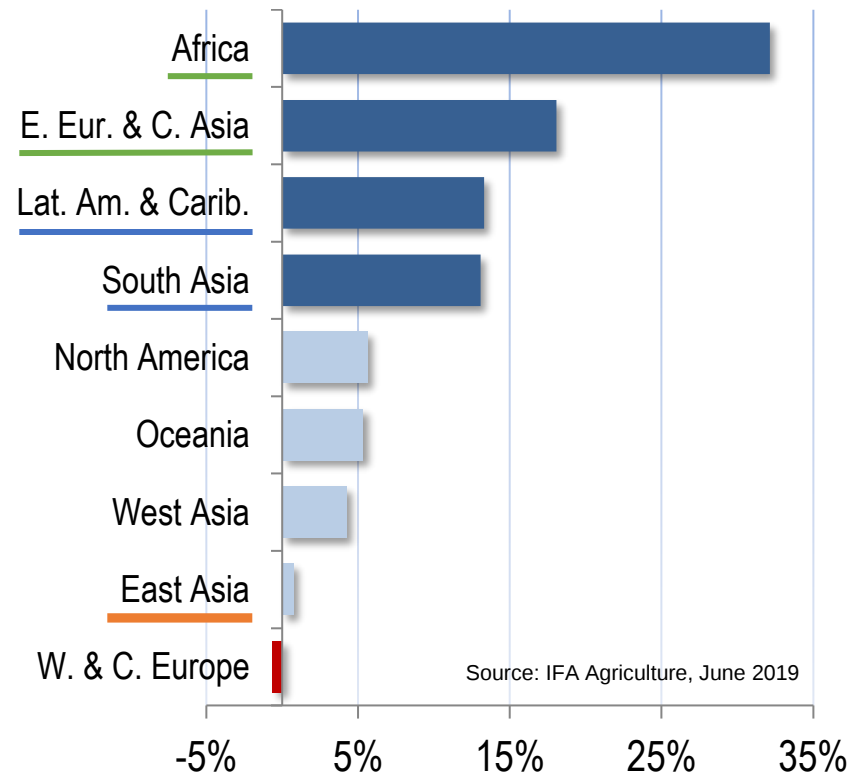
- China = -1.0 Mt (N and P declining; K plateauing)
- India + Brazil = 41% of anticipated net increase in global demand
- USA: 3rd contributor (owing to low base year)
- Top10 = 78% of the net increase
- EECA: Russia and Ukraine in the top-10
- SSA: Ethiopia and Nigeria in the top-10

Four Regions Drive Medium-Term Growth

Total Fertilizer Use by Region

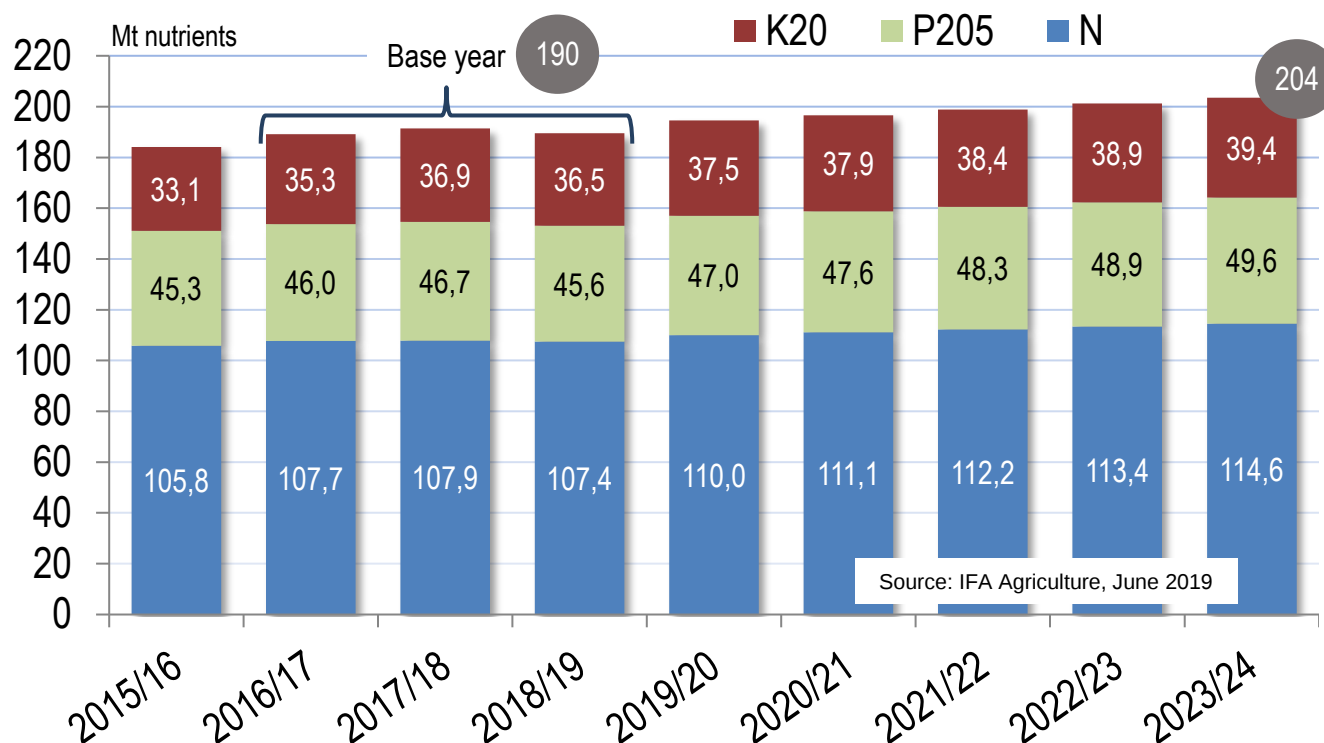


Anticipated Relative Growth by 2023/24



Global Demand Seen Up by 1.1 % p.a. Over the Medium Term

Evolution of Global Fertilizer Demand



World Demand (incl China)

CAGR (base year → 2023/24)

N	+1.0%
P ₂ O ₅	+1.2%
K ₂ O	+1.4%

Total +1.1%

World Demand (excl China)

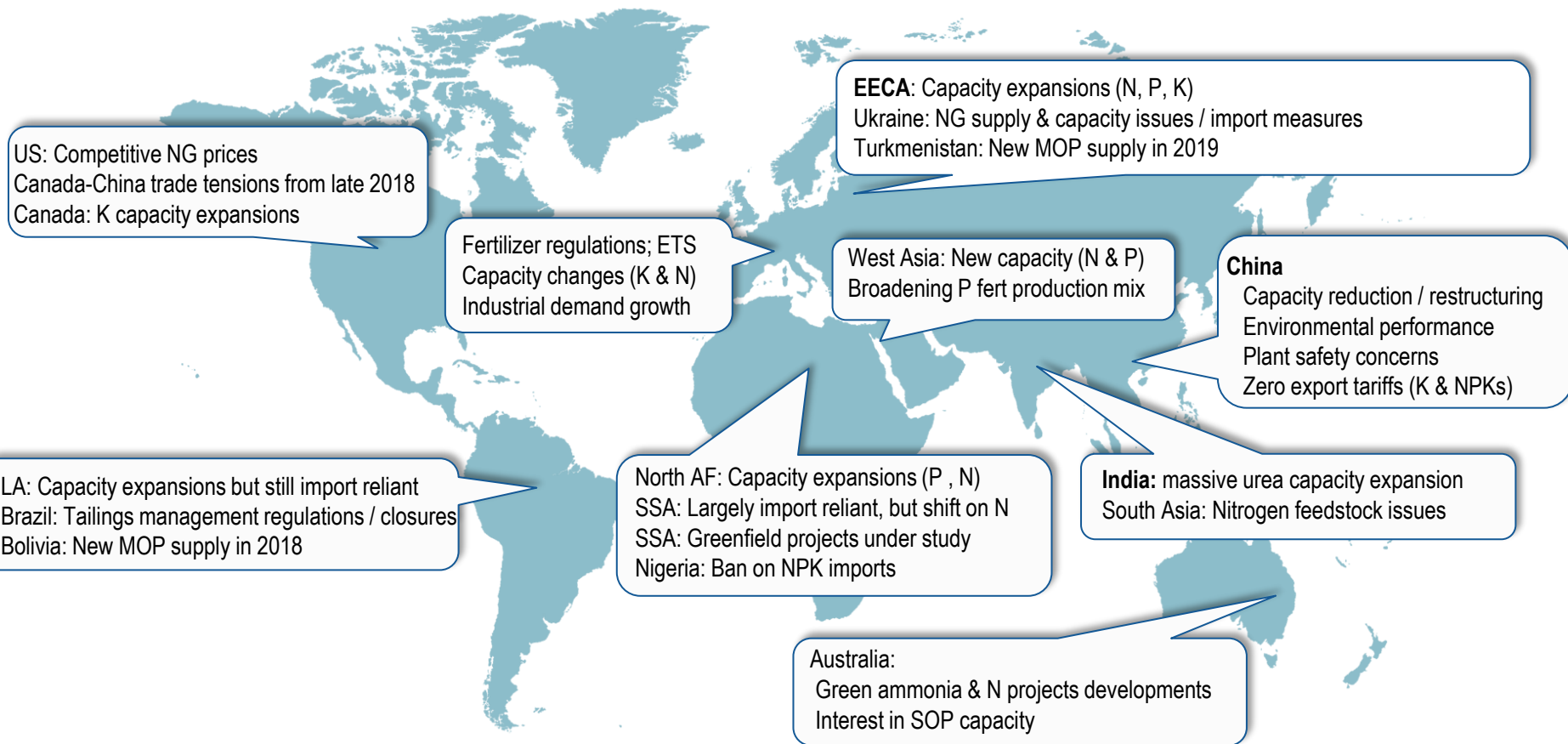
CAGR (base year → 2023/24)

N	1.5%
P ₂ O ₅	1.8%
K ₂ O	1.8%

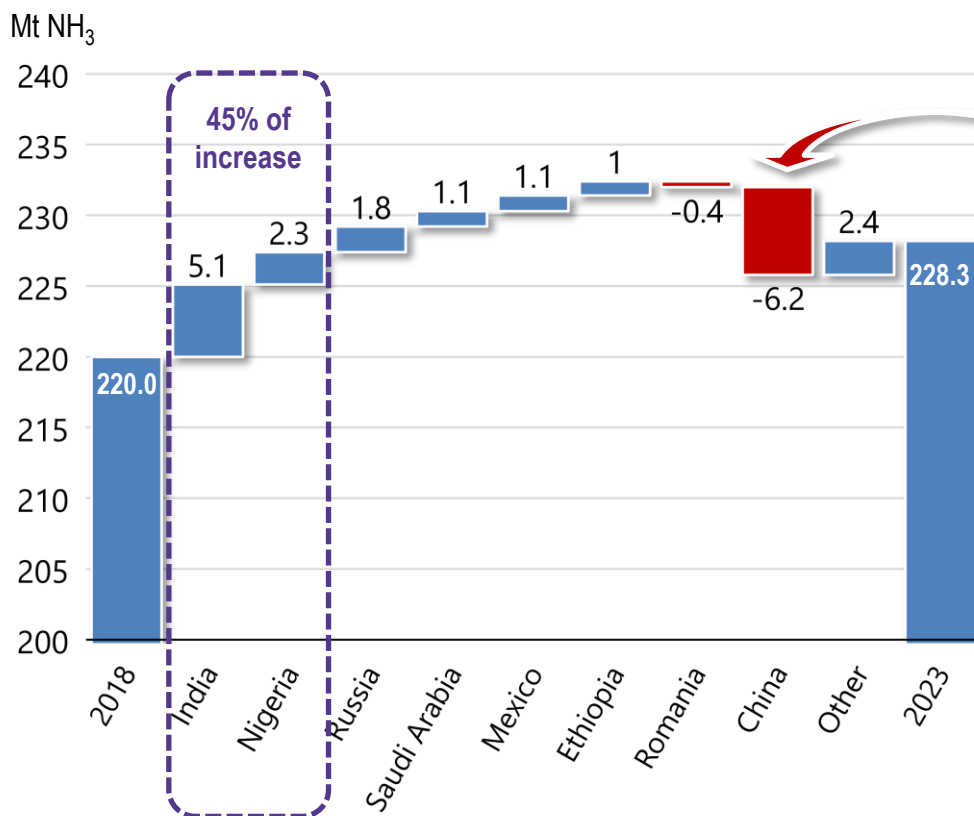
Total 1.6%

FERTILIZER SUPPLY OUTLOOK

Supply Trends in 2018/2019+



Global Ammonia Capacity : 2018 to 2023



World : +3.8% over 2018, or +8.3 Mt NH₃ to 228 Mt NH₃ in 2023

China : 35% of global capacity in 2014
30% in 2018
26% in 2023

Down 6.2 Mt from 2018, to 60 Mt NH₃ in 2023

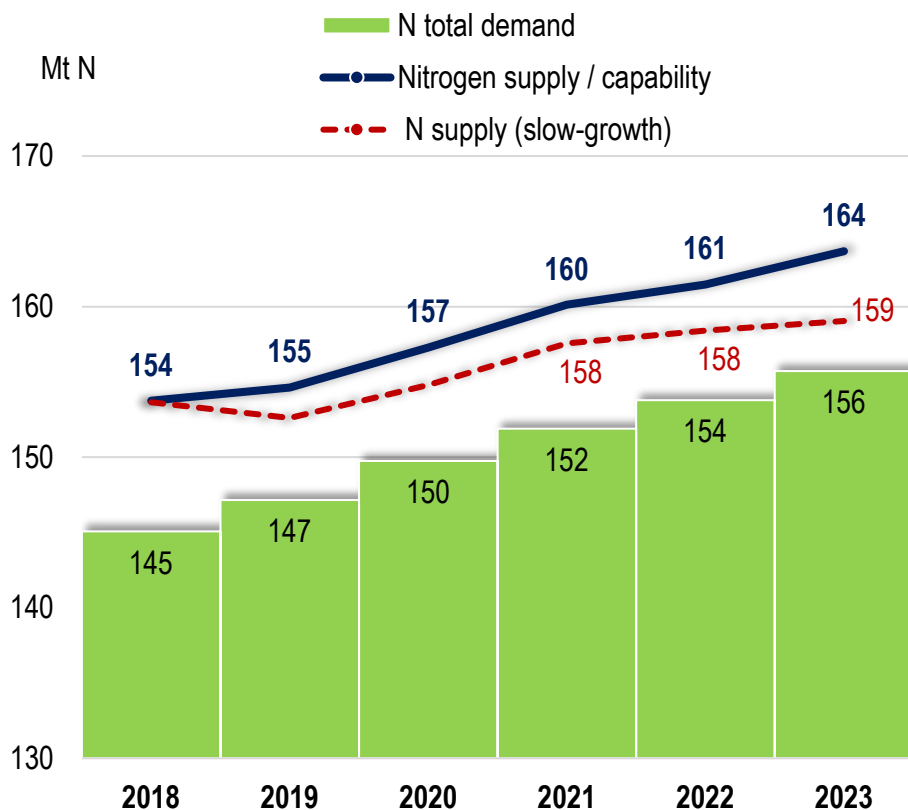
Main increases in India and Nigeria

India: +33%, to 20.5 Mt NH₃

Nigeria: +200%, to 3.4 Mt NH₃

Expansions : Russia, Saudi Arabia, Ethiopia and potentially in Mexico

Nitrogen Global Supply/Demand : 2018 to 2023



2018 to 2023

Capacity + 4% + 7 Mt N 188 Mt

Supply + 6% + 10 Mt N 164 Mt

Demand + 7% + 11 Mt N 156 Mt

Potential annual surplus: 8.7 Mt in 2018, down to 7.5 Mt in 2019 and increasing again to 8.0 Mt N in 2023

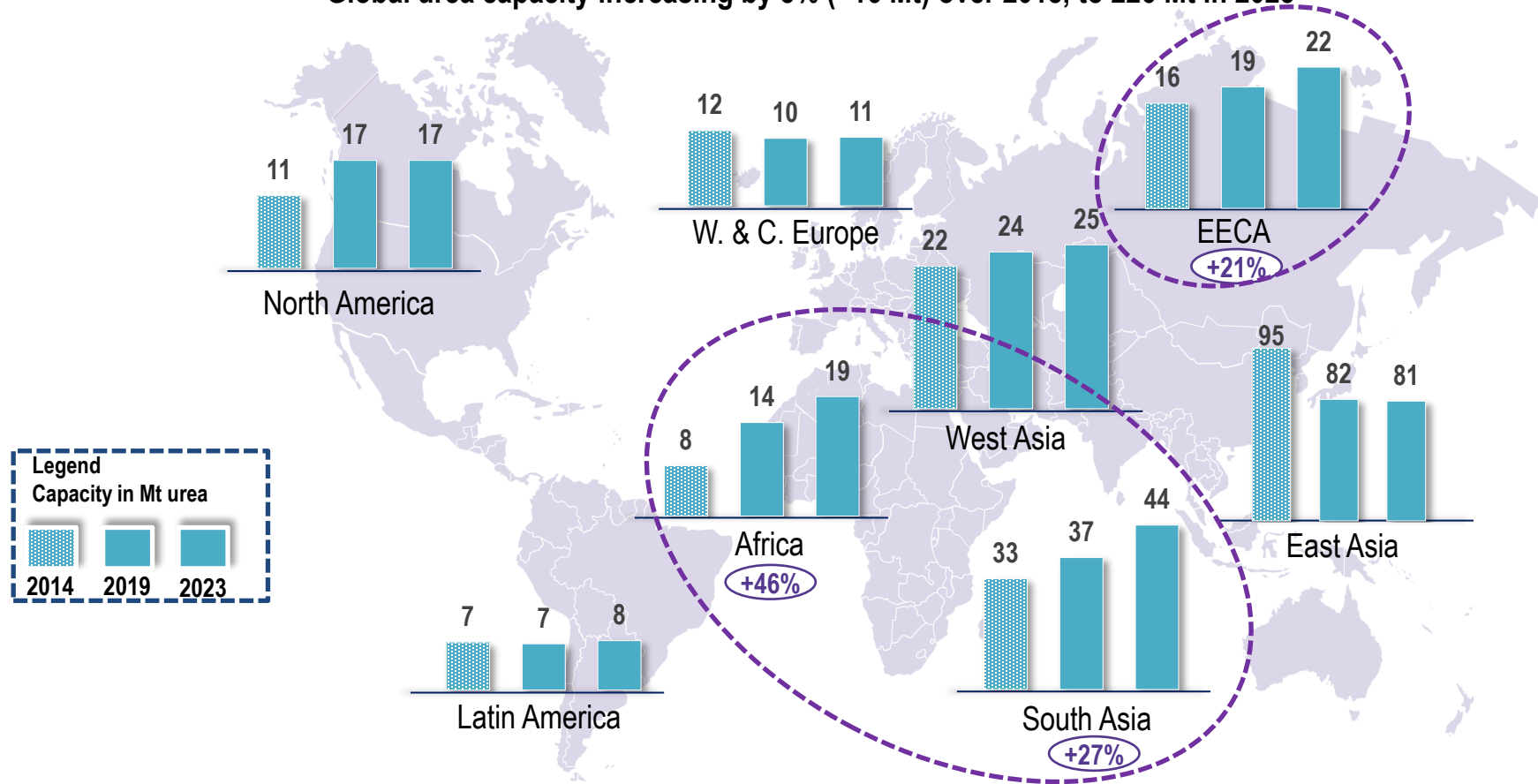
Slow-growth scenario

Supply in 2023 reduced by 4-5 Mt N

Potential surplus below 3.5 Mt or 2% of supply

Regional Urea Capacity Trends: 2014-2019-2023

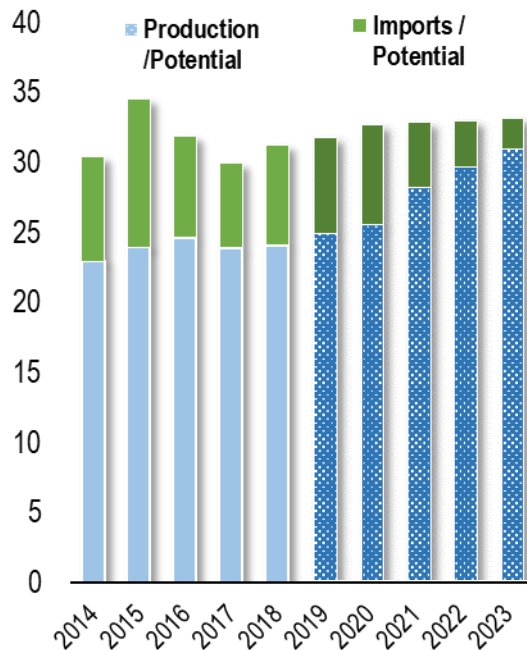
Global urea capacity increasing by 8% (+16 Mt) over 2018, to 226 Mt in 2023



India: Rising Urea Production and Potential Impact on Imports

Urea accounts for +80% of N nutrient applied

Mt urea

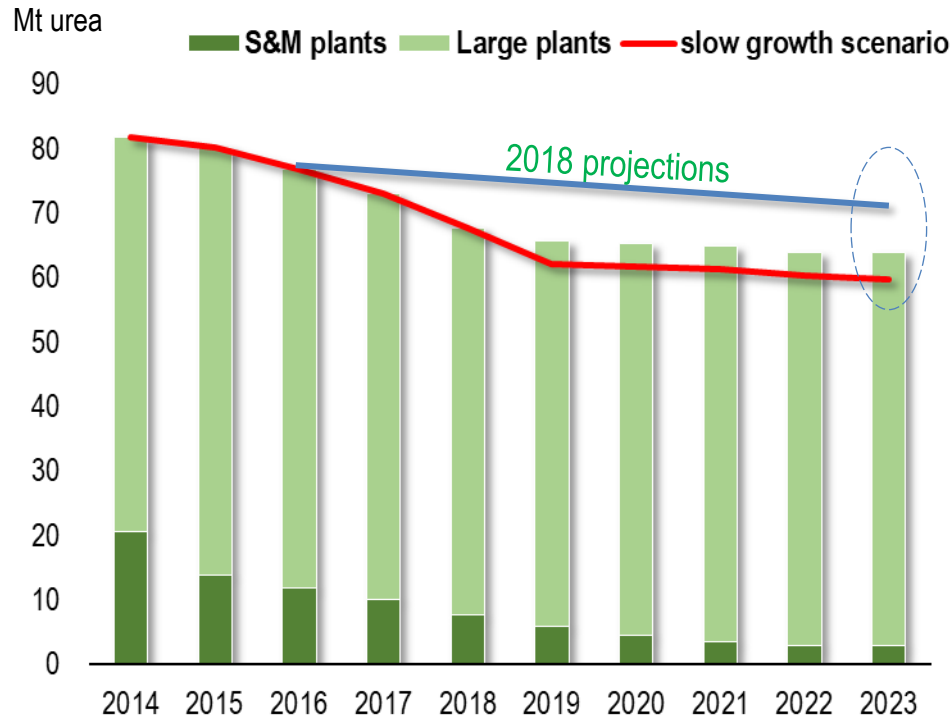


- Seven new urea plants adding 9 Mt of capacity
- India's urea capacity then reaching 33.7 Mt
- Rising urea production, at 90% of supply
- Potential production reaching 30-32 Mt in 2023
- N fert demand is now met with 81-82% urea
- Share of urea declining to 79% in 2023
- Total urea demand plateauing at 31-33 Mt in 2023

2019	Chambal Fertilizers & Chems.	Gadepan III
2019	Ramagundam Ferts. & Chems.	Ramagundam
2021	HURL (Hindustan Urvarak)	Barauni
2021	HURL (Hindustan Urvarak)	Gorakhpur
2021	HURL (Hindustan Urvarak)	Sindri
2022	Rashtriya Chemicals & Ferts.	Talcher
2023	Brahmaputra Valley Ferts.	Namrup IV

Imports dropping from 7 Mt in 2018 : Potentially ranging between 0.2 Mt and 2.0 Mt in 2023

China Urea Capacity Evolution : 2018 to 2023



Base-case scenario

Chinese urea capacity : -4 Mt over 2018, to 64 Mt in 2023

- -5 Mt reduction in the small & medium plant sector
- +1 Mt Net increase in large plant sector

Downward correction over 2018 projections :-3 Mt in 2022-23

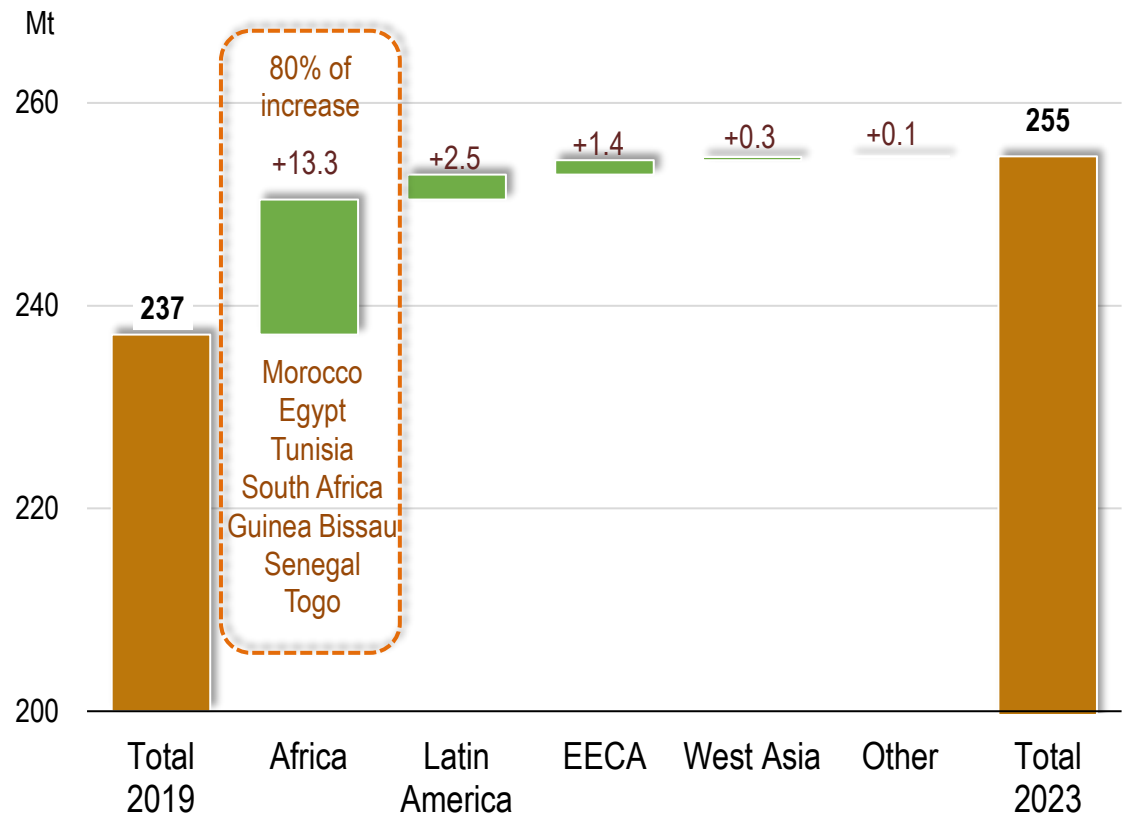
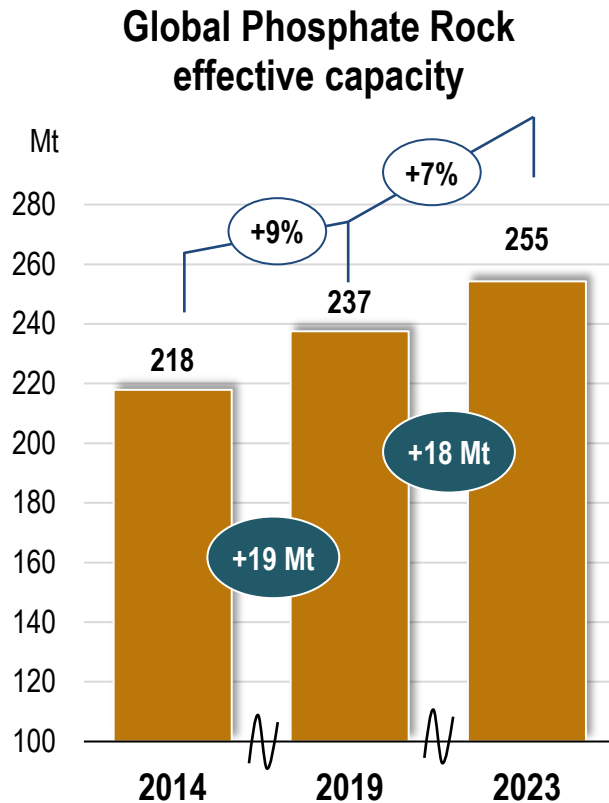
« Slow-growth » scenario

- Another -4 Mt reduction over the next five years
- Reaching 60 Mt in 2023

Plant relocation; closures of ineffective / unsafe units

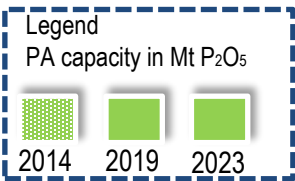
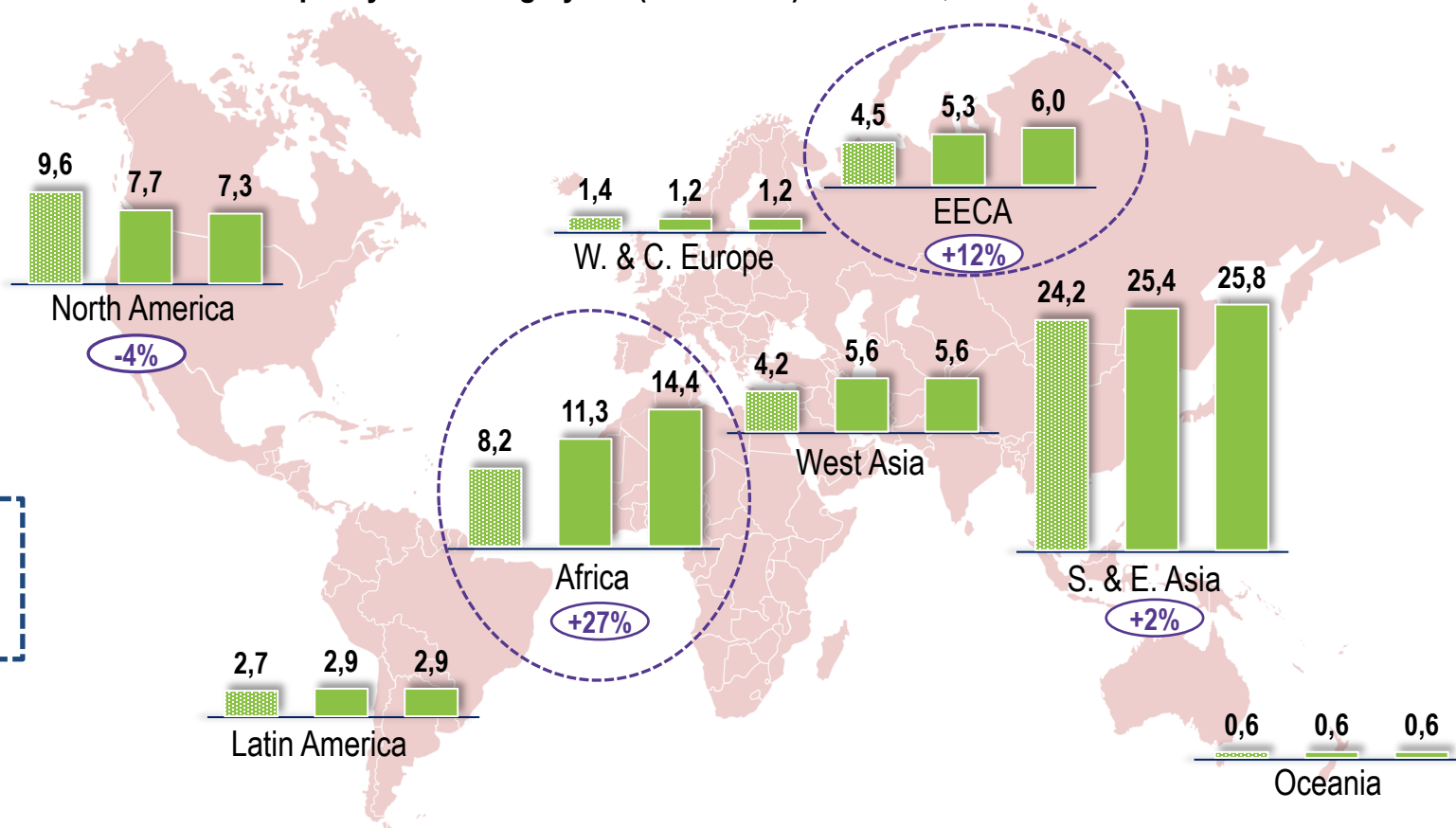
Feedstock supply (NG); poor environmental performance

Phosphate Rock Supply to 2023: Momentum of Growth



Regional PA Capacity Trends: 2014-2019-2023

Global PA capacity increasing by 7% (+4 Mt P₂O₅) over 2018, to 63.9 Mt in 2023



Major PP Capacity Developments: 2019-2023

- ✓ Morocco
- ✓ Saudi Arabia
- ✓ Ethiopia / Algeria

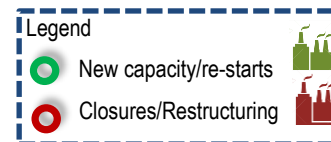
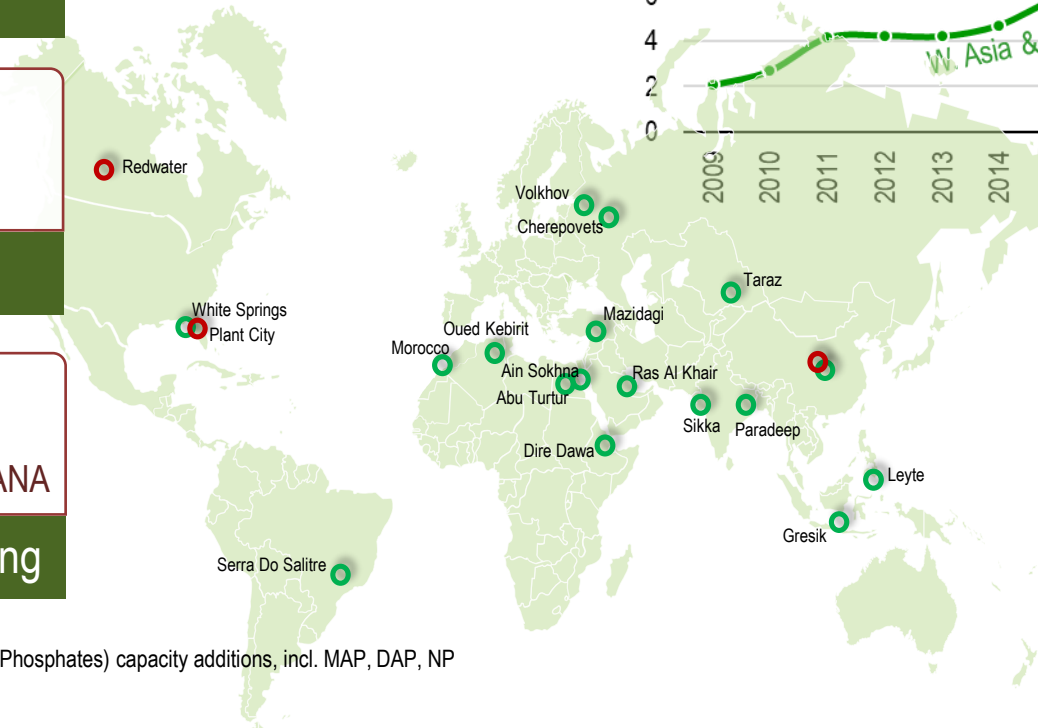
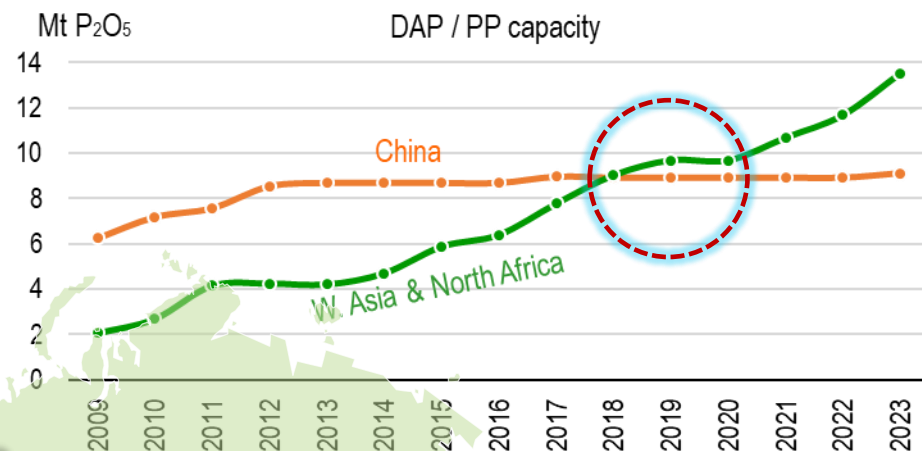
WANA: growth

- ✓ NPS / MAP+
- ✓ NPK, NP, UP
- ✓ Water-soluble

Flexibility

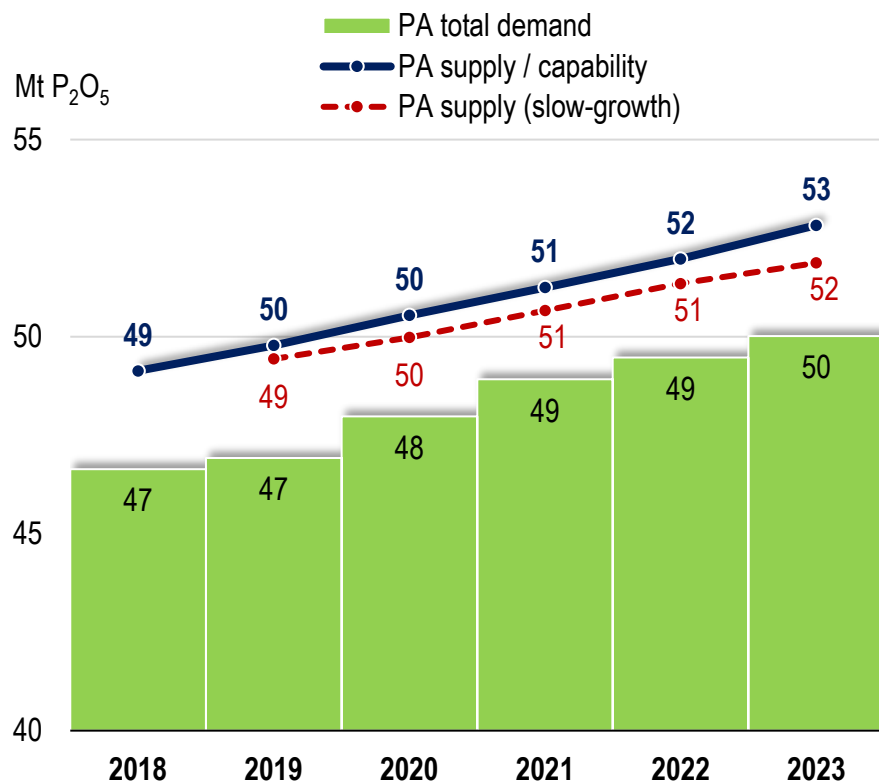
- ✓ China P capacity restructuring;
- ✓ Global hubs in WANA

Industry reshaping



PP (Processed Phosphates) capacity additions, incl. MAP, DAP, NP

Phosphoric Acid Global Supply/Demand : 2018 to 2023



2018 to 2023

Capacity → +7% → + 4.0 Mt P₂O₅ → 64 Mt

Supply → +7% → + 3.5 Mt P₂O₅ → 53 Mt

Demand → +8% → + 3.6 Mt P₂O₅ → 50 Mt

Potential annual surplus : 2.7 Mt in 2019,
declining to 2.3 Mt P₂O₅ in 2023

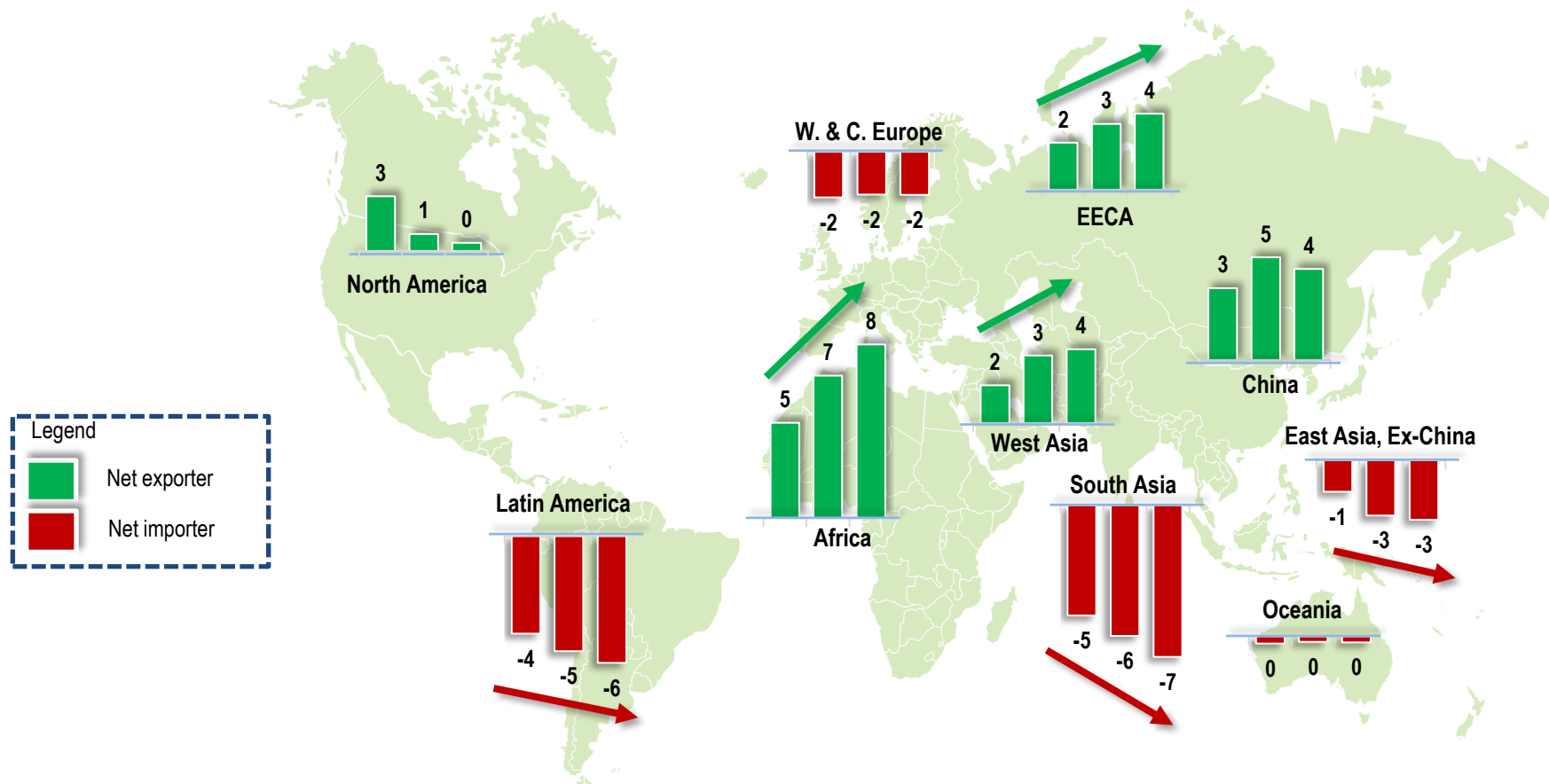
Slow-growth scenario

Supply in 2023 reduced by 0.8 Mt P₂O₅

Potential surplus ≈ 1.5 Mt, or 2.9% of supply

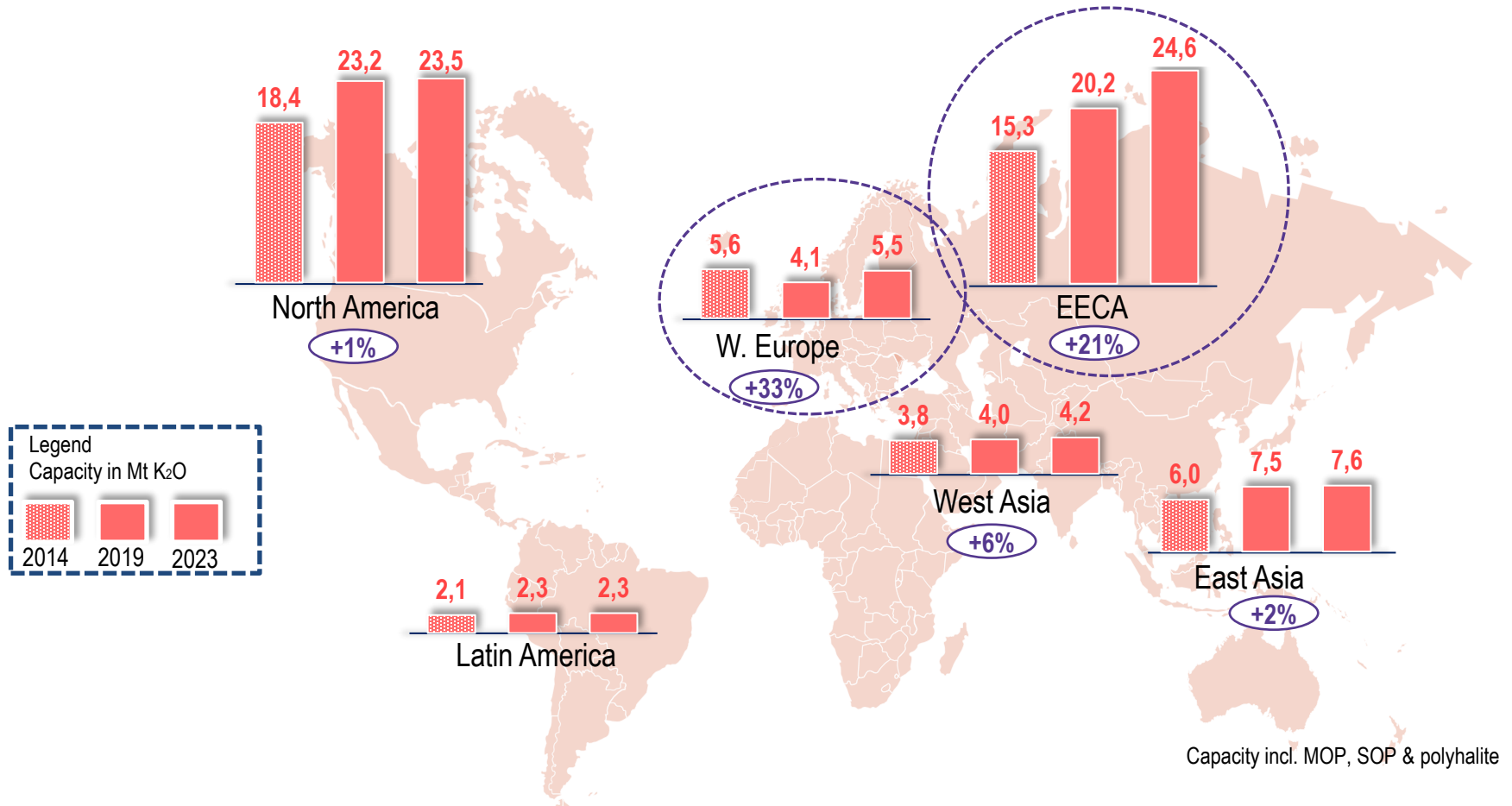
Phosphoric Acid Potential Balances 2014-2019-2023

Million tonnes P_2O_5



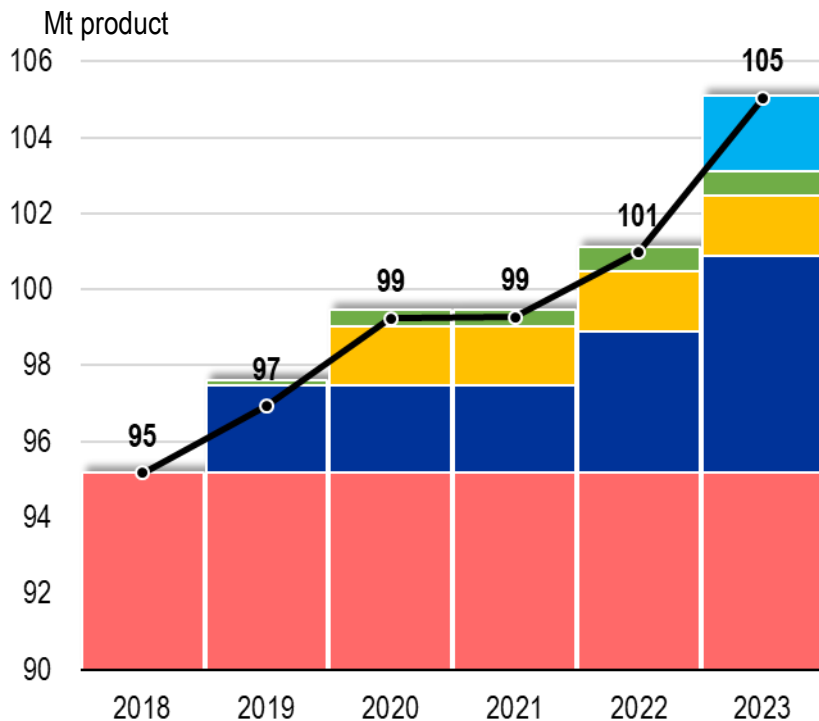
Regional Potash Capacity Trends: 2014-2019-2023

Global potash capacity increasing by 13% (+8 Mt K₂O) over 2018, to 67.8 Mt K₂O in 2023



MOP Capacity Developments: 2018 to 2023

Existing Capacity
EuroChem
Belaruskali - Petrikov
K&S Canada
Slavkaliy
World Total



Russian MOP capacity - the largest growth globally (+5.9 Mt)

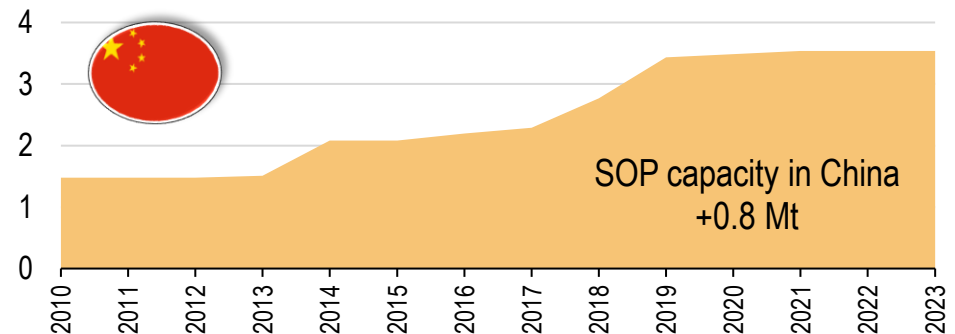


Belarus: Belaruskali (+1.6 Mt) and Slavkaliy (+2 Mt)

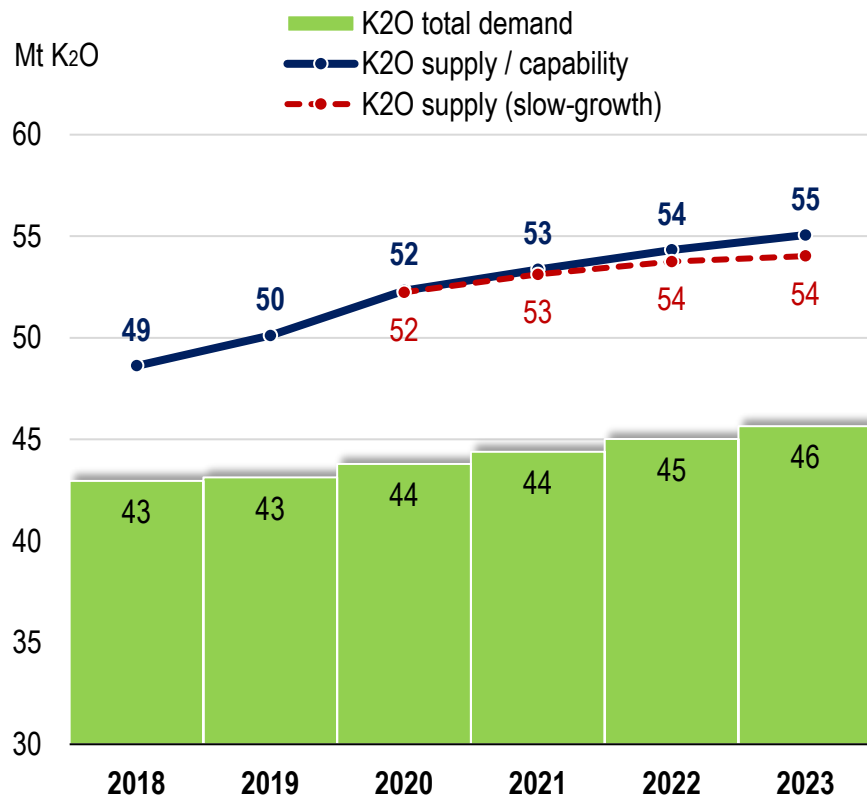


Restructuring in Europe: reduction of -0.9 Mt of MOP

Global MOP capacity to grow by 10% over 2018-23, to 105 Mt product (63.6 Mt K₂O)



Potassium Global Supply/Demand : 2018 to 2023



2018 to 2023

Capacity → +13% → + 8 Mt K₂O → 68 Mt

Supply → +13% → + 6 Mt K₂O → 55 Mt

Demand → +7% → + 3 Mt K₂O → 46 Mt

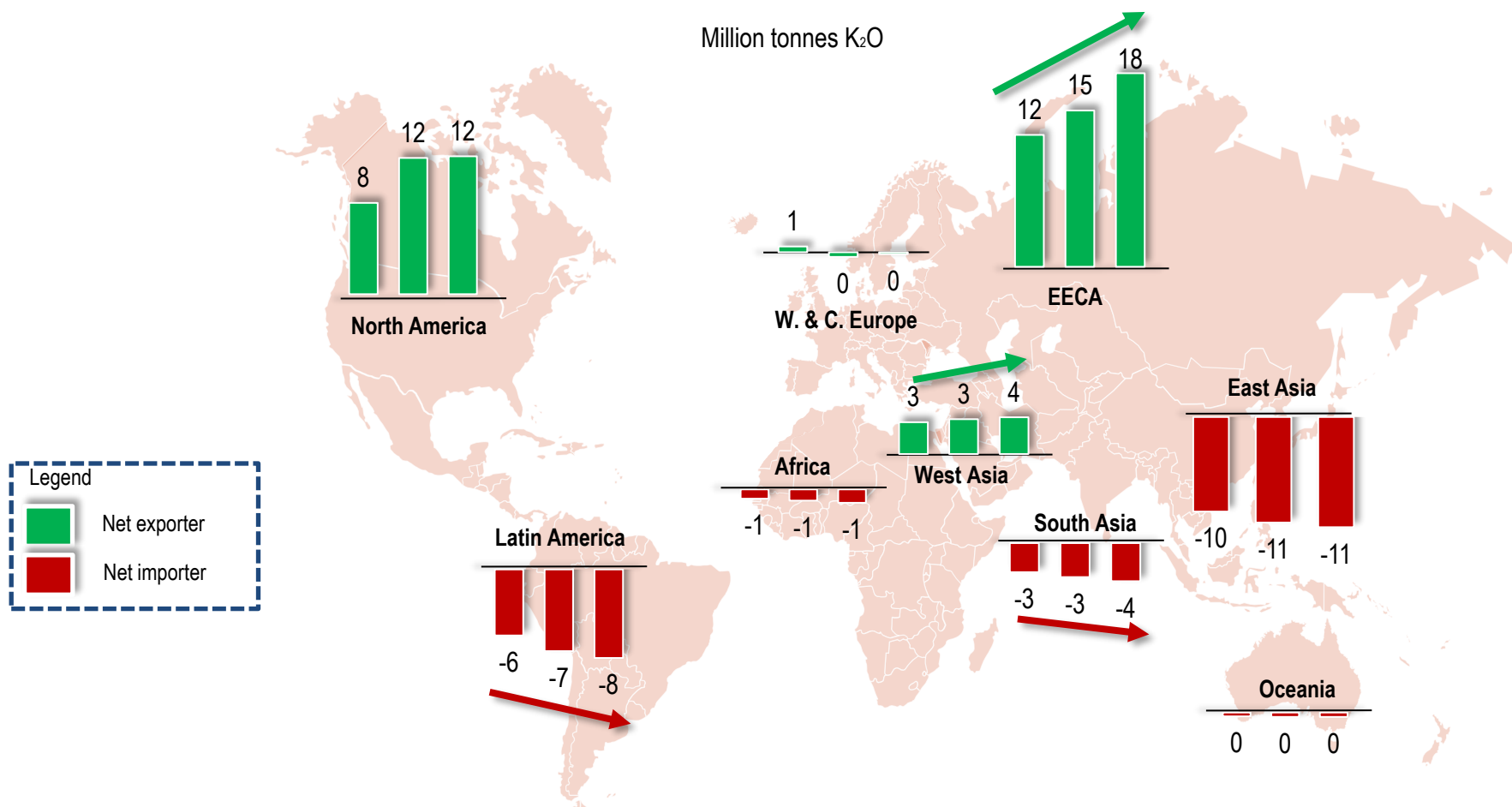
Potential annual surplus : 7.2 Mt K₂O in 2019,
rising to 9.2 Mt K₂O in 2023

Slow-growth scenario

Supply in 2023 reduced by 1.0 Mt K₂O

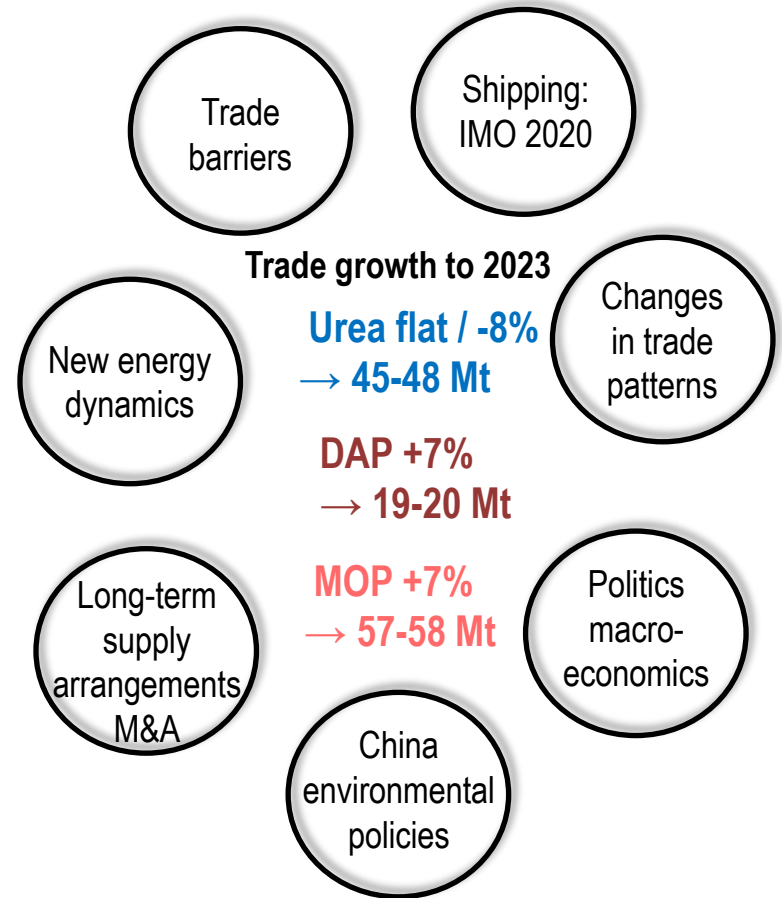
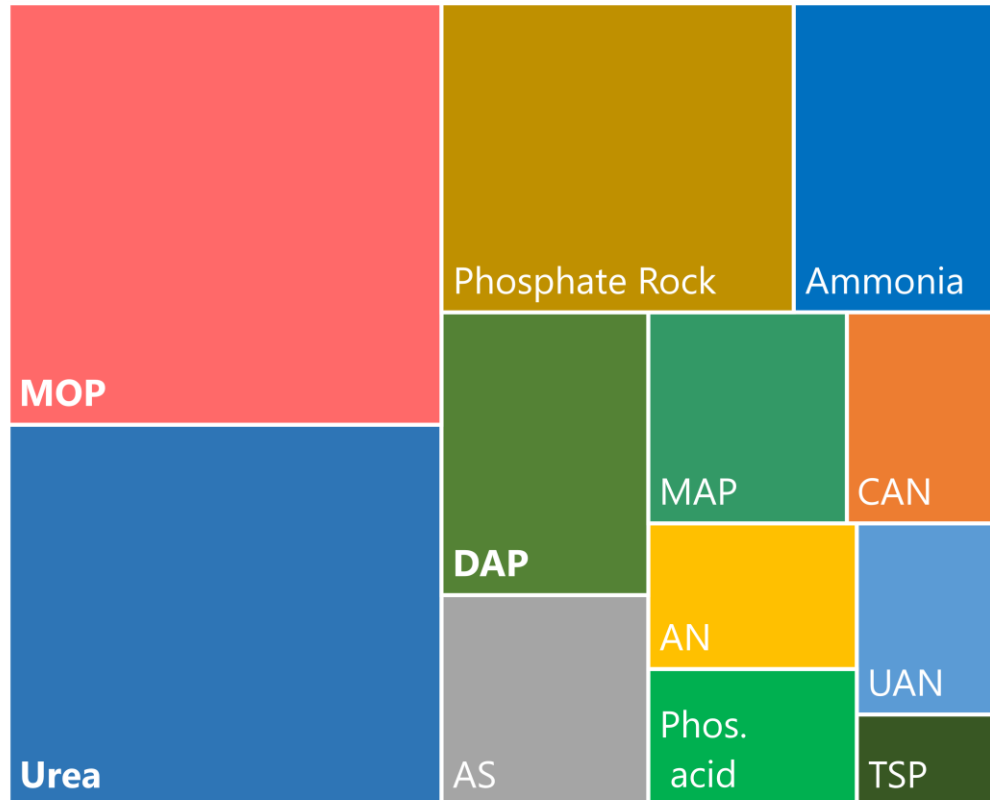
Potential surplus below 8.2 Mt K₂O, or 15% of supply

Potassium Potential Balances 2014-2019-2023



Key Take-Aways : Trade Dynamics to 2023

Global Trade (2017): 232 Mt +



Key Take-Aways : Capacity Dynamics to 2023

Green
Carbon-free
Renewables

Technology
innovations /
Efficiency

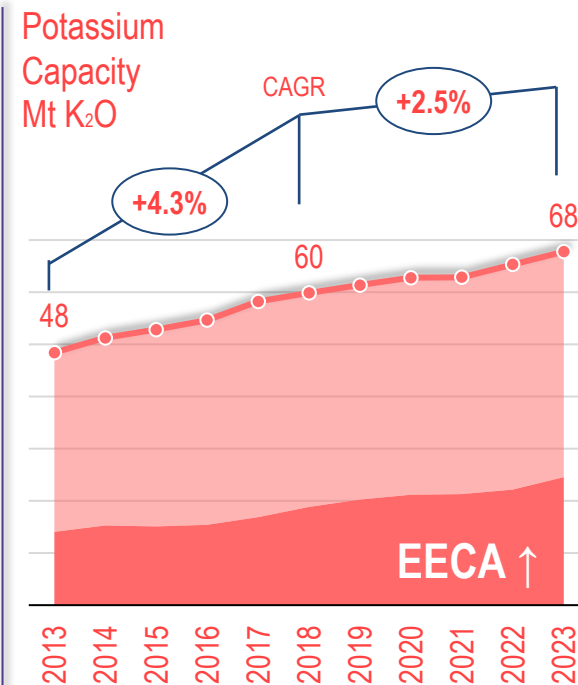
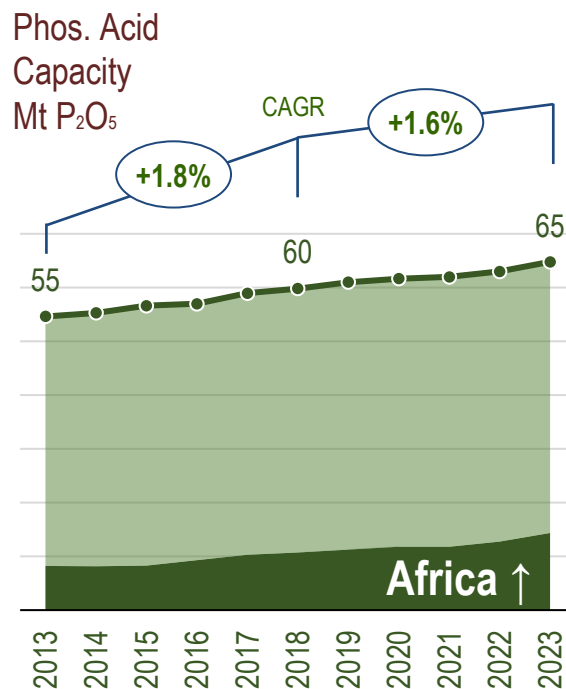
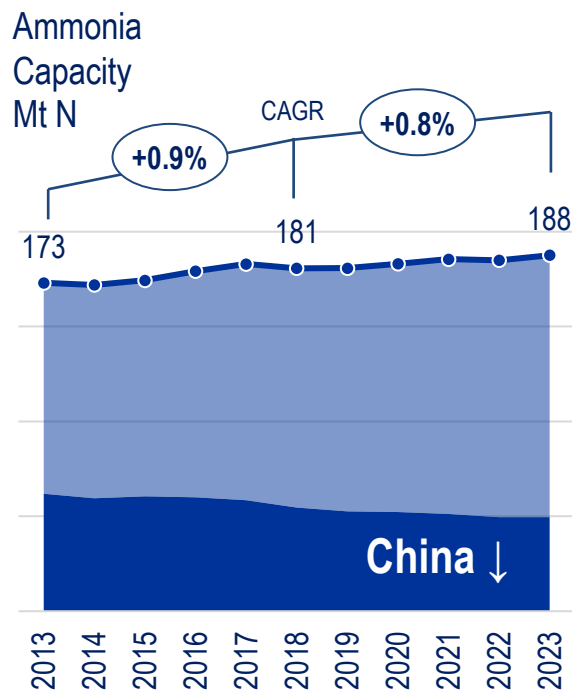
Feedstock
challenges /
requirements

Small-scale
vs
Large-scale

Product
flexibility

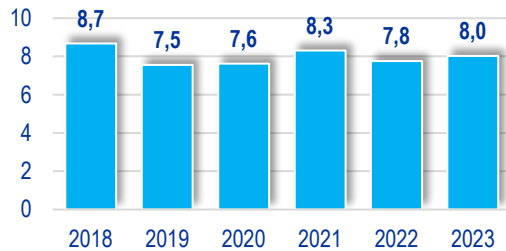
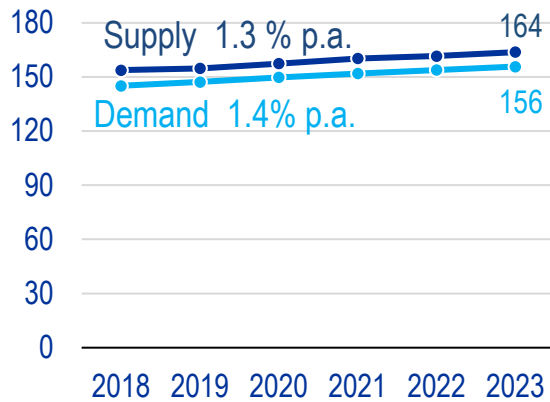
Environmental
regulations

Evolving
industrial
applications



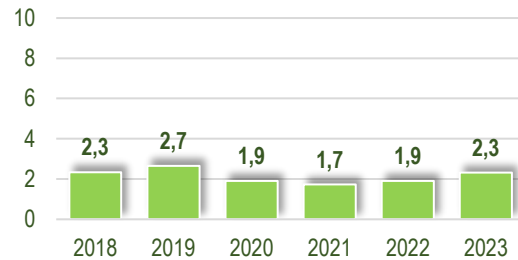
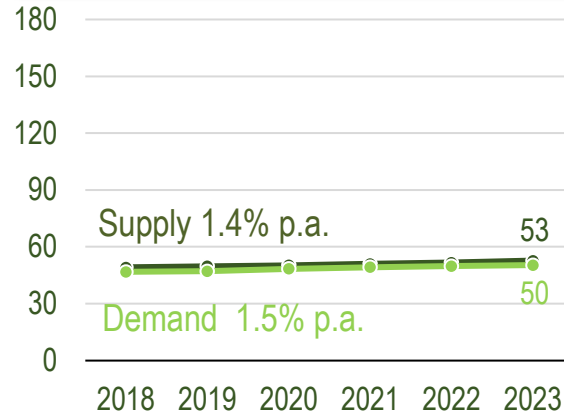
Key Take-Aways: Supply/Demand

Nitrogen (N)



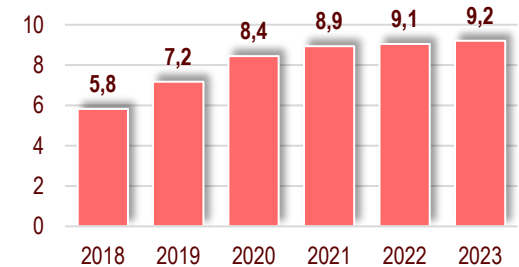
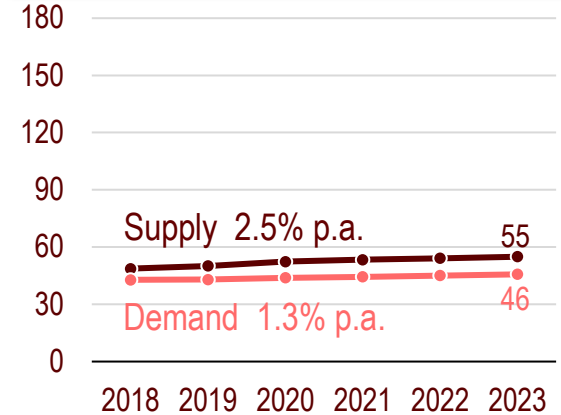
S/D balance (N): 5% of supply

Phosphates (P₂O₅)



S/D balance (P₂O₅): 4% of supply

Potassium (K₂O)



S/D balance (K₂O): 17% of supply

Thank You!

For questions & comments:

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