



**K+S**

# Compendium

October 2022



The K+S logo is displayed in white, bold, sans-serif font on a dark blue, triangular background element that points towards the bottom right corner of the image. The background of the entire slide is a photograph of a large, dimly lit underground salt mine. The walls are composed of white, crystalline salt rock with visible vertical striations and textures. In the center of the mine, a yellow wheel loader is parked on a dirt floor, with a large pile of white salt rock to its right. Two workers in blue uniforms and yellow hard hats are standing to the left of the loader, providing a sense of scale to the massive cavernous space.

**K+S**

# 1. K+S Group

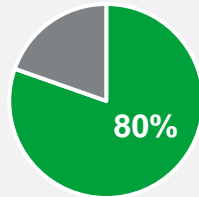
# K+S at a glance

## Customer Segments

### Agriculture



Potassium chloride (MOP) and fertilizer specialties

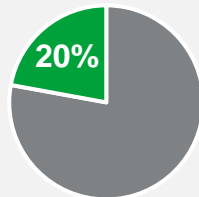


Revenues  
€2,188.3 mln

### Industry+ consisting of Industry, Consumer and Communities



In the Industry: Chemical, Pharma, Food, Animal nutrition, Oil and gas, Water softening, other industrial products



Revenues  
€533.9 mln

## K+S Group financials H1/2022 (continuing operations)

Revenues  
€2,722.2 mln

EBITDA  
€1,230.4 mln

EBITDA-Margin  
45.2%

Adjusted free cash flow  
€233.8 mln

# Global Presence

Revenues and employees of the continuing operations by regions in 2021



## Employees by region 2021

Germany	91%
North America	4%
Europe (excl. Germany)	4%
Rest of the world	1%

**Total number: 10,711 FTE**

## Revenues by region 2021

Europe	56%
North America	7%
South America	19%
Asia	13%
Africa, Oceania	5%

**Total number: €3,213.1 mln**

# Adding value along our entire supply chain

## Exploration



Our potash and salt deposits came into being millions of years ago. They are either our property or we have corresponding rights or approvals that allow the extraction or solution mining of the raw material reserves.

## Mining



We extract raw materials in conventional mining below ground as well as through solution mining. We also use the power of the sun and extract salt by evaporating sea water or saline water.

## Production



The refining of raw materials is one of our core competencies. Above ground, the crude salt is processed in complex, multi-phase, mechanical or physical processes, with the natural properties of the mineral remaining unchanged.

## Logistics



The long-term securing of freight capacity is of strategic importance to us. A large part of our international transportation volume is forwarded by service providers with which we maintain long-standing partnerships.

## Sales/ Marketing



The K+S Group wants to be the preferred partner of its customers in the market. High product quality and reliability are crucial prerequisites for this. K+S offers a comprehensive range of services for agriculture, industry and private consumers.

## Application



Our customers apply our products, use our raw materials in their processes or process them in their products. We make extensive product information available and advise our customers on the application of our products.

# Board of Executive Directors



**Dr. Burkhard Lohr**  
CEO & CFO



**Holger Riemensperger**  
COO

Dr. Burkhard Lohr, Chairman of the Board of Executive Directors, has also assumed the function of Chief Financial Officer on a transitional basis. Together with Holger Riemensperger, Chief Operating Officer he will continue to constitute the Board of Executive Directors of the Company.

## **Dr. Christian H. Meyer appointed new Chief Financial Officer**

Furthermore, the Supervisory Board of K+S has appointed Dr. Christian H. Meyer (50) as the new Chief Financial Officer. He will take over the management and further development of the finance area at K+S in spring 2023.



# Signing achieved for complete OU Americas sale



## Key data of the signed agreement

**Buyer:**

Stone Canyon Industries Holdings LLC, Mark Demetree and affiliates

**Gross proceeds:**

USD 3.2 billion

**EV/EBITDA:**

12,5x 2019 EBITDA of USD 257 mln

**Closing:**

April 30, 2021

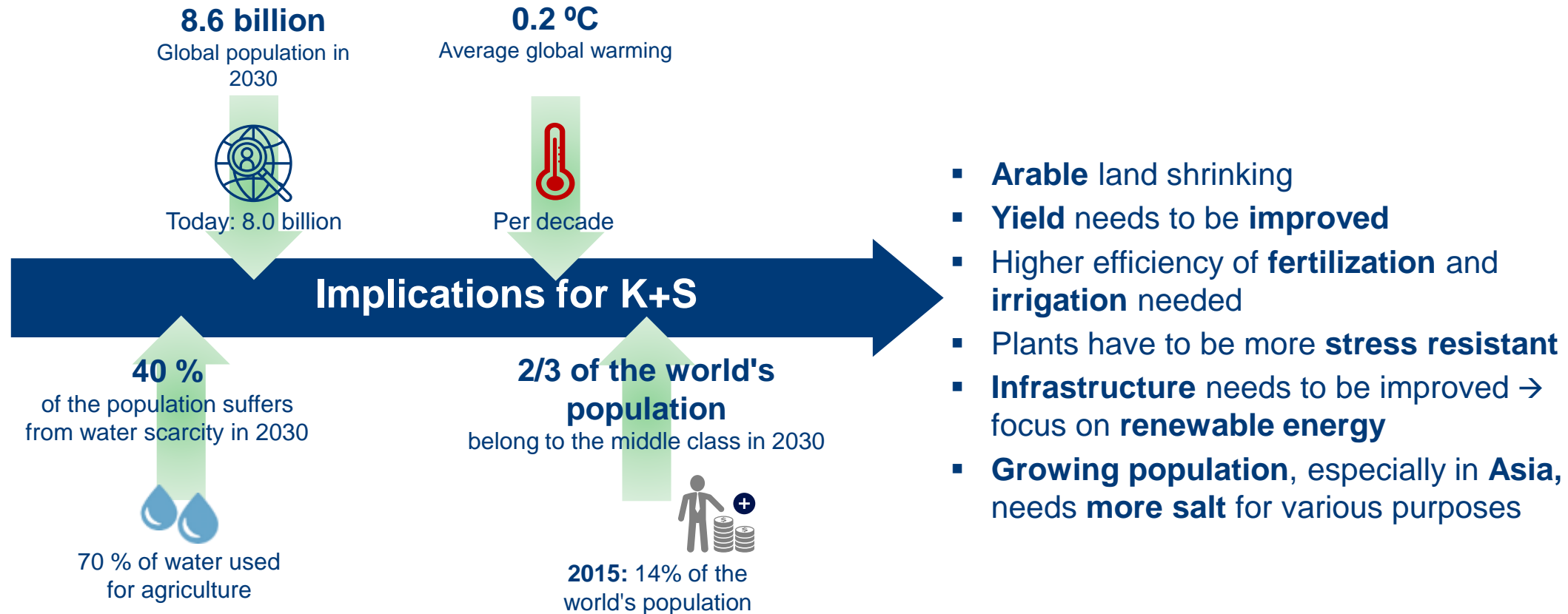
**Net proceeds:**

€2.6 bln after tax

**Preliminary gain on disposal:**

€742 mln

# Important megatrends and their implications



**Sources:** United Nations, 2017; World Population Clock of the Deutsche Stiftung Weltbevölkerung (dated July 2022); „Global temperature change“ from James Hansen et al. (September 25, 2006); World Water Report 2021 of the UNESCO; James Davies, Rodrigo Lluberas and Anthony Shorrocks, Credit Suisse Global Wealth Databook 2015



# Guiding principles of strategy and management focus



## Financial ambitions

- Earn cost of capital over a 5-year cycle
- At the same time, an EBITDA margin of > 20% is aimed for over this cycle

# Clear focus of our sites

70 %

## Bethune



- Long-term ramp-up to up to four million tonnes of capacity
- Improvement of cost position
- Increase in granulated products

## Zielitz



- Improvement of the cost position
- Optimization of maintenance
- Increase in energy efficiency
- Increase in KaliSel production capacity

## Werra



- Optimization of product mix & production volumes
- Optimization of maintenance
- Increase in energy efficiency
- Increase in granulation capacity for potassium sulfate

## Neuhof-Ellers



- Improvement of the mineral content through AI
- Increase of the granulating capacity of kieserite

➔ **EBITDA impact: around €50 million p.a. from 2023**

# Optimize the existing

70 %

## Agriculture



- Increase of marketing in USA ex Bethune
- Increase of trading business in Middle East, China and India
- Improved leveraging of local sales network

## Industry+



- Focus on potash product groups for industrial product sales
- Capacity expansion of high-purity salts
- Optimization of de-icing salt setup

## Supply Chain



- Warehouse and network optimization for European salt logistics
- Optimization of warehousing
- Optimization of infrastructure utilization

➔ **EBITDA impact: around €30 million p.a. from 2023**



# Grow the core

20 %

We enable farmers to achieve greater economic success



## Expansion of the portfolio

- Fertilization
- Micronutrients
- Biostimulants
- Concepts for soil health
- Further additions to the portfolio



## Logistics access

- Circular economy
- Last Mile Distribution



## Digital sales

- Agronomic services
- Digital sales channels (e.g. web shops)
- New digital business models
- Direct access to the farmer



# New business areas

10 %

Reuse of existing assets and development of new business areas



## Renewable and green energy

- Increasing use of renewable energies (wind, sun) at our locations
- Use of available space at our locations
- Research into the production and use of green hydrogen



## Carbon dioxide (CO<sub>2</sub>)

- CCS: underground storage (solid and gaseous)
- CCU: Use for the production of biomass or as a raw material for basic chemicals



## Waste management and circular economy

- Underground recycling, underground storage
- Extraction of valuable minerals from waste streams (e.g. magnesia)



## Reuse of our mines

- Research into alternative uses for agriculture or as a production area for biotechnology

Mines

Caverns

Piles

Land

Technical/structural  
infrastructure

Technological  
know-how

Agronomic  
know-how







**K+S**



**2. Sustainability**



# K+S Sustainability Goals



We have set ourselves ambitious goals in these three areas of action:

## **Society & Employees, Environment & Resources and Business Ethics & Human Rights**

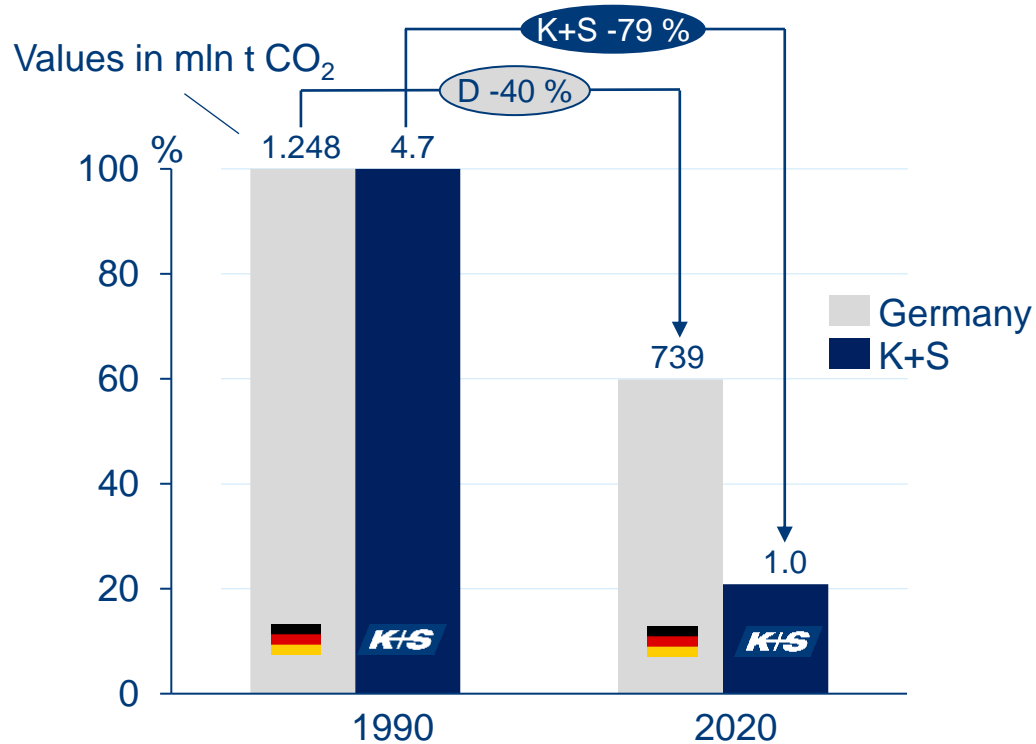
- The human being is our focus
- Active commitment to environmentally friendly production
- Integrity & a sense of responsibility characterize our actions



# K+S Climate Strategy



## Germany compared to K+S (German potash production, Scope 1)



**80% of CO<sub>2</sub> emissions already reduced (1990 – 2020):** through fuel change, increased energy efficiency and site closures

## Short-term goal

- Introduction of a “**K+S climate protection fund**” from **2022** to reduce our CO<sub>2</sub> emissions.

## Mid-term goal

- Reduction of our **CO<sub>2</sub> emissions by 10%** by **2030** compared to 2020.

## Long-term goal

- K+S supports the goals of the “**Paris Agreement**”: **Climate neutrality in 2050** can be internationally achieved with a supportive regulatory framework.
- K+S, therefore, calls for a worldwide **level playing field** (until then carbon leakage protection is required), strong energy **infrastructure**, transition **funding** and **affordable renewable energies**.

# K+S Sustainability Goals 2030



	Goal (Sponsor)	KPI	2021	Target value 2030	Base year	Achievement of targets
Environment & Resources		Injection of saline wastewater in Germany (million m <sup>3</sup> p.a.)	1.0	0 (starting January 2022)	2017 (1.2)	100%
	<b>Resource efficiency</b>	Additional reduction of saline process water to be disposed of from potash production in Germany (million m <sup>3</sup> p.a.)	+0.6	-0.5 (excluding reduction by KCF facility and end of production SI)	2017 (0)	0%
	(Holger Riemensperger, COO)	Amount of residue used for purposes other than tailings piles formation or avoided by increasing the yield of raw material (million t p.a.)	0.2	3	2017 (0.2)	6%
		Additional covered tailings piles area	10.1	155	2017 (0)	7%
	<b>Energy &amp; Climate</b>	Absolute CO <sub>2</sub> emissions in the K+S Group worldwide	-0.5%	-10%	2020	5%
	(Dr. Burkhard Lohr, CEO)	Specific greenhouse gas emissions (CO <sub>2</sub> ) in logistics (kg CO <sub>2</sub> e/t)	-11.6%	-10%	2017	100%



# K+S Sustainability Goals 2030



	Goal (Sponsor)	KPI	2021	Target value 2030	Base year	Achievements of targets
Society & Employees	<b>Health &amp; Safety</b> (Holger Riemensperger, COO)	Injury with lost time (LTIR)*	11.3	0 Vision 2030	2017 (11.5)	<div style="width: 2%;"><div style="width: 2%;"></div></div> 2%
	<b>Diversity &amp; Inclusion</b> (Dr. Burkhard Lohr, CEO)	Positive perception of an inclusive work environment by employees	54.4%	> 90%	2019 (54.4)	<div style="width: 60%;"><div style="width: 60%;"></div></div> 60%
Business Ethics & Human Rights	<b>Sustainable Supply Chains</b> (Holger Riemensperger, COO)	Percentage of critical suppliers that have acknowledged the Supplier Code of Conduct of the K+S Group*	86.6%	100% end 2025	2017 (0)	<div style="width: 87%;"><div style="width: 87%;"></div></div> 87%
		Coverage of the purchasing volume by the Supplier Code of Conduct of the K+S Group*	80.7%	> 90% end 2025	2017 (0)	<div style="width: 90%;"><div style="width: 90%;"></div></div> 90%
	<b>Compliance &amp; Anti-Corruption</b> (Dr. Burkhard Lohr, CEO)	Coverage of the K+S companies with a standardized compliance risk analysis (was designed 100% in 2020 after achieving the old target)	25.0%	100% end 2023	2020 (0)	<div style="width: 42%;"><div style="width: 42%;"></div></div> 42% <small>(dated July 7, 2022)</small>

# K+S Sustainability Management



Organisation	Rating Scale	2019	2020	2021	2022
Dow Jones Sustainability Indexes	Rating scale 0 to 100 (The lower, the better)	35			
MSCI	Rating scale from AAA to CCC (A: average)	A	A	A	
ISS ESG	Rating scale from A+ to D-	C-	C-	C-	
CDP DISCLOSURE INSIGHT ACTION	<b>Climate</b> Rating scale from A to D-	C	C	C	
	<b>Water</b> Rating scale from A to D-	B-	B	B	
SUSTAINALYTICS a Morningstar company	Rating scale from 0 to 40+ (The lower, the better)	40	38.8	36.8	36.5
MOODY'S	Rating scale from 0 to 100 (The higher, the better)	44	45	46	
FTSE Russell	Rating scale from 0 to 5 (The higher, the better)		2.8	3.2	



EU principles for sustainable raw materials



# The contribution of our products to the SDGs



**SUSTAINABLE  
DEVELOPMENT  
GOALS**



Agriculture	<input checked="" type="radio"/>	<input checked="" type="radio"/>					<input checked="" type="radio"/>	<input type="radio"/>
Industry	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Consumer	<input checked="" type="radio"/>	<input type="radio"/>						
Communities		<input type="radio"/>			<input type="radio"/>			

Direct effect

Longer-term, overarching, indirect effects





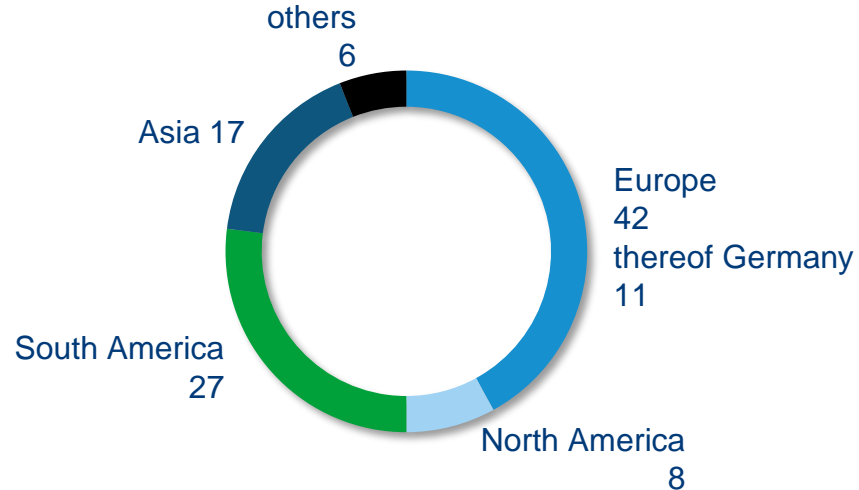
**K+S**

### **3. Customer Segment Agriculture**

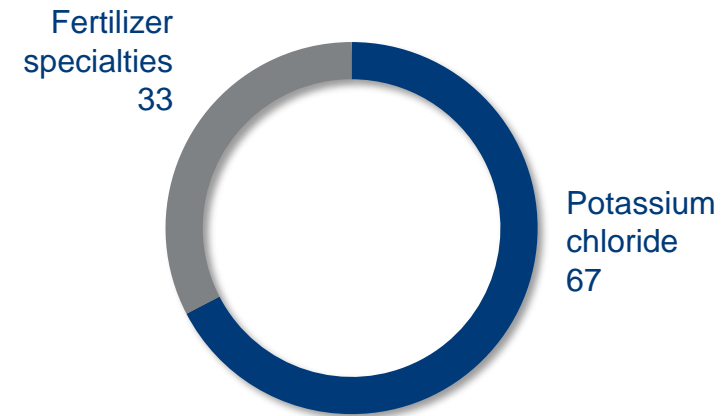
# Customer segment Agriculture at a glance



## Revenue split by region 2021 (%)



## Revenue split by products H1/2022 (%)



## Characteristics

- Close proximity to our most important customers as a logistical advantage
- Shipments to overseas customers at competitive costs from Hamburg harbour
- Solid and long-term customer relationships
- Broad specialty portfolio provides flexibility and stability, partly following different trends and seasons

in € million	H1/2021	H1/2022
Revenues	942.7	2,188.3
Sales volumes (mt)	3.90	3.66



# Why use fertilizers?



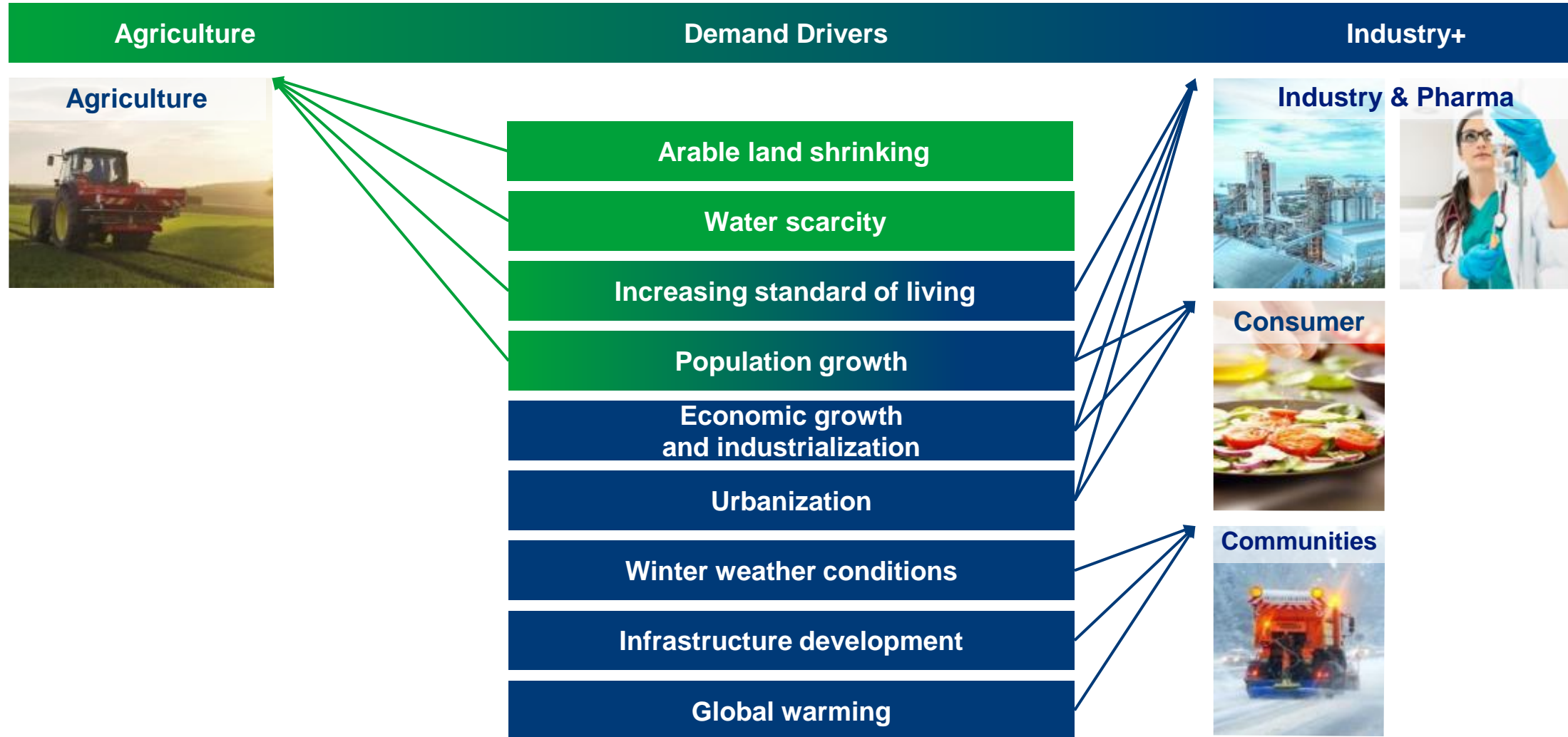
„The growth and yield of a plant is limited by the nutrient available in the smallest amount.“<sup>1</sup>



- Plants need sunlight, water and **minerals** to thrive.
- There are few soils on earth which have a sufficient content and availability of **plant nutrients** to achieve **high yields** over a longer period without fertilization.
- Potash is an **indispensable** addition to the natural nutrient content of arable soils.
- The deprivation of nutrients by harvesting and other factors must be compensated by balanced fertilization.

<sup>1</sup>Justus von Liebig, “Die Naturgesetze des Feldbaus“, 1863

# Long-term demand drivers

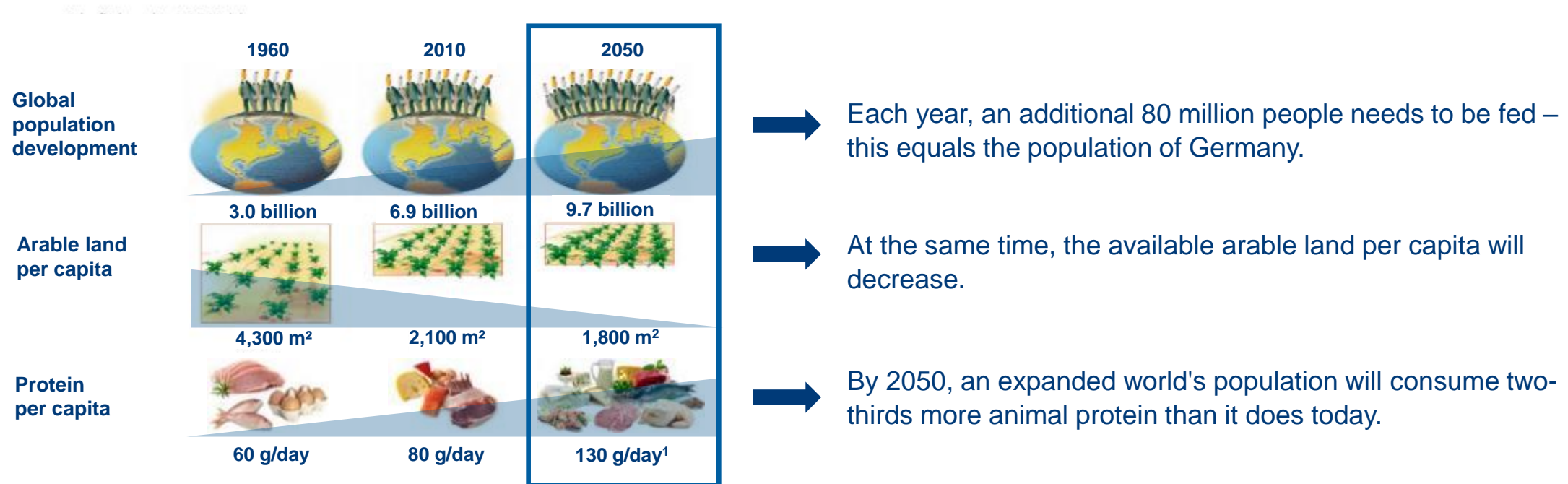




# Long-term key drivers for our fertilizer business



## Less arable land – but more protein consumption per capita



In 2050, only roughly 25% of a soccer field will be available for a person's annual food supply – 80 % of the future growth in agricultural commodity production will result from increases in yields. This is achieved through the use of balanced fertilization.

Source: UN, World Population Prospects, 2022 Revision, UNDP, 2013; FAOStat 2014; <sup>1</sup> FAO 2014 - Forecasts based on expected increase in animal protein

# What makes us different?



## Soil fertiliser

**60. Kali<sup>®</sup>**

### Our potassium chloride – your first choice

- Can be applied universally to all crops not sensitive to chloride and to all types of soil
- Standard product used for commodity crops

**Korn-Kali<sup>®</sup>**

Our multi talent for the most diverse applications

**Magnesia-Kainit<sup>®</sup>**



For healthy forage production

**KALISOP<sup>®</sup>**



Our top quality for specialty crops

**Patentkali<sup>®</sup>**



Our successful formula for all chloride-sensitive crops

**ESTA<sup>®</sup> Kieserit**



The full magnesium - sulfur-power

## Foliar and liquid fertilisers

**hortiSUL<sup>®</sup>**



The best from nature for specialty crops

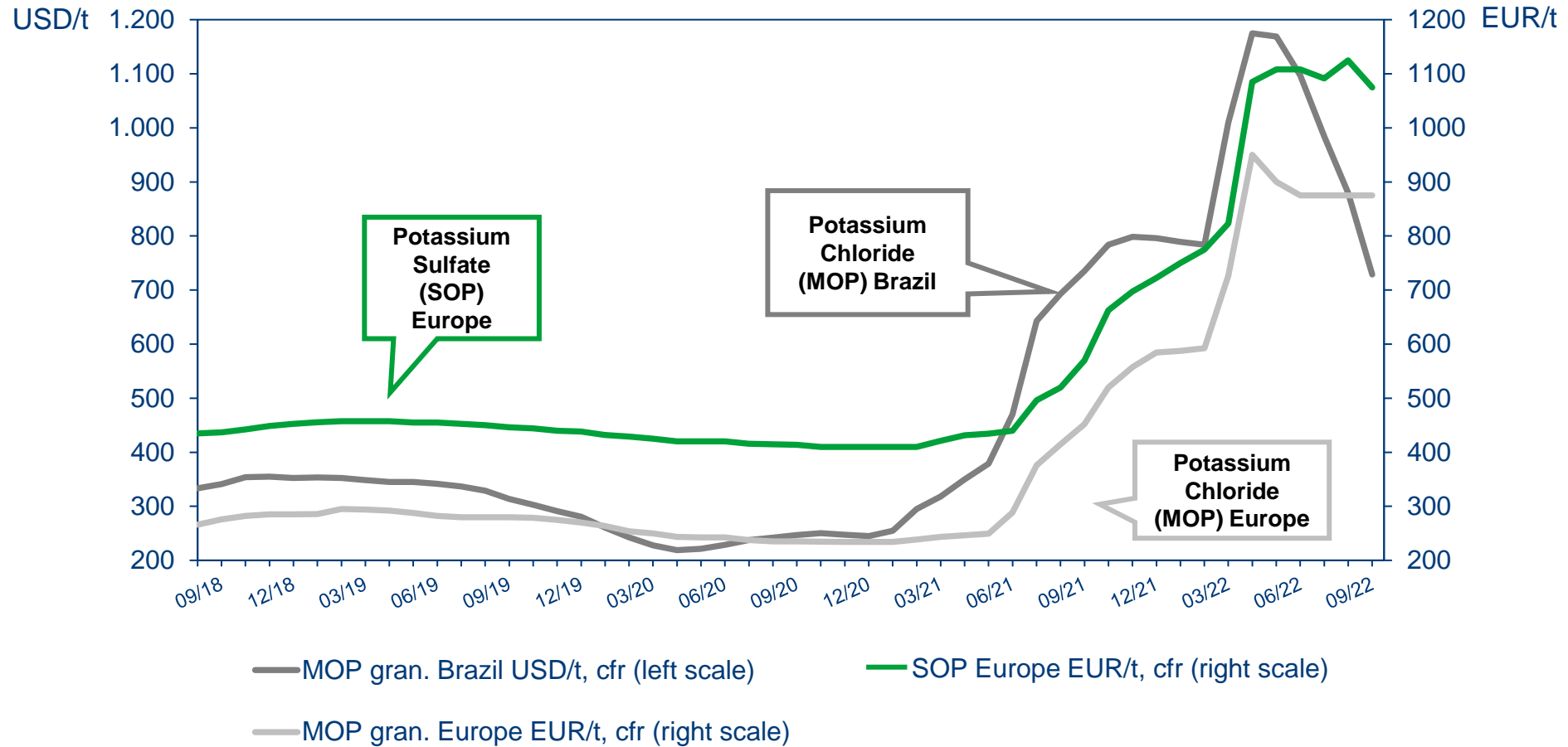
**EPSO<sup>®</sup>Top**



The base building block for foliar fertilization



# Potash price development

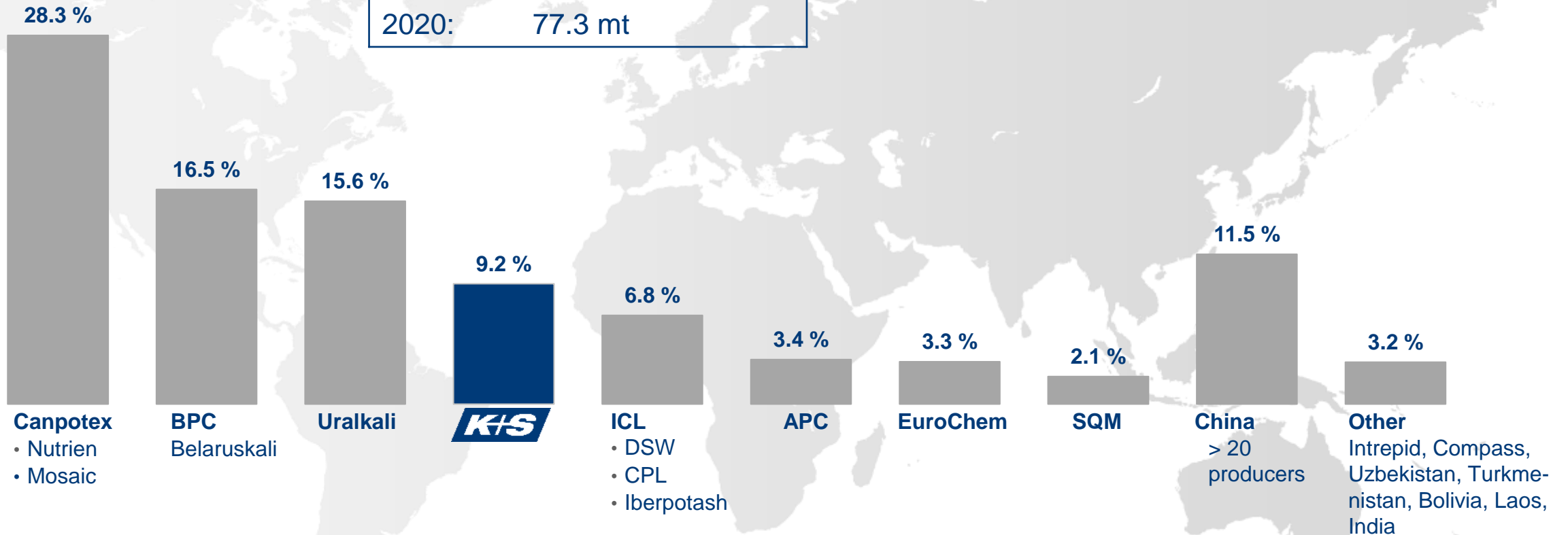


Source: FMB Argus Potash

# Supplier structure on the global potash market



**Global potash sales volumes**  
2021: 77.0 mt  
2020: 77.3 mt

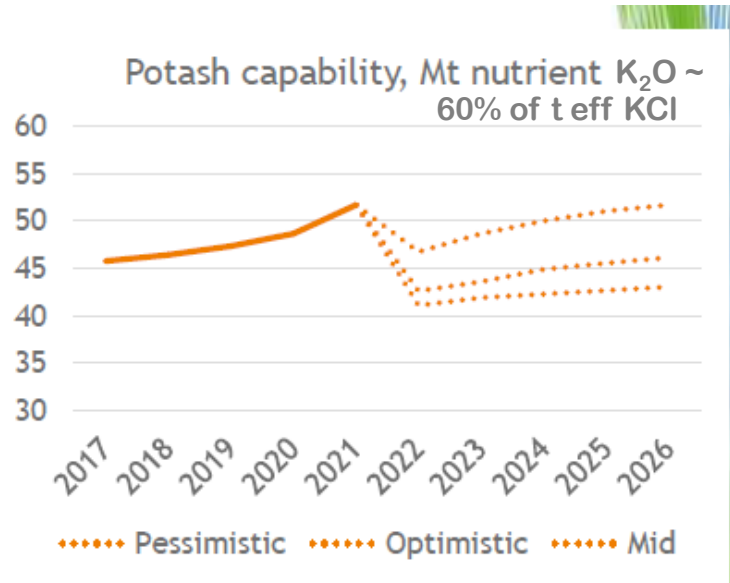


Source: IFA 2021, K+S

Basis: Year 2021 – incl. Potassium sulphate and low-grade potash



# World potash supply: Geopolitical Effects



**Potash**  
Scenarios skewed to the downside based on sanctions and likely ability to export

Source: IFA, May 2022

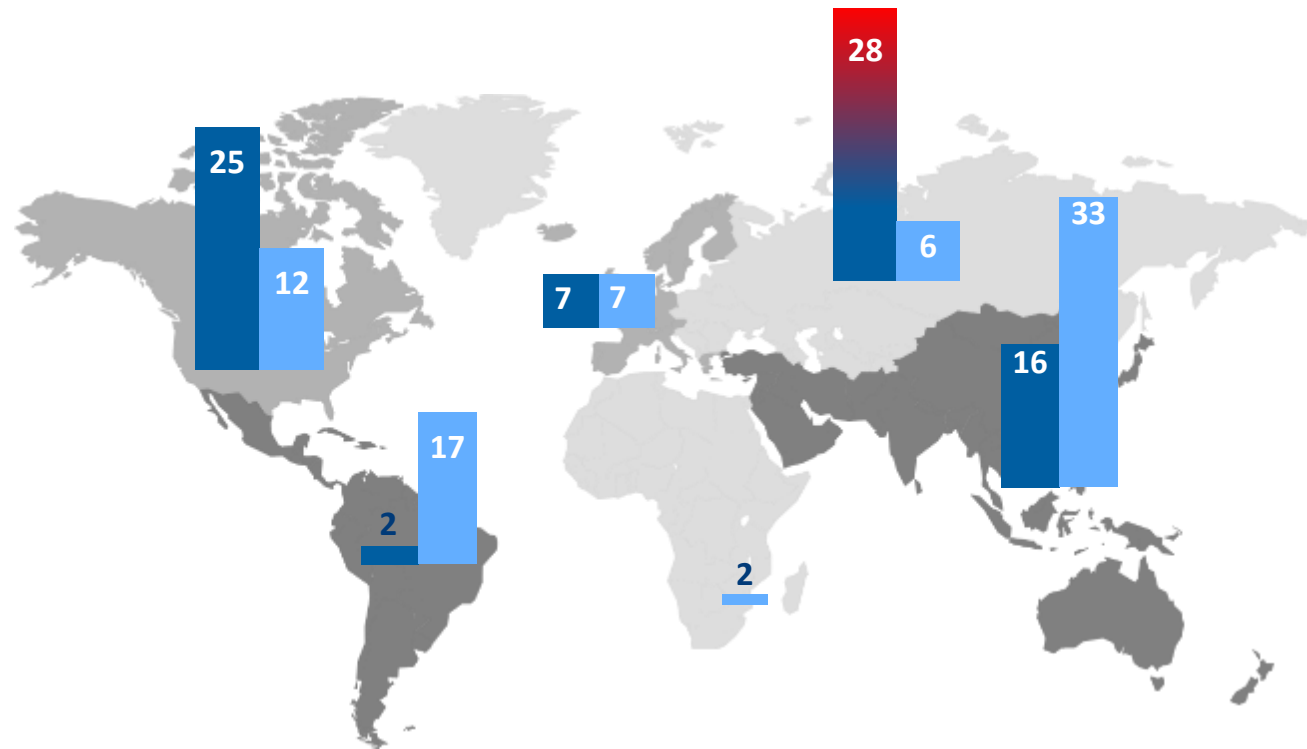
- Russia exports about 2/3 to "friendly countries"; 1/3 go to "unfriendly countries"
- More than 80% of the currently forecasted expansion of potash production comes from Russia
- Different assumptions for the recovery of the world's potash supply
  - **Pessimistic scenario:** Extended conflict, Western sanctions are extended, USD sanctions are also spreading to some "friendly countries"
  - **Optimistic scenario:** Resolution in 2022, economic sanctions will be eased, Russian exports will mostly recover, Belarusian exports will partially recover
  - **Mid scenario:** All current sanctions remain in force, but some "friendly countries" resume/continue partial trade with Russia

➔ **Even in the optimistic case, global potash supply will not return to the level of 2021 until 2026**

# World potash production and sales by region



in million tonnes



- Russia and Belarus each account for approx. 16% of global potash production
- Most of the capacity expansion projects came from Russian potash producers
- 28% of global *wheat* exports come from Russia and Ukraine

Sources: IFA 2021, K+S

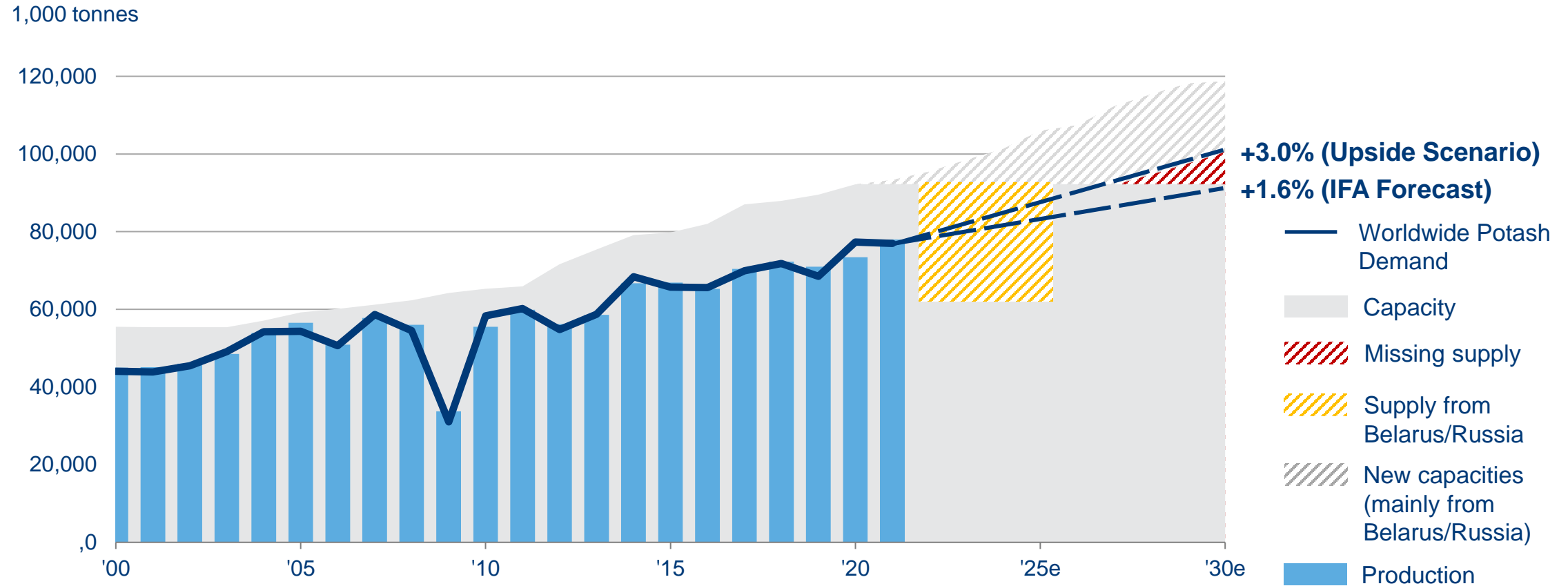
Basis: Year 2021 – incl. Potassium sulphate and low-grade potash

	2020	2021
World potash production	75.3 mt	77.9 mt
World potash sales volume	77.3 mt	77.0 mt

# Increasing demand for potash



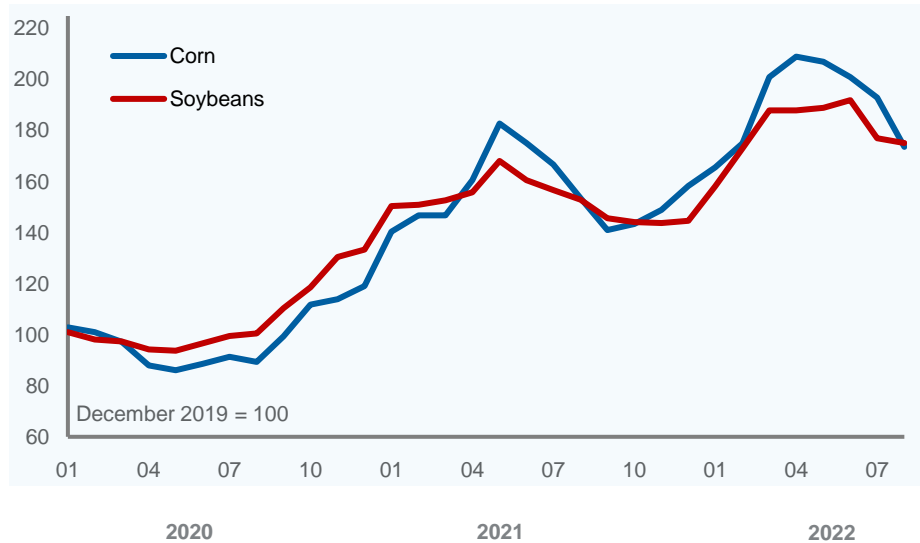
## New potash capacities needed to meet rising demand



**Source:** IFA, K+S; including potassium sulphate and low-grade potash of about 5 mln t eff. (product)

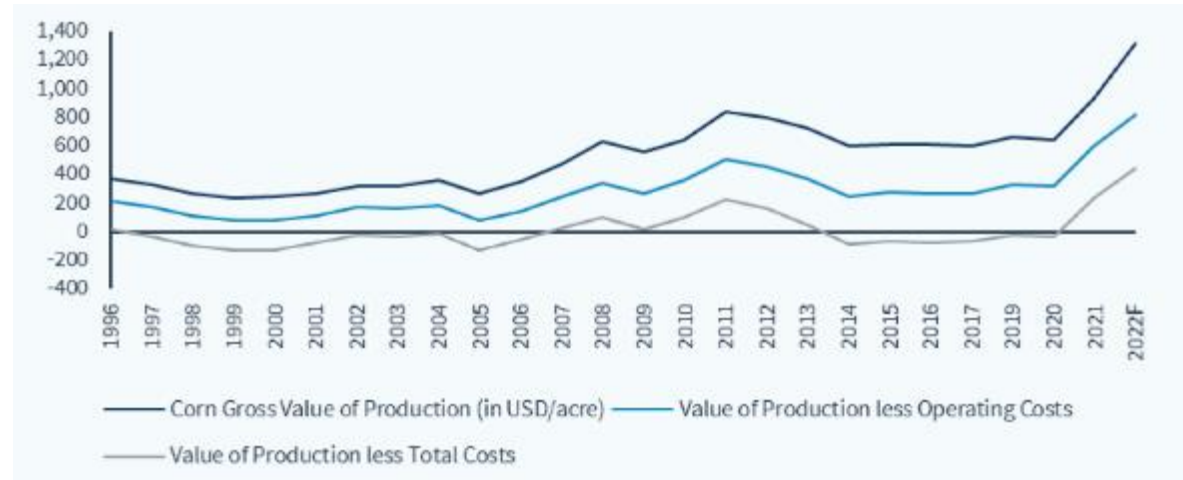
# Continued positive environment - Farmer profitability at historical high level

Price development of agricultural commodities since 01/2020



Source: Worldbank; as of September 2022

US corn farmer profitability in USD/acre since 01/1996



Source: USDA, Kepler Cheuvreux

- **Sharp increase in crop prices** significantly exceeds higher input costs; leading to **farmer profitability at all-time highs in some regions**
- **Potash costs** only account for **~5% of total input costs**



# Between desire and reality



## Classification of potash projects announced since 2006 (Greenfield)

### Projects announced

Various greenfield projects planned in Thailand, Laos, Russia, Kazakhstan, Uzbekistan, Belarus, Canada, USA, Brazil and Argentina. The companies involved include BHP Billiton, K+S, state-owned enterprises and new, young companies.



### Reasons for project termination

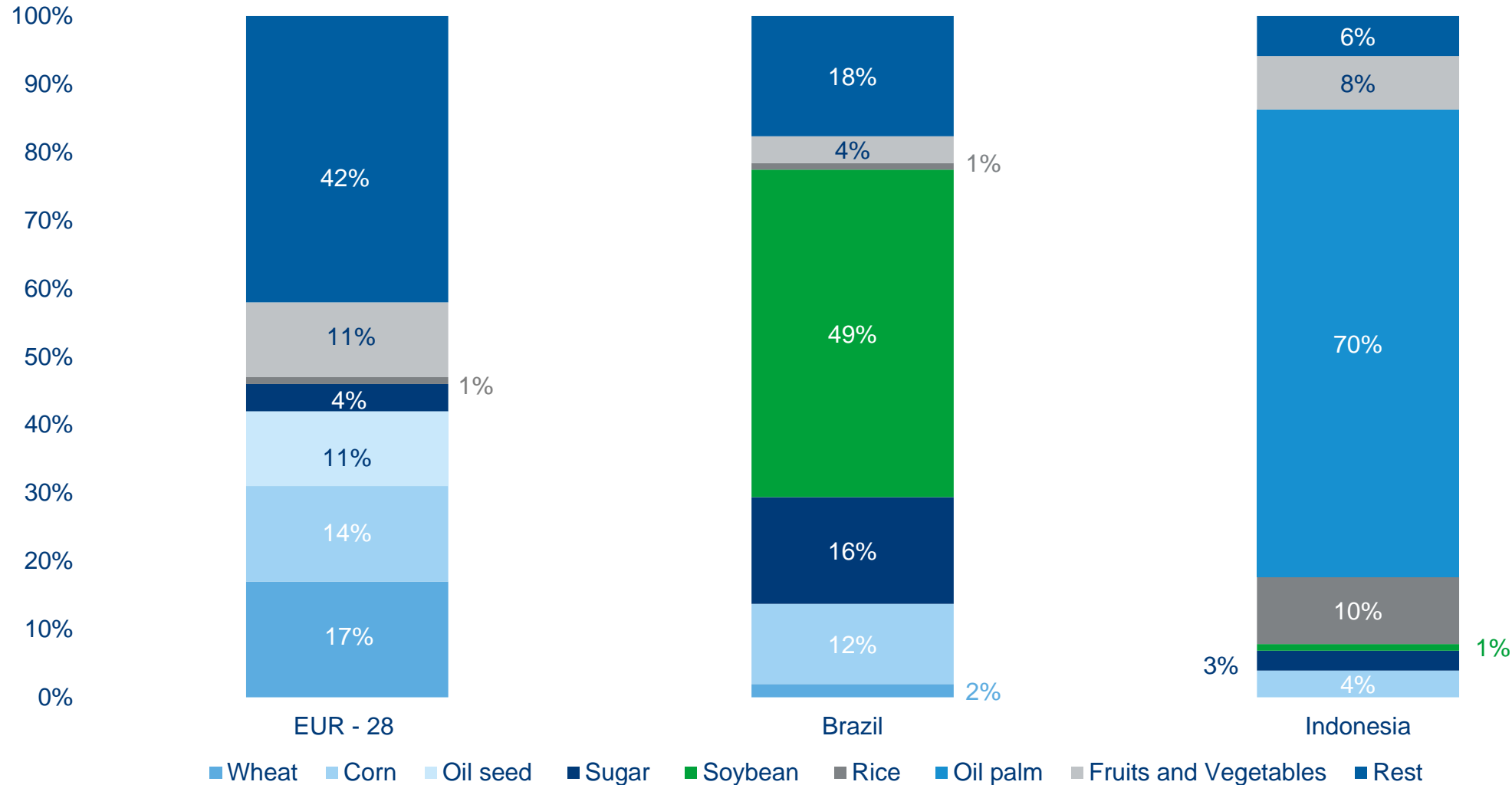


### Projects in ramp-up phase

**K+S** accelerates the annual ramp-up in Bethune to 150,000 tonnes (2021: 2.1 million tonnes, target: 4 million tonnes per year). Since H1/2020, **EuroChem** has been producing potash in one of two Russian mines.



# Potassium use by crop in selected countries



Source: IFA, "Fertilizer Use by Crop" based on data from 2014, published 2017

# Farmer profitability of corn (USA)

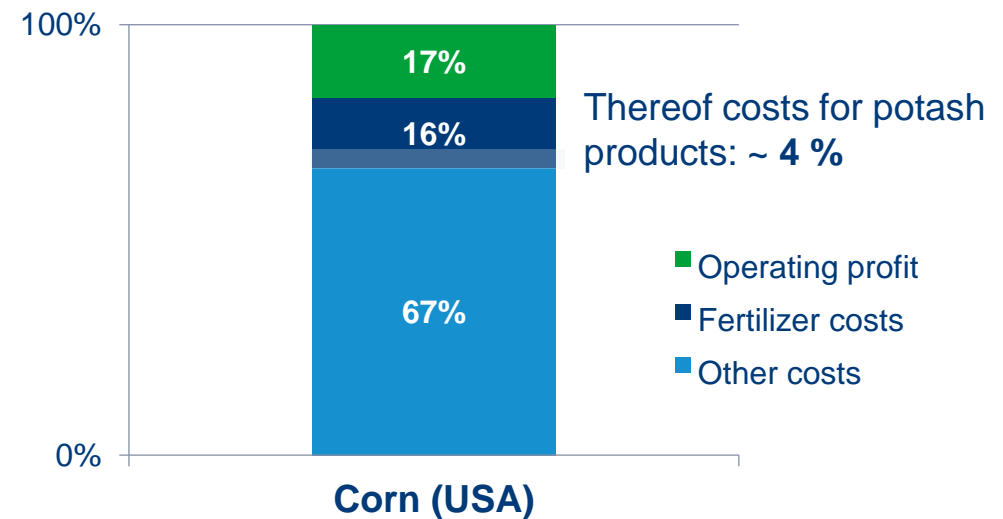


The expenditure for potash products of an agricultural holding amount to only about 4% of the total costs.



The earnings prospects should give the agricultural industry with sufficient incentive to increase the yield per hectare by using plant nutrients.

## Profit potential in % of revenues



# Global potash sales volume by region



million tonnes	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Western Europe	5.6	5.8	6.2	6.0	5,9	6,2	6,2	6,0	6.2	6.5
Central Europe/FSU	5.1	4.7	4.4	4.8	4.8	5.2	5.4	5.5	5.6	6.2
Africa	0.7	0.8	1.0	1.0	1.1	1.4	1.6	1.4	1.6	1.9
North America	9.1	9.7	11.8	9.5	10.9	11.2	11.5	9.8	11.7	12.4
Latin America	10.5	11.0	11.9	11.5	12.2	12.7	13.7	13.5	15.8	17.2
Asia	23.4	26.2	32.4	32.3	30.1	32.5	32.6	31.6	35.7	32.0
- thereof China	12.0	13.8	16.7	18.5	16.2	16.2	16.3	17.8	19.5	16.3
- thereof India	2.8	3.5	4.5	4.1	4.0	5.0	4.5	4.5	5.4	3.3
Oceania	0.4	0.5	0.7	0.6	0.6	0.7	0.8	0.7	0.7	0.8
<b>World total</b>	<b>54.8</b>	<b>58.7</b>	<b>68.4</b>	<b>65.7</b>	<b>65.6</b>	<b>69.9</b>	<b>71.8</b>	<b>68.5</b>	<b>77.3</b>	<b>77.0</b>

Incl. potassium sulphate and low-grade potash of around 5 million tonnes eff. ; **Sources:** IFA, K+S



A medical professional in a white lab coat is shown in profile, holding a clear plastic IV drip chamber. The chamber is connected to a clear plastic tube that leads to a drip chamber and a syringe. The background is a solid blue color. The K+S logo is visible in the top right corner.

**K+S**

## 4. Customer Segment Industry+

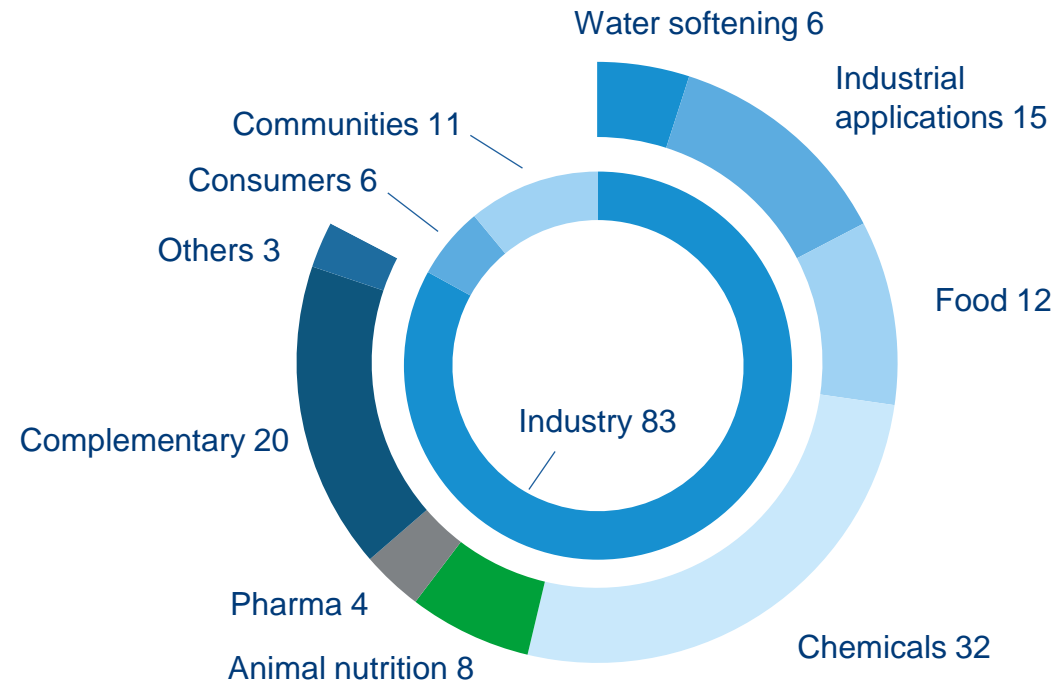
# Industry+ customer segment at a glance\*



## Characteristics

- Emerging markets: Growth, especially in Asia, leads to increasing demand for electrolysis.
- Electrolysis and specialties: Focus on product quality, service and proximity to the customer.
- Pharma: High quality standard, certified, innovative and overarching customer focus as well as reliability.
- Consumers: Strong brands in table salt, water softening salt, pool salts and de-icing salt.
- Communities: Public road construction authorities, winter road clearance service providers and large commercial users procure de-icing salt from K+S largely through public tenders.

## Revenue split by products H1/2022 (%)



€ million	H1/2021	H1/2022
Revenues	454.8	533.9
Sales volume (mt)	3.96	3.30
- thereof: de-icing	1.64	0.92

\*continued operations

# Main areas of application



## Chemical

- Chlor-Alkali-processes (PVC)
- Polycarbonates and MDI (Isocyanat) (plastics, synthetic resin)
- Synthetic Soda ash (glass)



## Food processing

- Food processing industry
- Baking industry
- Condiment and preservative agent
- Preserving of fish



## Pharma

- Infusions, dialysis solutions
- Pharmaceuticals



## Oil and Gas

- Drilling fluids



## Animal nutrition

- Animal feed
- Lickstones



## Water softening

- Water softening
- Water treatment



## Complementary

- Waste management and recycling
- Granulation of Catsan® for Mars GmbH
- CFK (Trading)



## Others

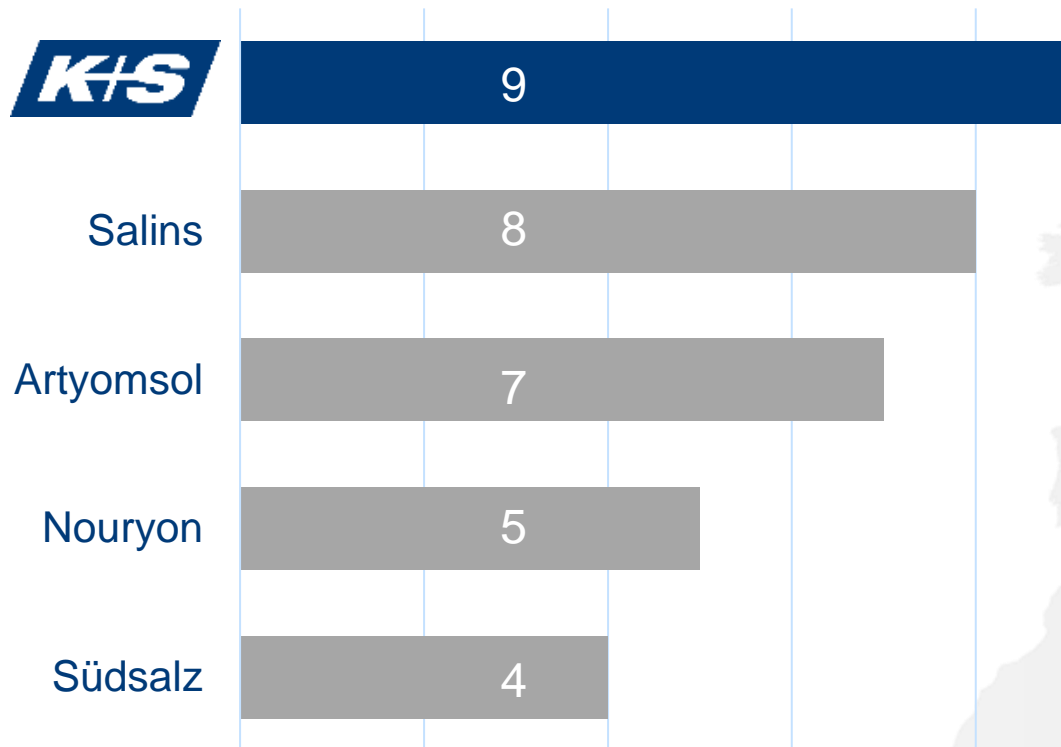
- Dyeing works
- Leather treatment



# Main salt suppliers in Europe



Capacity in million tonnes (crystallized salt and salt in brine; excl. captive use)



Source: Roskill, K+S

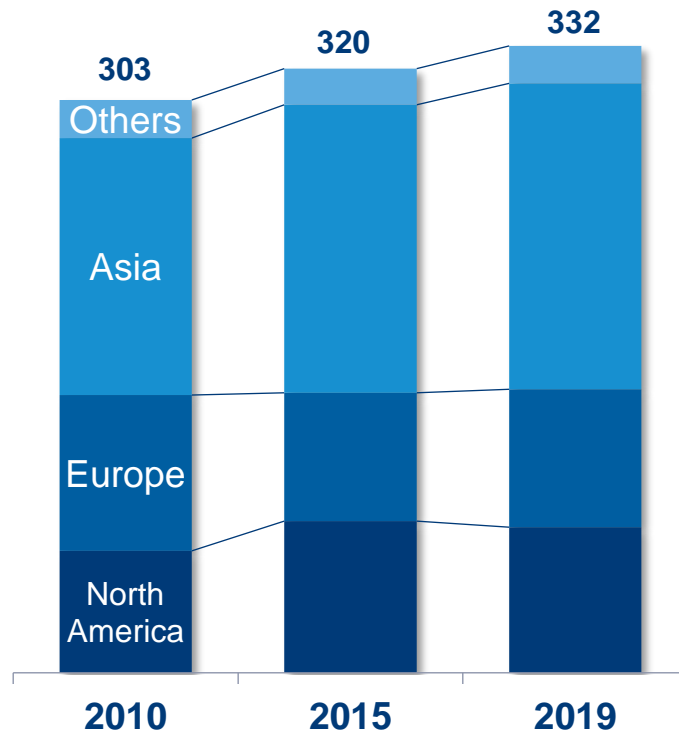


# Development of salt consumption and production



## Consumption (in million tonnes)

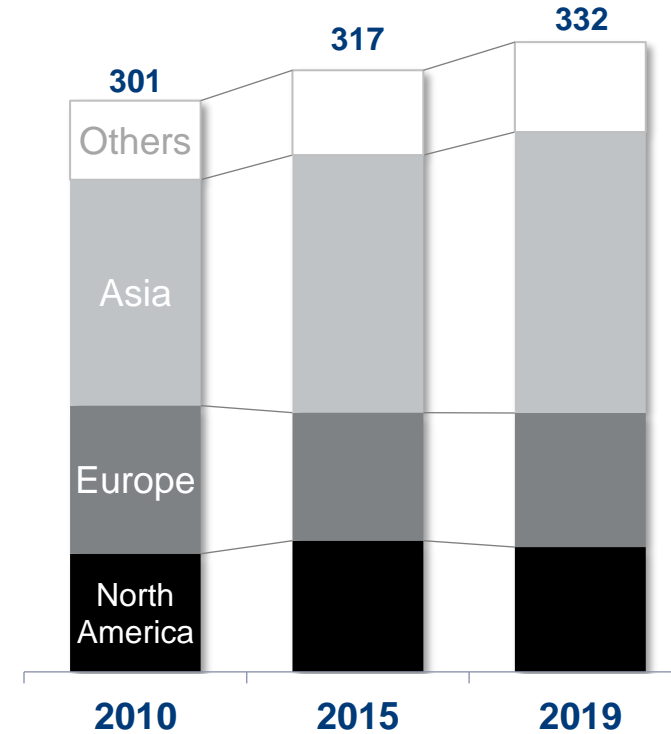
Between 2010 and 2019, global consumption increased by about 0.90% yoy to a record 332 mln t.



Source: K+S, Roskill

## Production (in million tonnes)

World production reached a record of more than 330 mln t in 2019. It increased by an average of 1% yoy between 2010 and 2019.



The logo for K+S, consisting of the letters 'K+S' in a bold, white, sans-serif font, set against a dark blue background.

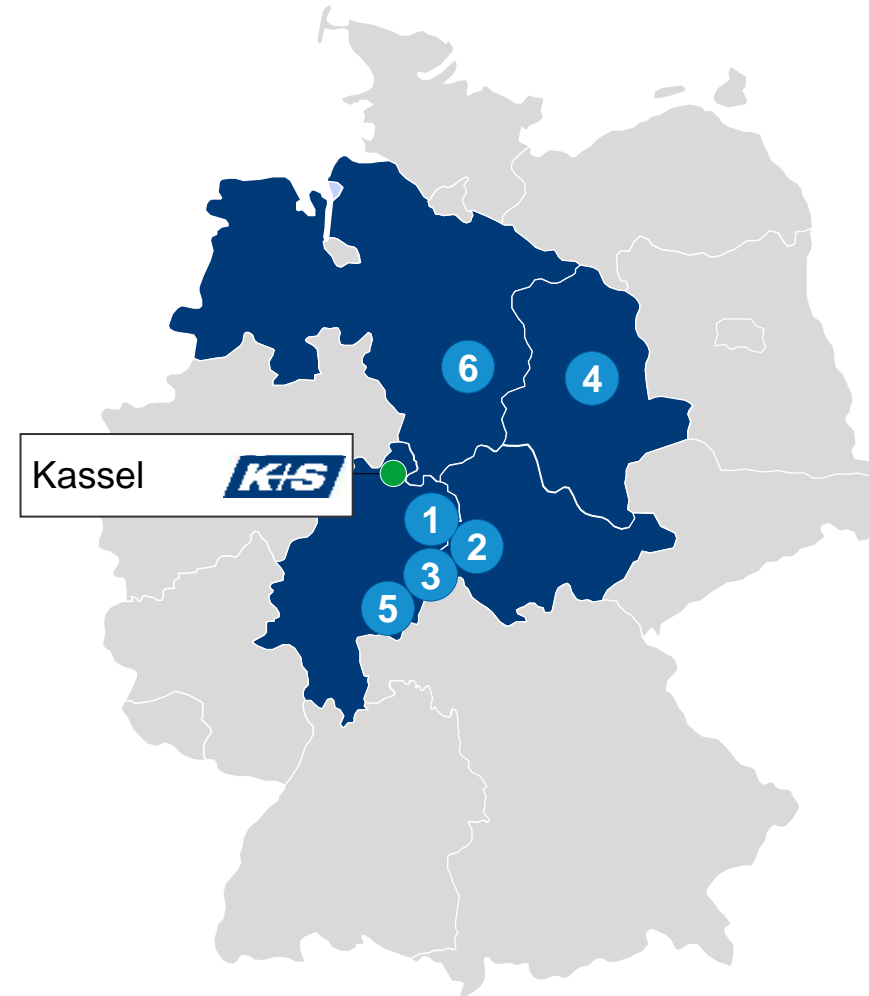
## 5. Production



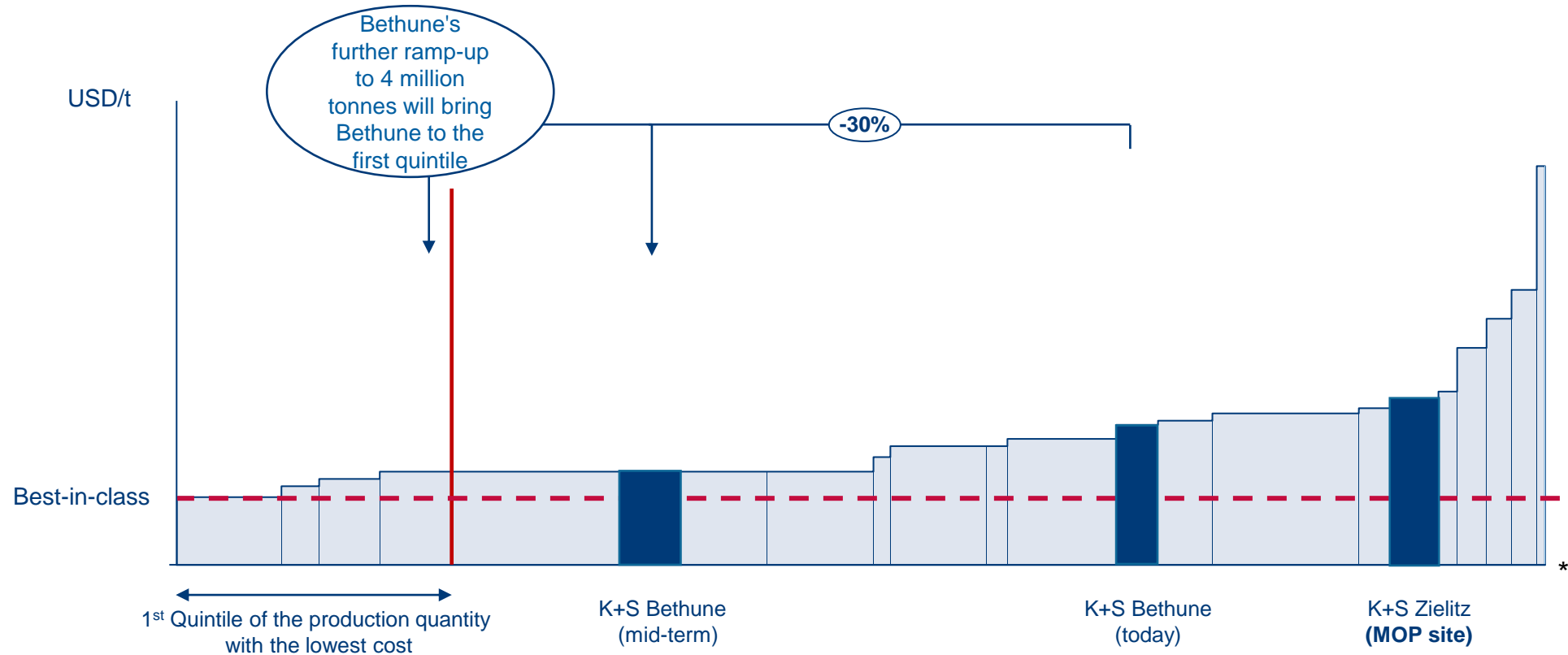
# Potash sites in Germany

## Share of annual production capacity (in %)

- |  |                     |      |
|--|---------------------|------|
| 1. Wintershall   | } Verbundwerk Werra | ~ 50 |
| 2. Unterbreizbach                                      |                     |      |
| 3. Hattorf   |                     |      |
| 4. Zielitz   |                     | ~ 25 |
| 5. Neuhof-Ellers                                       |                     | ~ 20 |
| 6. Bergmannssegen-Hugo<br>(production site, no mining) |                     | ~ 5  |



# Site costs (at mine gate) in comparison



Source: CRU Report 2019, K+S

\* Column width = Production capacity in million tonnes

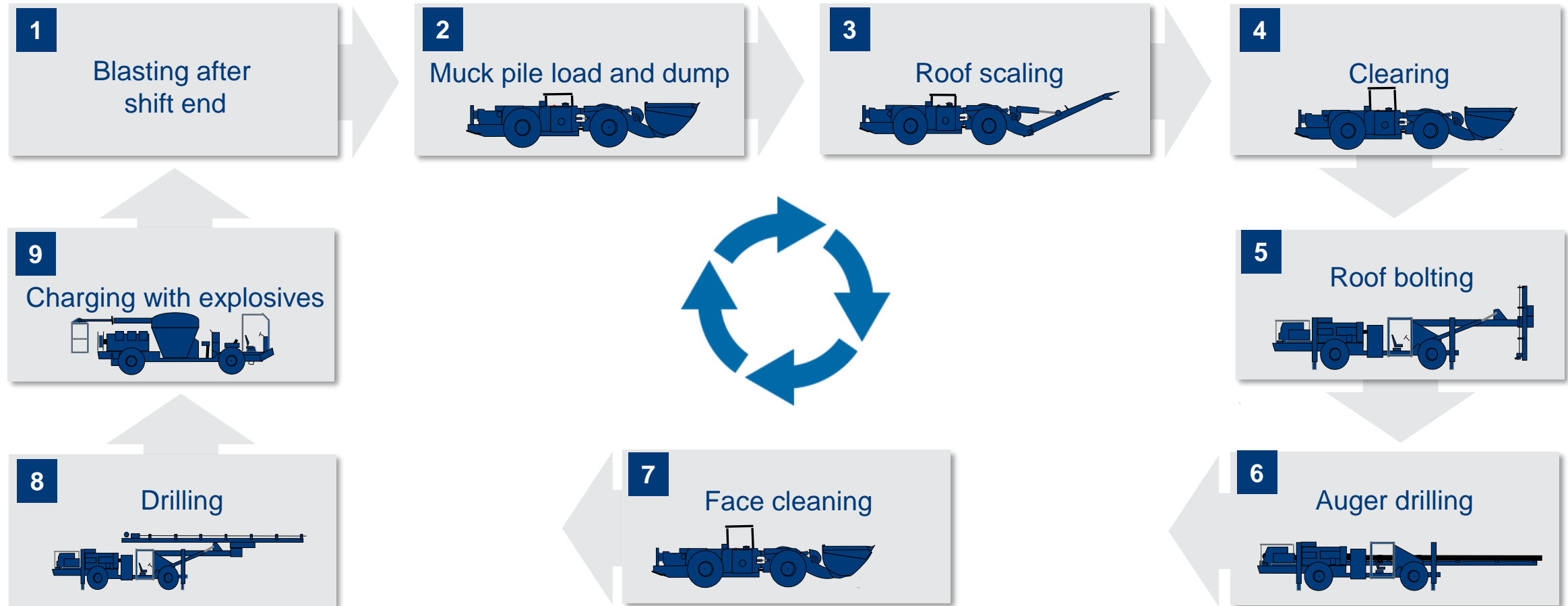
Continuous ramp-up of Bethune as well as measures to optimize the portfolio business (p. 11-12) are increasingly improving our cash costs and therefore our competitive position.



# Underground mining production cycle



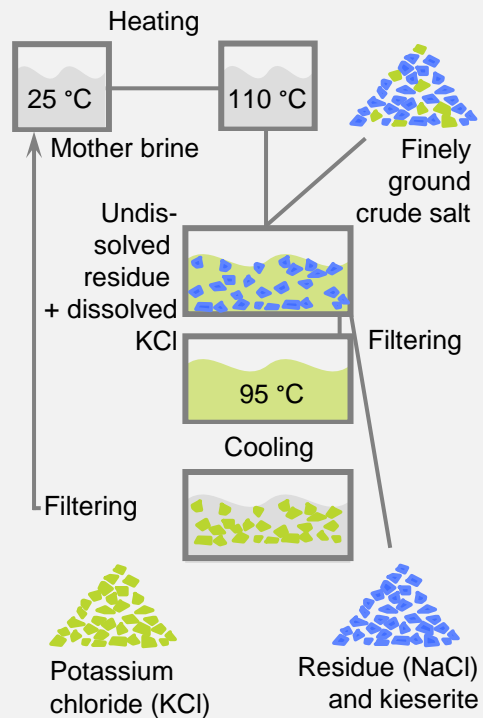
## Potash production



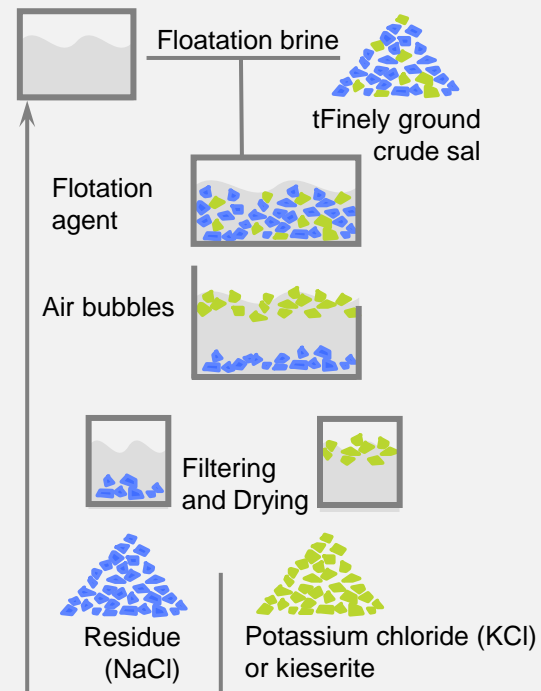
# Potash processing above ground



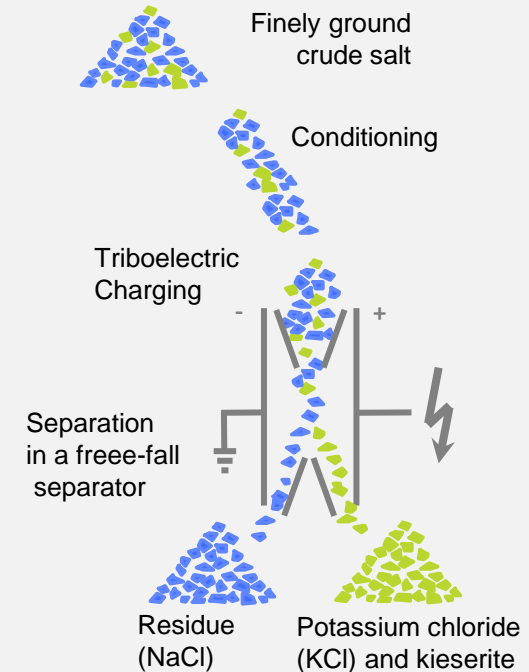
## Thermal dissolution



## Flotation



## Electrostatic separation (ESTA®)



# Potash production: management of residues



- The mined rock salt only contains a limited share of usable material (max. 30%), therefore a residue accumulation is unavoidable. This challenge is shared among all potash producing companies in the world!
- The recycling of partial quantities takes place at all producers.
- The methods, processes and equipment for the construction of tailings piles from solid residues are scientifically justified, tried and tested in practice. These ways of disposal – depending on the corresponding site – are used also in combination. They currently represent the best available technique. Solid or liquid residues are disposed of worldwide in the following ways:

**Tailings piles**



**Underground disposal**



**River injection\***



**Deep-well injection**

(for K+S in the Hessian-Thuringian potash district until the year 2021)



**Ø Share of residue disposed by this method in the Hessian-Thuringian potash district:**

**~ 80%**

**~ 9%**

**~ 8%**

**~ 3%**

\* With low river water levels in the Werra, there are possibilities for K+S in the Hessian-Thuringian potash district to temporarily store liquid residues in water basins or suitable mine spaces on site or temporary ways of disposal by flooding decommissioned mines or gas caverns in Lower Saxony or Saxony-Anhalt.

# Environmental investments create long-term planning security



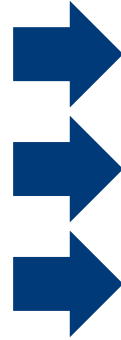
## Tailings piles extensions



Hattorf

Wintershall

Zielitz



- Completed by end of 2022 / beginning of 2023
- Next permit and significant investments in tailings pile extensions will not be necessary again until the end of the 2020s

## Liquid residues



Werra

- Deep-well injection ended 2021
- As of 2022: permanent storage underground (subject to approval)
- From 2028: Higher utilization of underground storage through further treatment of saline water
- Injection from 2028: only less concentrated tailings pile waters and no process waters



# Tailings pile coverage and greening



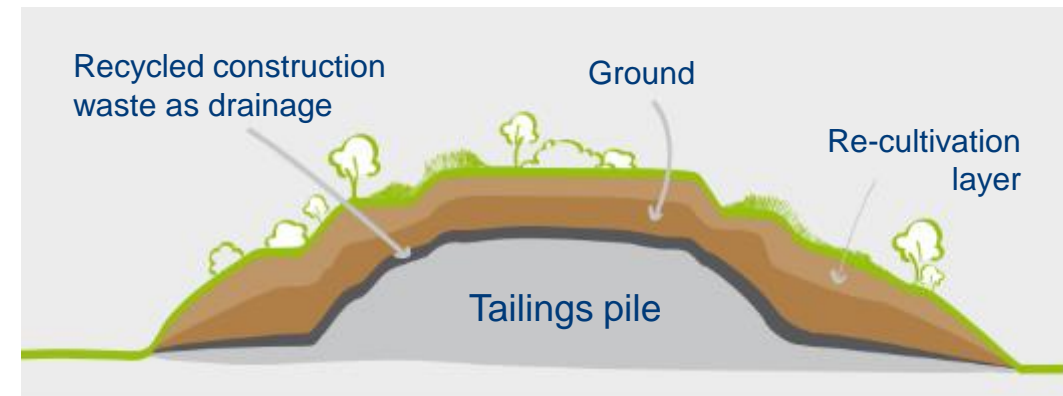
## Our objectives

- From 2030 onwards, K+S will be able to use three million tonnes of residue annually for purposes other than rearming.
- By 2030, we want to cover a further 155 hectares of tailings pile area and thus further reduce or avoid the accumulation of tailings pile water.

## The procedure

Soil and construction rubble are installed in several layers on the stockpile in a precisely defined process.

→ Formation of a cover, the upper layer of which is permanently greened.



# Tailing Pile and Process water at the Werra site



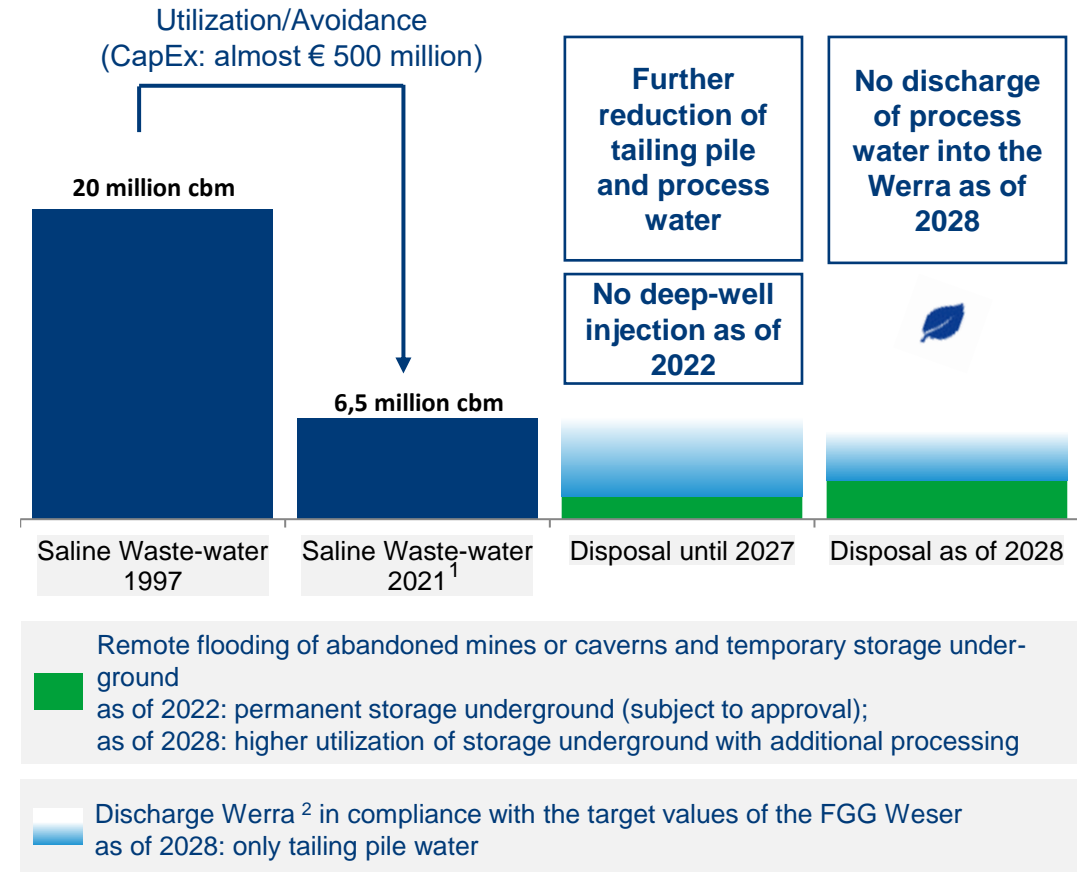
## Development of saline wastewater

- Reduction of saline wastewater based on various measures within the last 25 years:
  - Underground disposal in Unterbreizbach
  - Optimization of production and manufacturing processes
  - ESTA - facility, cold preliminary decomposition and high consistency facility, kainite crystallization and MgCl<sub>2</sub> facility
  - Establishment of a Kainite crystallization and flotation facility; advantage: additional product

## Additional ways of disposing saline wastewater

- On-Site:** Temporary storage possibility of up to 1.0 million m<sup>3</sup> (basins and temporary storage underground).
- Off-Site:** Flooding of decommissioned mines or caverns for their restoration.
- As part of our strategy and the optimization of our existing business, the focus at the Werra site will be on reducing solid and liquid residues as well as energy consumption and therefore CO<sub>2</sub> emissions.

## Disposal of saline wastewater



<sup>1</sup> Including Neuhof

<sup>2</sup> Further reduction and avoidance of tailing pile water targeted by covering tailings piles; continuing R&D developments with external partners, among others

# Underground storage in Springen



## Our goal

- Our first goal of stopping the injection of saline wastewater into the plate dolomite as of 2022 has been accomplished.
- Stopping the discharge of saline wastewater into the Werra as of 2028.

**The solution:** Storage of process water into disused cavities → Mine field Springen offers 21,000,000 m<sup>3</sup> of space for underground storage.

## The procedure

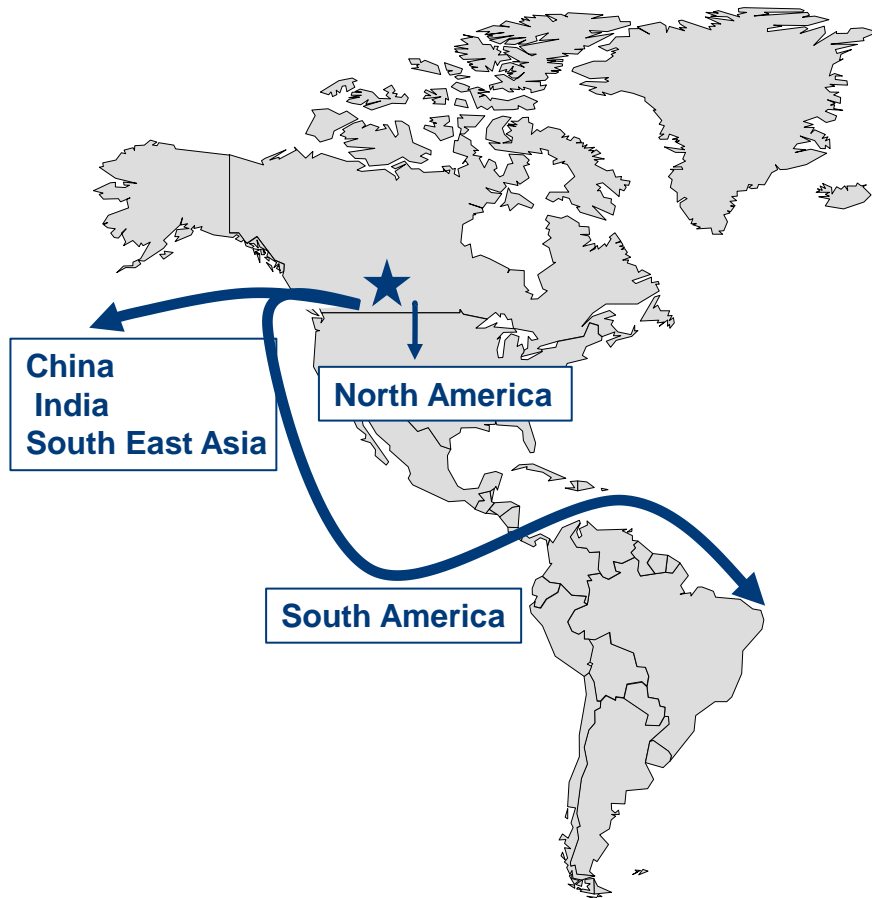
- Highly concentrated saline solution from potash production is discharged into the mine field via existing lines.
- Due to the high salt concentration of the liquid, the salt pillars, which are responsible for the stability of the shaft, are not damaged.
- Finally, the old shafts are tightly closed with gravel and clay so that no saline water can discharge.



# Bethune – Strengthening our global presence



## Potash production



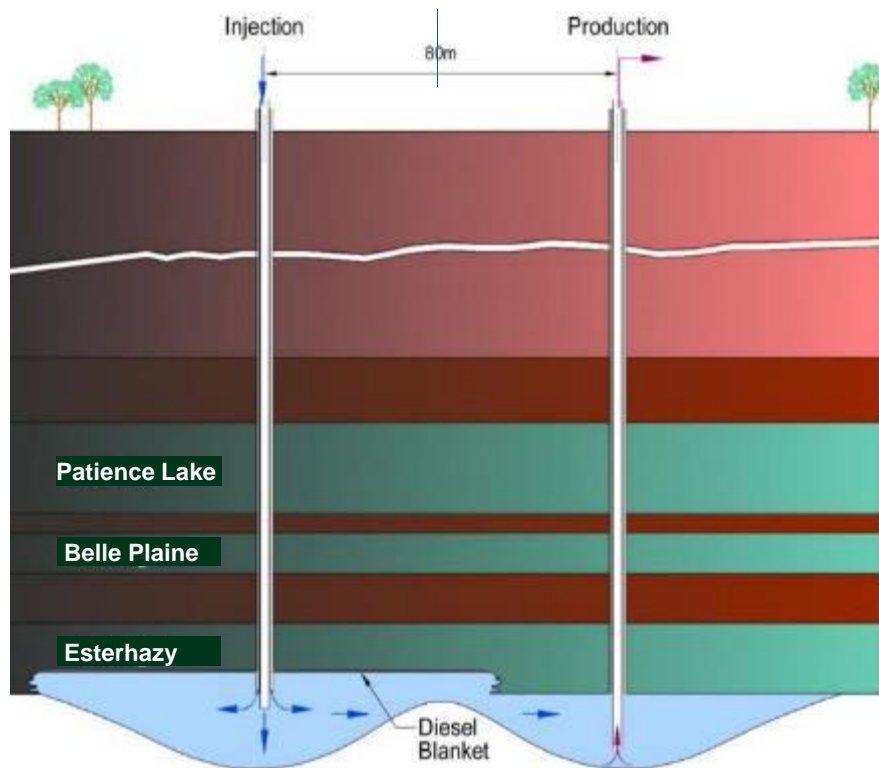
- Expanding our current production portfolio in Germany with a North American production site → **Second-source supplier**
- Securing a **good asset base with competitive production costs**
- Sales and distribution through **existing distribution structures** of the K+S Group
- **Regional growth projects** in China and Southeast Asia
- **Flexible multi-product strategy**



# Bethune – solution mining (e.g.: primary mining)



In solution mining, freshwater is brought into solvent (salt) rock through a drill hole, therefore creating chambers, or caverns, filled with a water-salt solution. In a subsequent step, the saturated brine is brought to the surface through an additional pipeline.

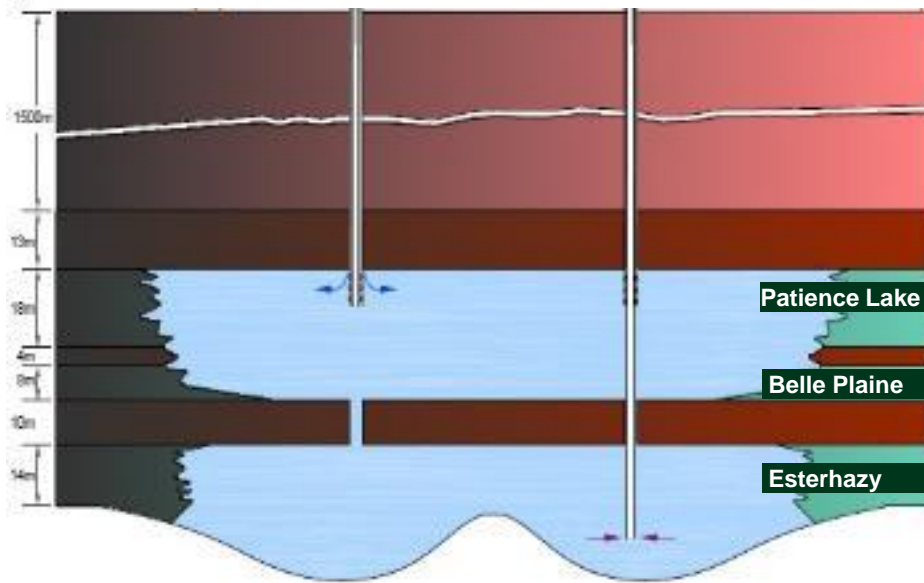


<b>Mining technique</b>	Solution mining
<b>Depth</b>	1,500 meters
<b>Thickness</b>	33 meters
<b>K<sub>2</sub>O / KCl Content</b>	18% / 29%
<b>Environmental impact statement</b>	approved for up to 4 million t of KCl/a

# Bethune – primary versus secondary mining



Secondary mining [NaCl brine mining / crystallisation pond]



- Secondary mining uses exclusively saturated NaCl solution to selectively dissolve residual KCl from existing caverns
- **Advantages (in comparison to primary mining):**
  - lower energy intensity (e.g. injection brine is heated via waste heat from evaporators and KCl is crystallized in the cooling pond via natural cooling)
  - substantially more efficient with the use of water
  - reduces salt to tailings up to 30%



The production costs for NaCl brine mining are 50% of the production costs of primary mining.

# Main production methods



## Rock salt

Conventional  
mining



## Sea/solar salt

Crystallisation  
of sea water



## Evaporated salt

Recrystallization  
of purified brine



## Brine

Controlled  
borehole-brining



- Around 70% of worldwide salt production (more than 290 million tonnes including brine) is obtained from rock salt mining and solution mining.
- Approximately 30% of production is obtained from seawater and salt lakes.
- Salt is produced in almost every country in the world. Due to the high share of transportation costs in production costs, markets are generally regionally limited to the area around the production locations.

The K+S logo is positioned in the top right corner of the slide. It consists of the letters 'K+S' in a bold, white, sans-serif font, set against a dark blue, trapezoidal background that is part of a larger blue graphic element on the right side of the slide.

**K+S**

The background of the slide is a photograph of a large, black mining truck filled with rocks, parked inside a dimly lit tunnel. The tunnel walls are made of rough, grey rock, and there are some faint markings on the wall, including the number 'E30'. The lighting is dramatic, with strong highlights and deep shadows, creating a sense of depth and scale.

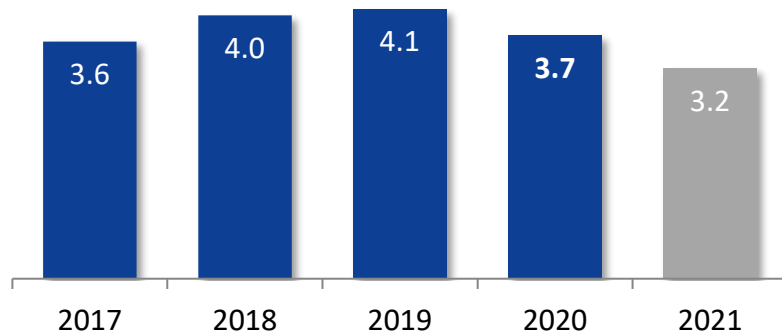
## **6. Financial Data & IR**



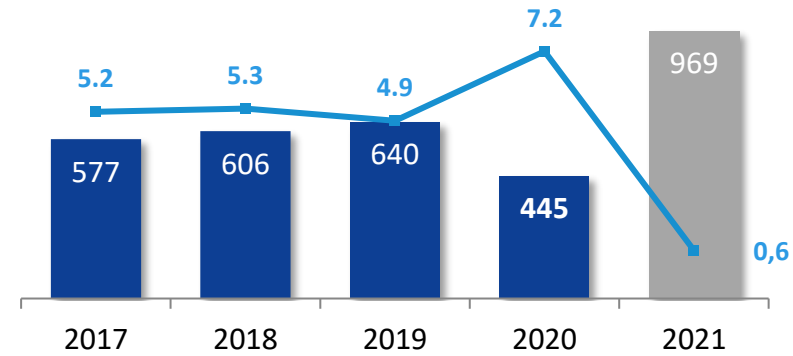
# Key financial figures<sup>1</sup>



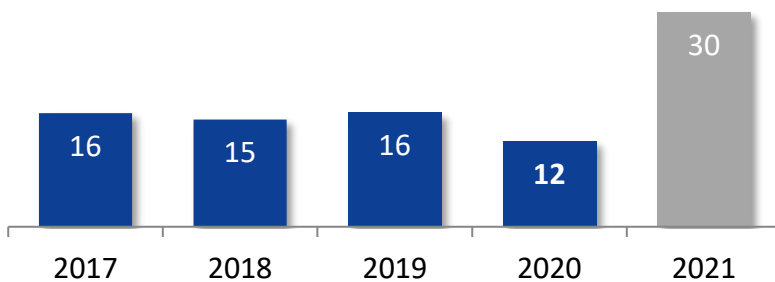
## Revenues (€ billion)



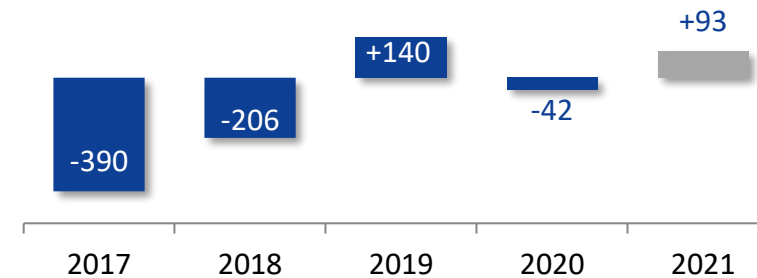
## EBITDA vs. Net Financial Debt/EBITDA



## EBITDA margin (%)



## FCF (€ million)



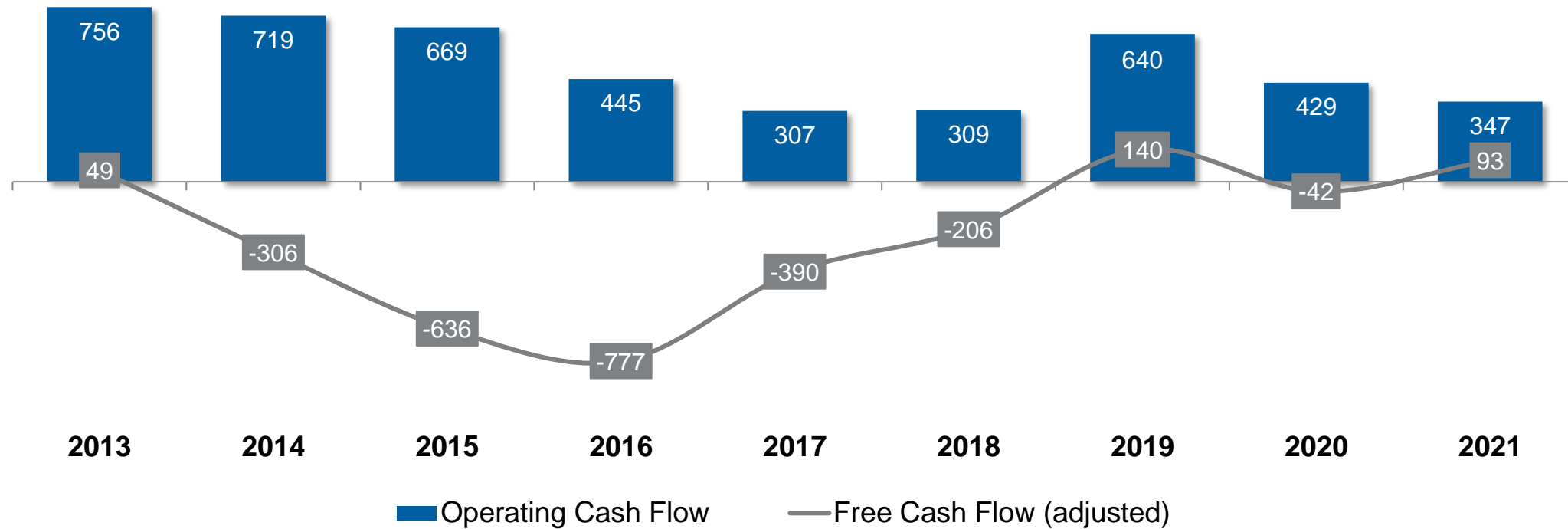
<sup>1</sup> The figures relate to the continuing and discontinued operations of the K+S Group for the years 2017 to 2020. For the year 2021, the figures relate to the continuing operations of the K+S Group.



# Operating and adjusted cash flow



The figures relate to the continuing and discontinued operations of the K+S Group for the years 2013 to 2020. For the year 2021, the figures relate to the continuing operations of the K+S Group (in € million).



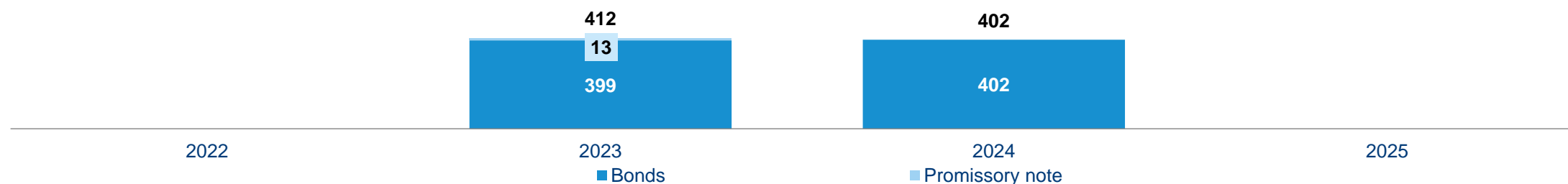
# Debt profile (promissory notes and bonds)



## Financing instruments

in € million	Amount outstanding	Coupon	Maturity
Promissory note loans	13		
Senior unsecured notes due 2023	399	2.625%	Apr-23
Senior unsecured notes due 2024	402	3.250%	Jul-24

## Debt maturity profile



- + Syndicated credit facility up to €600 million (available until 2024)
- + Commercial paper program as an additional source of liquidity

# Cash flow and balance sheet



	FY/20	3M/21	H1/21	9M/21	FY/21	3M/22	H1/22
Operating cash flow	429	147	69	83			
- thereof continuing operations		82	81	95	347	254	486
Investing cash flow	-471	-110	2.480	2.063			
(pre-sale/purchase of securities and other financial investments)							
- thereof continuing operations	-381	- 97	-164	-247	255	-151	-252
<b>Adjusted Free Cash Flow</b>	<b>-42</b>	<b>37</b>	<b>2.549</b>	<b>2.480</b>	<b>2,691</b>		
<b>- thereof continuing operations</b>	<b>-110</b>	<b>-15</b>	<b>-83</b>	<b>-152</b>	<b>93</b>	<b>103</b>	<b>234</b>
Capex	526						
- thereof continuing operations	428	48	135	223	334	49	125
<b>Net financial liabilities<sup>1</sup></b>	<b>3,217</b>	<b>3,185</b>	<b>695</b>	<b>784</b>	<b>606</b>	<b>520</b>	<b>426</b>
<b>Net financial liabilities / EBITDA<sup>1</sup> (LTM)</b>	<b>7.2</b>	<b>7.2</b>	<b>2.0</b>	<b>2.0</b>	<b>0.6</b>	<b>0.4</b>	<b>0.2</b>
<b>Equity ratio<sup>1</sup></b>	<b>27%</b>	<b>30%</b>	<b>48%</b>	<b>55%</b>	<b>61%</b>	<b>63%</b>	<b>65%</b>

<sup>1</sup> The figures relate to the continuing and discontinued operations of the K+S Group for the year 2020. For the years 2021 and 2022, the figures relate to the continuing operations of the K+S Group.

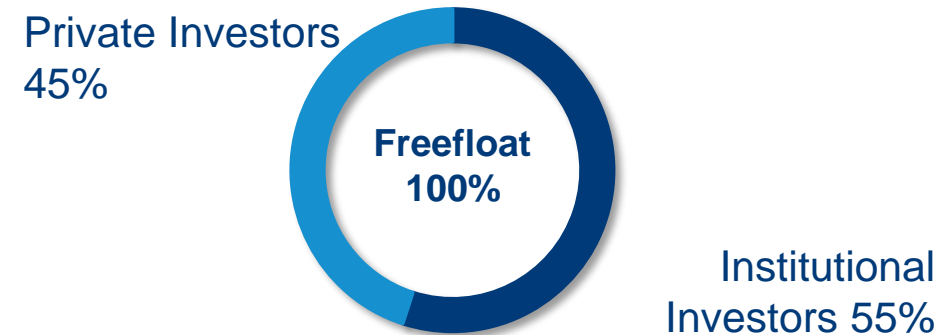
# K+S Share



## Key data

- **WKN:** KSAG88
- **ISIN:** DE000KSAG888
- **Type of shares:** registered shares of no-par value
- **Total number of shares :** 191,400,000
- **Trading segment:** Prime Standard
- **Ticker symbols:** Bloomberg SDF/Reuters SDFG

## Shareholder structure as of Dec 31, 2021



## The following banks publish research studies about K+S:

- Baader Helvea Equity Research
- Bank of America
- Berenberg Bank
- BMO Capital Markets
- Citi Research
- Deutsche Bank
- DZ Bank AG
- Exane BNP Paribas
- J.P. Morgan
- Kepler Cheuvreux
- LBBW
- M.M. Warburg
- Morgan Stanley
- Oddo BHF
- Pareto Securities AS
- Scotia Capital
- Société Générale
- Stifel
- UBS

# K+S ADR Programm



The K+S ADR Program offers North American investors the opportunity to take stock in K+S. Since the ADRs are quoted in US dollars and dividends are also distributed in US dollars, this financial instrument closely resembles an American share. Two ADRs represent one K+S ordinary share. The K+S ADRs are traded in the United States under a level 1 ADR Program in the over-the-counter market (OTC).

## Trade on OTCQX

**Symbol:** KPLUY  
**CUSIP:** 48265W108  
**Ratio:** 2 ADRs = 1 Share  
**Country:** Germany  
**ISIN:** DE000KSAG888  
**Depository:** The Bank of New York Mellon

## Benefits to North American investors

- Clear and settle according to normal U.S. standards
- Stock quotes and dividend payments in U.S. dollars
- Can be purchased/sold in the same way as other U.S. stocks via a U.S. broker
- Cost-effective means of international portfolio diversification

Further information: [www.kpluss.com/adr](http://www.kpluss.com/adr)



# K+S bonds and issuer rating



**Issuer rating (S&P):** BB (outlook: stable), May 2022

	<b>Bond 04/2023</b>	<b>Bond 07/2024</b>
<b>WKN</b>	A2E 4U9	A2N BE7
<b>ISIN</b>	XS1591416679	XS1854830889
<b>Listing</b>	Luxembourg SE	Luxembourg SE
<b>Issue volume</b>	EUR 625 mln	EUR 600 mln
<b>Outstanding volume</b>	EUR 399 mln	EUR 402 mln
<b>Issue Price</b>	100.982%	100.000%
<b>Coupon</b>	2.625%	3.250%
<b>Maturity</b>	06.04.2023	18.07.2024
<b>Face Value</b>	EUR 1,000	EUR 100,000

# Financial calendar 2022/23



Quarterly Report; September 30, 2022

10 November 2022

Annual Report 2022

15 March 2023

Quarterly Report; March 31, 2023

9 May 2023

Annual Shareholders' Meeting

10 May 2023

Half-year Financial Report; June 30, 2023

10 August 2023

## More content available online

- K+S Website: [www.kpluss.com](http://www.kpluss.com)
- Annual reports: [www.kpluss.com/ar2021](http://www.kpluss.com/ar2021)
- Newsletter subscription: [www.kpluss.com/newsletter](http://www.kpluss.com/newsletter)
- Social Media: 

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