21st March 2019

Sector: Mining

Commodities:

Potash (MOP) in Morocco

Market data

Ticker	EML
Price (p/sh)	3.6p
12m High (p/sh)	4.99p
12m Low (p/sh)	2.28p
Shares (m)	626.1m
Mkt Cap (£m)	22.4m
Markets	LSE

Source: LSE

Description

Emmerson plc is a resource development company focused on the development of the Khemisset potash project in Morocco. After completing a scoping study in November 2018, the project is now going through feasibility.
www.emmersonplc.com

Board & key management

Non-Exec Chairman	Mark Connelly
Exec Director/CEO	Hayden Locke
Exec Director	Robert Wrixon
NED	Ed McDermott

Analyst

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020 7186 9008
Phil Swinfen

Emmerson plc

It's potash Jim, but not as we know it…

EML's recent scoping study at Khemisset demonstrated a robust project with outstanding economics - sector leading capital intensity and bottom quartile AISC to Brazil. The combination of favourable location, excellent infrastructure and shallow mineralisation pushes Khemisset to the front of the queue in terms of upcoming projects in the potash space. EML's management has considerable potash experience and the track record to push Khemisset through feasibility and financing at a time of record MOP demand.

- **Scoping Study.** The November 2018 Khemisset Scoping Study clearly demonstrates that Khemisset is a robust project with outstanding economics. 20-year LOM, 6Mtpa processing rate, average grade to mill 9.35% K_2O, average metallurgical recovery 83.6%, average steady-state production 800ktpa K60 MOP product. Capital cost US$405m including $90m (30%) contingency. AISC FOB Mohammedia (Moroccan port) $147.6/t, AISC delivered Brazil $162/t. Base-case MOP price $360/t. **Key outputs:** Post-tax NPV[10] (nominal) US$795m and IRR of 29.8% over a 20-year LOM. Average steady-state EBITDA $236m p.a (63.5% EBITDA margin), average steady-state post-tax cash flow $184m p.a (cash margin 50%).

- **High margins & sector-leading capital intensity.** We calculate Khemisset's capital intensity is $520/t of annual MOP capacity, half the industry average due to shallow mineralisation and minimal infrastructure build. Khemisset's total delivered cost to Brazil is bottom quartile with a considerable freight advantage over peer projects, virtually unrivalled in the sector.

- **The largest potash market.** EML plans to produce a standard MOP K60 potash product. MOP (i.e. KCL) is the largest potash market, representing c.90% of global demand with total annual market currently 67-69Mt. 2019 is expected to be the 3rd record demand year in a row for MOP and CRU expects the market to grow by another 7Mt by 2023. Khemisset's planned 800ktpa production represents less than 1% of global demand.

- **Well positioned for key markets.** Khemisset's location on the north African coast means that target markets will be on the Atlantic corridor including Brazil. North West Europe, NOLA and South Africa. Khemisset is well positioned to supply into Brazil - one of the world's fastest growing importer of potash, and the second largest potash consumer globally. Brazil currently imports over 70% of its potash from Canada, Belarus and Russia. Potash from Saskatchewan typically requires 1,700km rail and 24 shipping days to Brazil, versus Khemisset with 150km road/rail and 10 shipping days.

- **On the radar.** We see rationale for Khemisset to be of significant interest to major players in the potash/fertiliser space. Potential synergies exist with Moroccan-based OCP Group which is pursuing an aggressive strategy to double mining and triple processing capacity by 2027. Potash is clearly a strategic priority for OCP which is currently consuming c.500Ktpa of MOP but we understand that OCP is targeting consumption of 2Mtpa of MOP in Morocco to feed its fertiliser growth strategy.

- **Site visit.** Our recent site visit confirmed the quality of infrastructure in Morocco and the key advantages afforded by the project's location. **2019 catalysts.** Resource drilling and upgrade, bankable metallurgical test-work, commence feasibility, continue strategic discussions.

- **Valuation.** Our base-case NPV[10(real)] for Khemisset is US$439m (8% $614m). Our SotP suggests a current intrinsic fair value of c.12p/sh based on conservative modelling inputs and a punitive 0.25x NAV multiple reflecting the current stage of development. This implies that EML is trading at an undemanding 0.30x discount to NAV, with an implied return of 3.3x to the current share price. We see significant potential for value accretion as the company meets development milestones and de-risks, we see our SotP valuation rising from 12p on a risk-adjusted basis today to c.100p at production (+5 years) on a pre-financing basis.

With low capital intensity, good infrastructure, logistical advantages and in being in a low risk jurisdiction, we see limited barriers to hinder Khemisset's development. This potentially high-margin project with a short development timeframe has few rivals in the MOP potash space, in our view. As such, the current market value represents a compelling entry point.

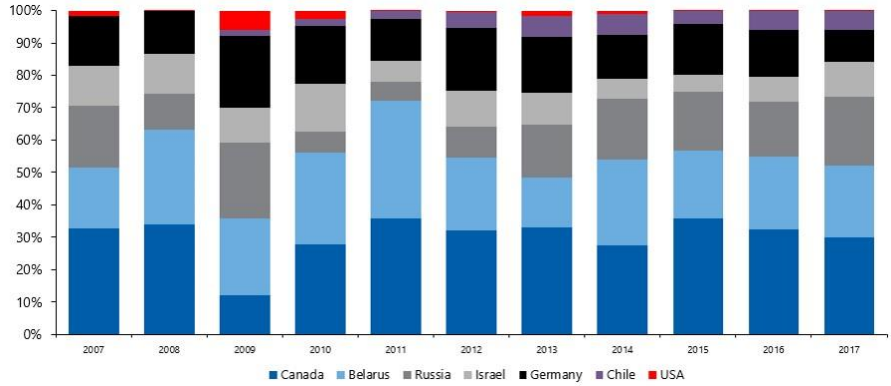
Contents

Investment points

The location.

- **Infrastructure and logistics advantage**. Khemisset is favourably located in a region of Morocco with excellent access to infrastructure and logistical links to key target markets. Khemisset has access to nearby grid power and the proposed mine infrastructure area is located within close proximity to the A2, a major 4-lane Tollway connecting to Casablanca and Fez. Critically, this road extends to within 5km of the proposed export port of Mohammedia (scoping study assumption) 140km away and in close proximity to the larger port of Casablanca (additional port option) where Moroccan fertiliser company OPC has existing port infrastructure.
- **Target markets.** Khemisset's location in Morocco on the north African coast means that the company's target markets will be on the Atlantic corridor including Brazil. North West Europe, NOLA and South Africa. Consequently, the project is well positioned to supply into Brazil – one of the world's fastest growing importer of potash, and the second largest potash consumer globally.
- **Brazil is the key market.** Brazil currently imports virtually 100% of its potash of which 75% comes from Canada, Russia and Belarus. In 2018, 95% of imports came from Canpotex (32%), Uralkali (26%), Belaruskali (18%), ICL (11%) and K+S (9%). 2018, MOP imports into Brazil increased by 847kt, a 9% increase YoY.

Figure 1 - Brazil potash import, by origin

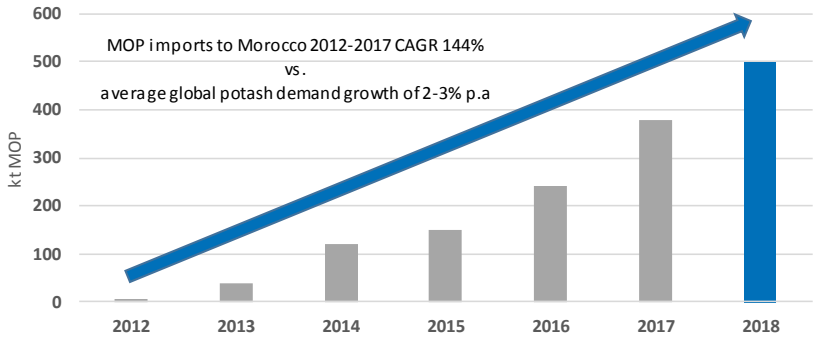


Source: Argus

- **Morocco is one of the fastest growing import markets.** Whilst the scoping study is predicated on sales to Brazil, Morocco is an important growth market.

MOP imports to Morocco are increasing rapidly and could represent an important component of EML's future sales strategy.

Figure 2 - MOP imports to Morocco on the rise



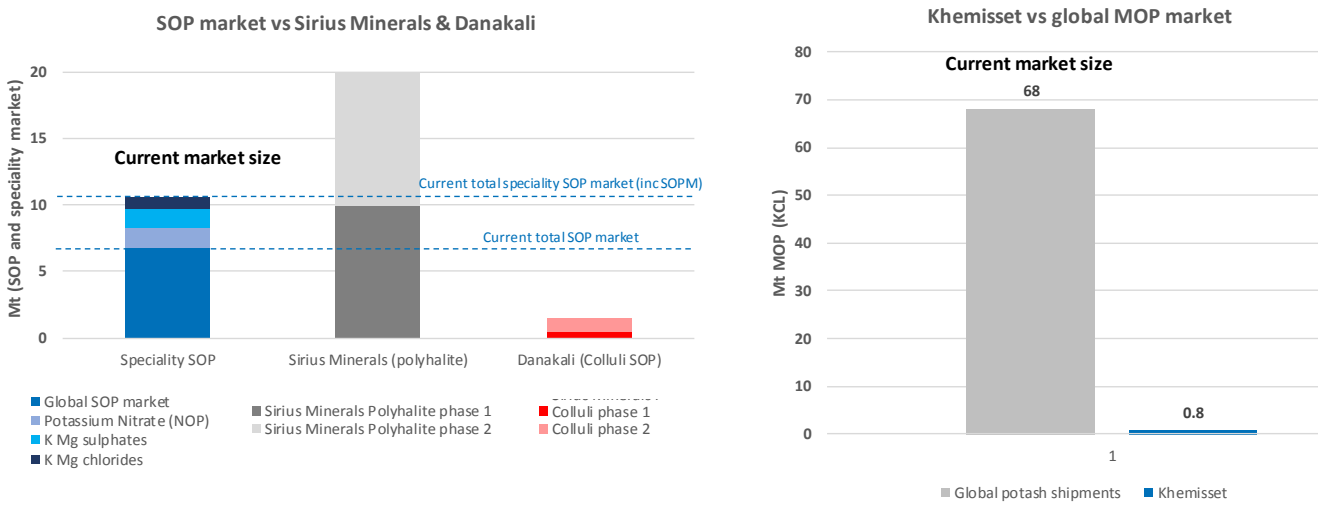
Source: Moroccan OdC, Emmerson

Khemisset will represent only c.1% of global MOP demand and won't disrupt the market on a volume basis. More likely is positive disruption on a competitive basis given the low all-in costs and location relative to target markets which could see EML become a supplier of choice.

Quality Resource and standard MOP product

- **Large resource.** Khemisset has a large JORC-compliant Inferred Resource of 311Mt at 10.2% K_2O, enough to support a mine life in excess of 20 years. The Khemisset basin has a strike extent of 60km and width of up to 20km and the 311Mt resource is based on only a relatively small portion of the likely potash mineralisation contained within the Khemisset Basin. Resource drilling is underway to upgrade the confidence and expand the current resource base. The project has a JORC Exploration Target range of 264-616Mt at between 5-14% K_2O. At first glance Khemisset's grade is in the lower range compared to peers, but this is more than compensated for by much lower transport and logistics costs when looking at operating costs on an AISC FOB Morocco or CFR Brazil basis.
- **Standard MOP.** EML plans to produce a standard MOP K60 potash product. MOP (i.e. KCL) is the largest potash market, representing c.90% of global demand with total annual market currently 67-69Mt. This compares to SOP (K_2SO_4) where the size of the market is c.7.3Mt with use targeted towards chloride-sensitive and higher value crops.
- **MOP doesn't have the same challenges as SOP.** CRU estimates the global consumption of potassium magnesium sulphate (SOPM) fertilizers in 2017 at 1.7 Mt total product, yet CRU also states that Sirius Minerals' planned Phase I capacity (10 Mt/a product) is "*on a different scale altogether; around four times larger than the current SOPM market in K_2O terms*".

Figure 3 - SOP market vs Sirius/Danakali and MOP market vs Khemisset

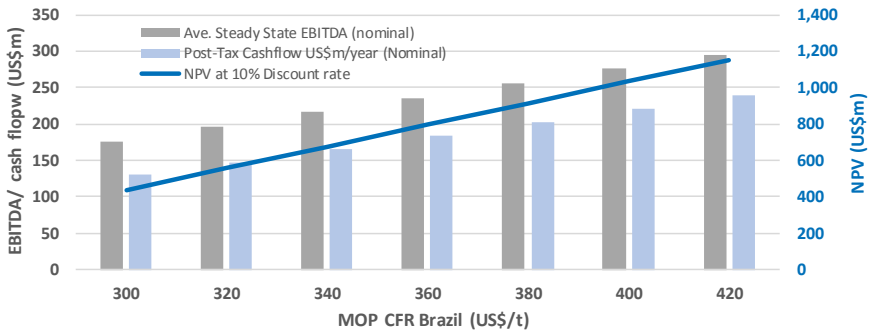


Source: CRU, Sirius Minerals, Danakali, Company reports, Shard Capital estimates

Scoping Study demonstrates superior economics

- **Robust project.** In November 2018, EML released the results of the Khemisset Scoping Study which clearly demonstrates that Khemisset is a robust project with outstanding economics. Although Khemisset's potential was foreshadowed in earlier releases by EML, the scoping study confirmed that the project has the potential to be one of the lowest capital cost (and capital intensity), highest margin potash projects globally.
- **Scoping study key assumptions.** LOM 20 years, 6Mtpa processing rate, average grade to mill 9.35% K_2O, average metallurgical recovery 83.6%, average steady-state production 800ktpa K60 MOP product. Capital cost $405m including $90m (30%) contingency. AISC FOB Mohammedia (Moroccan port) $147.6/t, AISC delivered Brazil $162/t. Base-case MOP price $360/t.
- **Scoping study key outputs.** Post-tax $NPV^{10\ (nominal)}$ US$795m and IRR of 29.8% over a 20-year LOM. Average steady-state EBITDA $236m p.a (63.5% EBITDA margin), average steady-state post-tax cash flow $184m p.a (cash margin 50%).

Figure 4 - Scoping study EBITDA and cash flow sensitivity to potash price



Source: Emmerson plc, November 2018 Scoping Study

Figure 5 - Scoping study – summary of key parameters and outcomes

Parameter	Value
Initial Operating Life	*20 years*
Annual ROM Extraction Rate	*6Mtpa*
Average Life of Mine Grade to Mill	*9.35% K2O*
Average Metallurgical Recovery (LOM)	83.6%
Average Annual Steady State Production Rate	800,000 metric tonnes
Flat Real MOP Price CFR Brazil	US$360/tonne
Capital Cost (including US$90m contingency)	US$405m
Total Cash Cost FOB Port of Mohammedia	US$115.4/tonne
All-in-Sustaining Cash FOB Port of Mohammedia	US$147.6/tonne
Average Steady State EBITDA	US$236m
Average Steady State EBTDA Margin	63.5%
Average Steady State Annual Post-Tax Cash Flow	US$184m
Average Steady State Cash Margin	50.0%
Post Tax NPV10 (nominal)	US$795m
Post Tax IRR (nominal)	29.8%
Post-tax Payback Period	3.25yrs

Source: Emmerson plc, November 2018 Scoping Study

Feasibility studies underway

- **PFS or DFS.** Typically, mining companies proceed to a PFS "preliminary feasibility study" as part of the project de-risking process after initial scoping studies. However, we understand that Emmerson believes that there may be an opportunity to bypass this intermediate PFS step and go straight to a DFS. This will be dependent on the outcomes of key workstreams, including the metallurgical test work, which will be conducted in 1H 2019." As long as the process design and logistics options are relatively locked down, this could present the opportunity to reduce pre-production project costs and accelerate the development timeline, in our view.

Experienced management team

- **Extensive potash experience**. EML's CEO and members of senior management were directly involved in the development and funding of Highfield Resources (ASX: HFR). Highfields' MOP potash projects in Spain are close analogues to Khemisset, and the EML team brings considerable experience in navigating development, permitting, marketing and funding hurdles in the potash sector.
- **Mining industry veteran.** In July 2018, Mark Connelly was appointed as Chairman. Mr Connelly is an internationally experienced executive with financial, commercial and extensive resource industry experience in senior roles. Notably, in recent roles he was instrumental in the merger between Adamus Resources and Endeavour Mining in 2011, and was MD of Papillion Resources, sold to B2Gold in 2014 for nearly US$600m.

Site visit confirmed infrastructure and location advantage

- **Comprehensive visit.** We visited EML's Khemisset project in February 2019. We toured the Khemisset licence including the proposed location of the mine infrastructure area. We visited Mohammedia port (one of the port options for export Khemisset MOP) and had the opportunity to view the regional infrastructure in Morocco. The photos on the following pages highlight the high level of infrastructure development.
- **Drilling.** We visited the drill rig which is currently in the process of resource drilling and we also had chance to review drill core showing key potash intercepts. Whilst on the licence area we also inspected an existing adit/decline relating to a privately-owned salt mine that has now ceased production which demonstrated the superior geotechnical properties of the overlying salt formation. This has an important read-through for the planned decline and underground development (including rock support).
- **No red flags.** The key takeaways from the site visit were the quality of infrastructure in Morocco and the quality of Emmerson's team on the ground. Driving around Morocco is an instructive experience. The road networks and infrastructure are excellent, with major highways more akin to southwest France than a north African country. The main A2 Tollway runs alongside the project site, and Emmerson estimates that the cost of road construction to connect the proposed plant site to the motorway is approximately $2.6m. Spending time on the ground, it becomes clear that there are no major red flags in term of infrastructure and logistics with easy access to road and rail networks, ports, and power.

Figure 6 -General infrastructure in the Khemisset area

Source: Shard Capital

Figure 7 - Proposed mine infrastructure area and access via A2 Tollway road

Source: Shard Capital

Figure 8 - EML's drill rig and key potash intersections in drill core

Source: Shard Capital

Khemisset will be of interest to major players in the space

Moroccan fertiliser producer OCP is pursuing an aggressive African NPK strategy. Khemisset will be of strategic interest to OCP and other players in Africa and the Middle East particularly. As part of ongoing business, EML is currently developing relationships with a number of industry players.

- **On the radar.** We see rationale for Khemisset to be of significant interest to major players in potash and fertiliser space. We see this as opening significant scope for EML to work with strategic partners to develop and fund Khemisset. Indeed, we also believe the project will increasingly appear on the radar of major groups as a potential takeover target in the future.
- **Limited barriers to entry.** Khemisset is well positioned to supply at the Moroccan point of sale but also into the European hub and Brazil. With a low capital intensity project with good infrastructure, logistical advantages and in a low risk jurisdiction, we see limited barriers to entry and Khemisset will increasingly stand out from the crowd.
- **OCP**. OCP Group in Morocco has range of synergies that have a readthrough to Khemisset given OCP's plan to double mining capacity and triple fertiliser capacity by 2027. Furthermore, OCP's consumption of potash has grown strongly over the last five to seven years (Emmerson estimates at greater than 140% per annum) to a total of approximately 500ktpa. OCP is targeting 2Mpta of potash consumption to feed its ambitious expansion plans, particularly in Africa.

Sector leading capital intensity

- **One of the industry's lowest.** We calculate Khemisset's capital intensity is $520/t of annual MOP capacity. This is half the peer average with the mean ($950/t) and weighted average ($1,200/t) for our selected global peers' group.
- **Typically, a capital-intensive industry.** There is no shortage of potash development projects in the global pipeline. However, the initial capital requirements represent a significant barrier to entry, especially for junior companies. High capital requirements stem from the necessary infrastructure required to support large new potash projects in both Africa and Canada. Add to this the fact that most potash mineralisation is deep (often >1km) and capital intensive deep-shaft underground mining or solution mining is required, which introduces a significant upfront capital cost and ongoing development cost. Capex budgets can often run to $1bn to $3bn for a typical deep mine in Canada.

The total capital cost for the Khemisset decline is estimated at $35m versus around $1bn for a typical deep shaft development in Saskatchewan

- **Khemisset's advantage.** The project's location (close to port, power and roads) means that the infrastructure component of capex is minimal compared to peer projects. Furthermore, Khemisset mineralisation is shallow (c.500-600m) compared to Canadian projects where are typically 1km+ which means lower cost decline access is viable instead of shafts.

Low cost delivered to target market brazil

- **Khemisset's total cash cost** to the mine gate is forecast at US$105/t MOP (Scoping Study), with AISC to Port of Mohammedi of $147/t and AISC to Brazil of $162/t. Despite Khemisset having a higher operating cost to the mine gate than some of the Russian and Canadian peers, the overall cost delivered to target markets is very competitive.
- **Cost advantage.** Khemisset's cost advantage stems from low freight costs with easy access to port (150km away) and proximity to end markets. This translates to the potential for Khemisset's total delivered cost to be bottom quartile even including freight to Brazil. Costs are even lower on an FOB Mohammedia basis for product delivered at a key port in Morocco.

- **Transport a small component of Khemisset costs.** EML estimates that royalties, transport and logistics make up 60% to 70% of Canadian delivered cost to Brazil and believes that Khemisset's location advantage is worth $67-$108/t delivered cost to Brazil.
- **Brazil, Morocco and mainland Africa.** Brazil is the largest seaborne / import market for potash globally and is, therefore, considered to be one of the most important markets for potash producers. The Company's competitive advantage (transport and logistics) would be expected to be magnified into the high growth Moroccan and broader African markets. Consequently, we see Khemisset is perfectly located on the doorstep of the European demand hub, whilst also being positioned to supply the key Brazilian market. Furthermore, the project is well placed to feed into the expected growth in fertiliser consumption in mainland Africa.
- **Canadian vs Moroccan potash.** EML's project unique positioning means that Khemisset is likely to receive a premium netback price compared to existing potash producers:

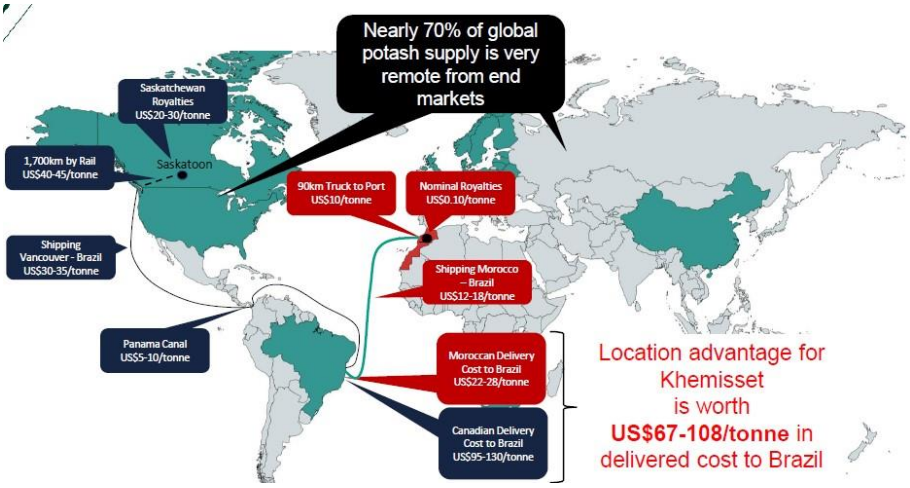
  Canada to Brazil

  - Distance to port: Saskatchewan to Vancouver = **c.1,700km rail**
  - Shipping time from Canada (Vancouver) to Brazil = **24 days**, **14,235km**.

  Morocco to Brazil

  - Distance to port: Khemisset to Mohammedia = **140km road/rail**
  - Shipping time from Morocco (Mohammedia) to Brazil = **10 days**, **6,270km**

Figure 9 - Khemisset's location advantage



Source: Emmerson plc

Record growth for Brazil and Moroccan imports – both key markets for Khemisset's MOP

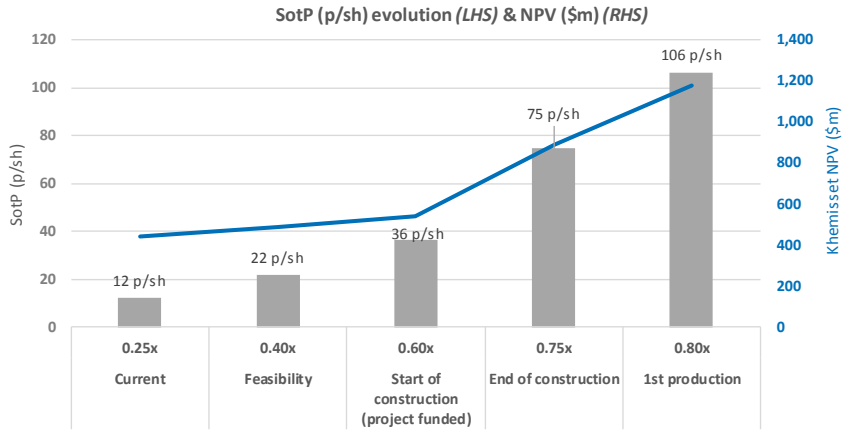
Record MOP demand.

- **Fundamental potash demand drivers remain intact** and we see robust MOP demand growth moving forward, especially from major importers such as Brazil. Most industry analysts continue to predict 2%-4% CAGR demand growth through to 2025. Prices have seen a sustained recovery from the cyclical low in mid-2016, the MOP CFR Brazil price is currently $360/t, up 71% from mid-2016. Moroccan potash imports are also growing at rates significantly higher than the rest of the global potash market.

Undemanding Valuation

- **Base-case.** Our base-case NPV[10] (real) for Khemisset is US$439m with an IRR of 23%. Using an 8% real discount rate more akin to EML's 10% nominal rate in the scoping study the project NPV[8] is $614m. We see significant potential for value accretion as the company meets development milestones given that our sum of the parts valuation suggests an **intrinsic fair value of approximately 12p/sh for Emmerson** plc, fully-diluted. We see significant potential for value accretion as the company meets development milestones and we de-risk our SotP valuation, rising from 12p on a risk-adjusted basis today to c.100p at production on a pre-financing basis. We expect this NAV trajectory to play out over several years as EML progresses Khemisset into a producing asset.
- **Conservative.** Our valuation stance remains conservative in order to derive our current sum of the parts value. We use a relatively high discount rate, start discounting from current day, apply a 20% escalation to pre-production capex. The basis of our SotP valuation (12p/sh) is our $443m Khemisset NPV[10] risked at a NAV multiple of 0.25x to reflect remaining development and funding risk.
- **Look-through value.** As a comparison, we if use an 8% discount rate, no capex escalation and discount cash flows from the start of construction, our base NPV would increase to $792m with a 28% IRR.
- **Trading at a discount.** Out SotP valuation (12p/sh) suggests that EML is currently trading at 0.3x NAV indicating a 233% return to the current share price. We see this as an attractive entry point into a potentially high margin potash play with a defined development path and minimal barriers to entry.

Figure 10 - SotP NAV and project NPV evolution and de-risking profile



Source: Shard Capital estimates

Key catalysts

- Completion of resource drilling.
- Resource upgrade.
- Complete bankable metallurgical test work programme
- Commence Feasibility Studies.
- Commence ESIA.
- Strategic discussions with offtake and sales and marketing partners
- Discussions with in-country service providers (e.g. power and logistics).

Company Snapshot

Corporate & Capital structure

Emmerson plc was incorporated on the Isle of Man in March 2016. The company's shares were re-admitted to the Official List and to trading on the Main Market of the LSE in June 2018, following the acquisition of Moroccan Salts Limited to gain 100% control of Khemisset. In conjunction with the re-admission, EML raised gross proceeds of £6m by the way of a placing of 200m shares at 3p/sh.

Emmerson has 626.13m shares in issue. In addition, 53.8m options and warrants are outstanding all with an exercise price of 3p/sh. This is comprised of 42.5m options, primarily to directors and consultants, and 11.4m warrants. At the current price of 3.6p, the company has a market capitalisation of £22.5m. Management and associates currently hold 19.1%.

Financials

EML's current cash position is approximately £2.5m (£4.9m on the balance sheet in the June 2018 financials). The company reports that based on the current workflow, it is fully funded until Q1 2020. The company does not have any debt on the balance sheet.

Directors and Senior Management

Mr Mark Connelly *- Non-Executive Chairman*

An internationally experienced financial and commercial executive with thirty years' experience in the financing and development of mining projects. He has worked with several multinational companies and across multiple jurisdictions including Africa, Europe, Australia and the Americas. Most recently he served as MD and CEO of Papillon Resources Limited that was sold in 2014 for US$600 million.

Hayden Locke *- Executive Director & CEO*

An experienced mining executive with ~15 years' experience in mining, private equity and investment banking. Most recently he was Head of Corporate and Technical Services (Geology, Mining and Processing) at ASX listed potash developer Highfield Resources. Prior to this, Hayden was Head of Corporate for ASX listed Papillon Resources which was sold to B2Gold in 2014 for US$600m. Hayden studied engineering, commerce and geology.

Dr Robert Wrixon *- Executive Director*

Dr Wrixon has led Moroccan Salts Limited since its inception in 2013. Rob has 18 years' commercial experience in mining including 5 years with Xstrata in various strategy roles, and as MD and CEO of ASX listed Manhattan Corporation and Haranga Resources Limited. He is a Director of Starboard Global, a natural resource PE group based in Hong Kong and holds a PhD in mineral engineering from the University of California, Berkeley.

Edward McDermott *- Non-Executive Chairman*

A former investment banker with 15 years' experience in the management and financing of small companies. Currently a Non-Executive Director of AIM listed companies Fishing Republic Plc and FastForward Innovations Ltd. He has previously served as a Director of AIM listed Stellar Resources Plc and Noricum Gold Ltd. Most recently, he was part of the corporate finance team at Optiva Securities Limited.

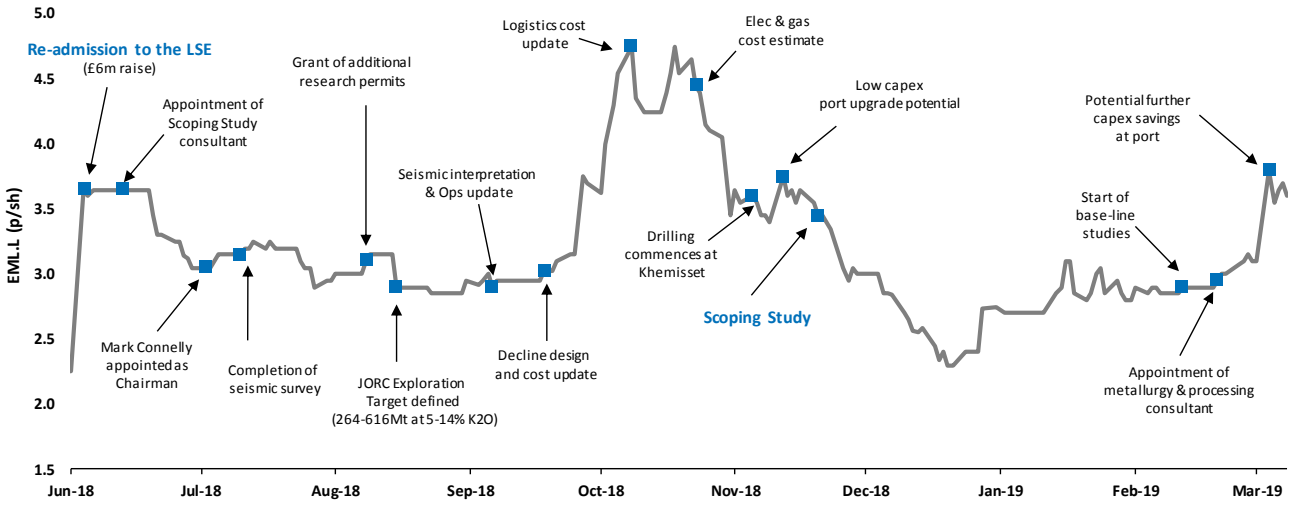
Management

- **Phil Cleggett** - **Head of Corporate Development.** A qualified accountant with c.10 years' experience in mining and investment banking. Most recently, he was Manager Corporate Strategy of ASX listed potash developer Highfield Resources.
- **Lahcen Alloubane – Manager Logistics and Operations.** A Moroccan national with a Masters of Business Administration and nearly 10 years' experience in the mining sector including with Moroccan based tin developer Kasbah Resources.
- **Mohammed Ouabid – Project Geologist.** A geologist and Moroccan national with over 15 years' experience in a variety of commodities including potash. Previously worked for ASX listed Kasbah Resources and several Moroccan mining entities including Managem.
- **Enrique Sanz PhD – Consultant Geologist.** A geologist with 20 years' experience in industrial minerals, primarily evaporite minerals. Formerly project geologist for worldwide exploration with Rio Tinto PLC. Extensive experience in Khemisset Basin and other Triassic – Liassic salt basins of Morocco.
- **Said Hamdioui – Advisor.** Mr Hamdioui, a Moroccan national, is a PhD electrical engineer and is Chair Professor at the Delft University of Technology in the Netherlands. He has been involved with the Khemisset Project since its acquisition focussing on local stakeholder engagement and management.

Share price chart and key events

- **MSL acquisition.** In October 2017, EML executed a binding agreement with MSL to acquire 100% of MSL, the holding company for a group of Moroccan companies developing the Khemisset potash project. The acquisition constituted a reverse takeover. EML was re-admitted to the LSE in June 2018.

Figure 11 - EML's share price timeline and key events since re-admission (post Moroccan Salts acquisition)



Source: Shard Capital, LSE, Company reports

Next Steps and 2019 workstream

- **Completion of drilling.** Combination of resource and exploration drilling to confirm and expand the mineral resources at Khemisset.
- **Resource upgrade.** Drilling results will be incorporated into an update of the current JORC compliant Inferred Mineral Resource Estimate of 311Mt at an average grade of 10.2% K_2O.
- **Complete bankable metallurgical test work programme.** To confirm the process flow sheet for the PFS and identify opportunities for simplification and optimisation of design which have the potential to reduce capital and operating costs resulting from less crystallisation stages and lower steam energy consumption.
- **Feasibility Studies.** We understand that Emmerson believes that there may be an opportunity to bypass this intermediate PFS step and go straight to a DFS. This will be dependent on the outcomes of key workstreams, including the metallurgical test work, which will be conducted in H1 2019.
- **ESIA.** Commencement of Environmental and Social Impact Assessment and permitting processes.
- **Strategic discussions** with offtake and sales and marketing partners.
- **Commencement of discussions with in-country service providers** for cooperation on various aspects of Khemisset Project including: Gas supply, Electricity connection and supply, Transport and logistics studies; and Port site investigation.

Valuation

Current risked fair value of 12p/sh fully-diluted for Emmerson based on a highly-risked NAV. November 2018 Scoping Study forms the basis of our modelling. At NPV[8], current fair value increases to 16.9p/sh.

Our conservative base-case NPV[10] for Khemisset is US$443m. At NPV[8] this increases to $614m.

Our base NPV would be $792m using a real NPV8%, no capex escalation and discounting from construction.

Our sum of the parts ("SotP") analysis suggests a current intrinsic fair value of approximately 12p/sh for Emmerson plc, fully-diluted. Our SotP valuation is driven by a DCF model of Emmerson's Khemisset potash project based on the November 2018 scoping study, company reports and guidance, observations from our site visit to Morocco. We combine this with some of our own modelling assumptions. This is our highly conservative, risk adjusted base-case but we see significant upside potential beyond this as the project de-risks (see next page).

Our base-case NPV[10] (real) for Khemisset is US$439m (£338m, or 50p/sh) with an IRR of 23%. Note that the divergence between our base NPV and the scoping study is due to **1.** We discount net cash flows from current day and not the start of construction; **2.** We apply a 20% escalation to the $405m capex in the scoping study (*SHARDe* capex *$487m*) and **3.** We use a real NPV[10%] with no escalation to revenues or operating costs. As a comparison, if we used a real NPV[8%], no capex escalation and discount cash flows from the start of construction, our base NPV would increase to $792m with a 28% IRR, in-line with the scoping study nominal NPV[10%] $795m and IRR of 29.8%. We use a 10% discount rate for conservative valuation purposes and to account for our pre-funded valuation basis but expect to reduce the discount rate as development and financing risk diminishes.

Our SotP follows a risk-weighted approach. We typically value non-producing development companies using a DCF approach with risk weightings in the range of 0.1-1.0x NAV. We peg Khemisset at the lower end of this range with a 0.25x NAV multiple. Despite having a favourable location, robust long-life resource, low capital intensity and the potential to be one of the lowest cost producers both to the Moroccan markets and delivered to Brazil, we apply a relatively punitive discount to account for remaining financing, timeline, and development risk. Our 0.25x NAV multiple reflects the current scoping study stage of development and that our SotP is on a pre-funding basis. Note that our NAV multiple is already applied to a conservative base-case, and as such we see significant scope for value accretion.

Our risked sum of the parts NAV is £82m or 12p/sh. We also adjust for future corporate costs (DCF NPV[10%] basis), net cash and use 680m shares fully-diluted to reflect outstanding options and warrants.

Figure 12 - Sum of the parts valuation – Shard Capital estimates

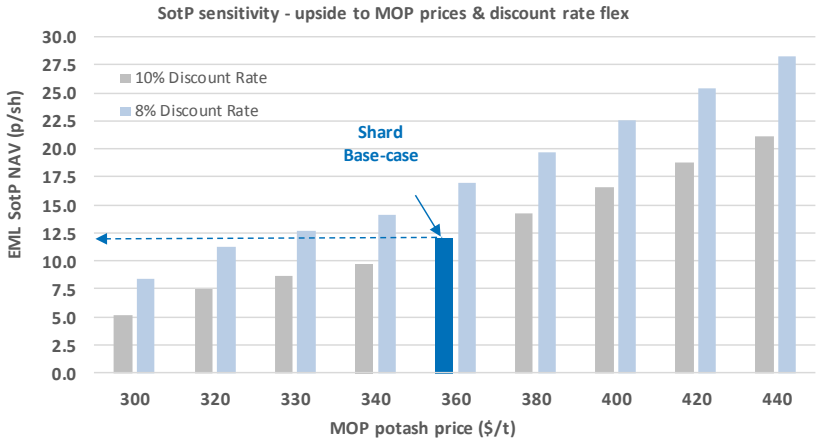
Sum of the parts NAV				
Unrisked NPV	**Disc Rate**	**NPV (US$m)**	**NPV (£m)**	**p/sh**
Khemisset	10%	439	338	49.7
Exploration	-			0.0
Subtotal		439	338	0.5
Risked NAV	**NAV multiple**	**NPV (US$m)**	**NPV (£m)**	
Khemisset	0.25x	110	84	12.4
Exploation	-		0	0.0
Sub-total			84	12.4
Cash on B/S			2.5	0.4
Cash in from options/warrants			1.6	0.2
Debt			0.0	0.0
Forward Corporate G&A / Other			(7.0)	(1.0)
NAV VALUATION			**£82m**	**12.0p**
Shares on issue (basic)			626.1m	
Shares on issue (diluted)			680.0m	
P/NAV			0.31x	
Implied Return to NAV			226%	

Source: Shard Capital estimates

Upside

- **SotP sensitivity.** Our current valuation standpoint is conservative, but we illustrate the potential upside to our SotP valuation by flexing discount rate and MOP input price. E.g., at a current standpoint and assuming no other change in variables (using the same 0.25x NAV multiple and retained our increased capex estimate), our SotP increases to 14p/sh (10% discount) or 20p/sh (8% discount) by simply moving to a $380/t long-term MOP price.

Figure 13 - SotP valuation – sensitivity to MOP price and discount rate

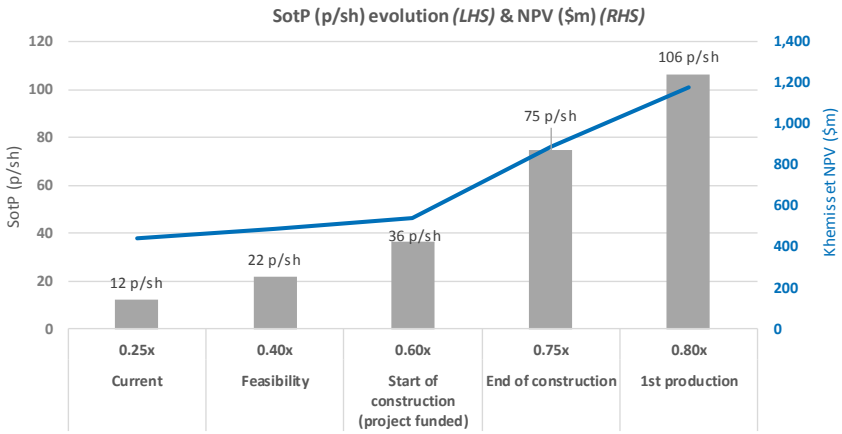


Source: Shard Capital estimates

- **Value evolution.** As a project progresses through feasibility, funding and construction on the path to first production, the risk discount to NPV typically narrows. We capture this diminishing risk profile by rolling over our NPV and gradually reducing the risk discount via our NAV multiple. On this basis, our fair value of 12p/sh today increases to over 100p/sh by first production, although note this is on a pre-financing basis and excludes any further equity dilution including the mine-build funding round. We expect this potential NPV and SotP trajectory to play out over the next 5 years as Khemisset is developed.

Figure 14 - SotP NAV and project NPV evolution and de-risking profile

		Current	Feasibility	Start of construction	End of construction	1st production
NAV multiple	x	0.25x	0.40x	0.60x	0.75x	0.80x
Khemiset NPV10%	US$m	439	485	538	885	1,176
EML SotP NAV	p/sh	12 p/sh	22 p/sh	36 p/sh	75 p/sh	106 p/sh



Source: Shard Capital estimates

Assumptions

The table below details the primary assumptions in our DCF model for Khemisset.

- **Timings.** Note that we take a conservative view point on timing and assume a two-year period for feasibility studies and funding (2019-2020), a 24-month construction period (2020-2022) leading to first production in 2023. We conservatively assume a phased ramp-up to full capacity by 2024. The company believes that Khemisset may commence production earlier than this, but we retain our conservative stance for valuation purposes.
- **LOM.** Given the potential for resource expansion, we also see scope for a mine life in excess of the initial 20 years contemplated in our model.
- **Capex.** We assume a 20% escalation to the scoping study capex; $405m base capex plus $81m (20%) for $487m total.
- **Prices.** Our base-case uses a flat LT price of $360/t CFR Brazil for EML's planned MOP 60 product as per the current price in the Brazilian market and scoping study assumption. We provide full sensitivity analysis on various price scenarios later in this note.
- **Discounting.** Note that we discount cashflows from current year 2019, as opposed to the proposed start of mine building in 2021.

Our modelling assumptions are based closely on the November 2018 scoping study.

Figure 15 - Sum of the parts valuation – Shard Capital estimates

Shard Capital Assumptions	Units	
Feasibility & funding	*year*	2019-2020
Construction start	*year*	2021
Commissioning & ramp-up	*year*	2023
Full capacity production	*year*	2024
LOM	*years*	20
Total LOM ore mined	*Mt*	124
Annual ROM extraction rate	*Mtpa*	6
LOM grade to mill	*% K_2O*	9.35%
LOM metallurgical recovery	*%*	83.6%
LOM MOP production (K60)	*kt*	16,400
LOM Avg MOP production	*kt*	780
Annual peak MOP production	*kt*	800
Cash cost mine gate	*$/t MOP*	105
Total cash cost FOB Morocco (mohammedia)	*$/t MOP*	115
AISC FOB Morocco	*$/t MOP*	148
AISC delivered Brazil	*$/t MOP*	163
Base capex assumption	*US$m*	405
Capex escalator	*%*	20%
Modelled capex assumption	*US$m*	487
Capex split (construction year 1:year 2)		60:40
LOM flat MOP price CFR Brazil	*$/t MOP*	360
Tax		17.5% export tax rate, 5 yr holiday
Discount rate	*%*	10

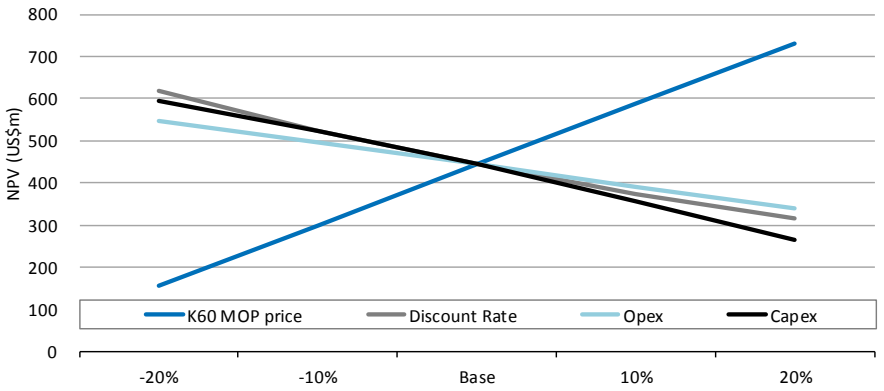
Source: Shard Capital estimates

Sensitivity

Sensitivity analysis on our base-case DCF modelling indicates that Khemisset is highly leveraged to the prevailing potash price, as would be expected. Our NPV[10] increases by 33%, or $144m for a 10% uplift in our LT potash price assumption.

The K60 MOP price is the key driver, as expected. Relatively low sensitivity to capex.

Figure 16 - Sensitivity analysis to key inputs



Source: Shard Capital estimates

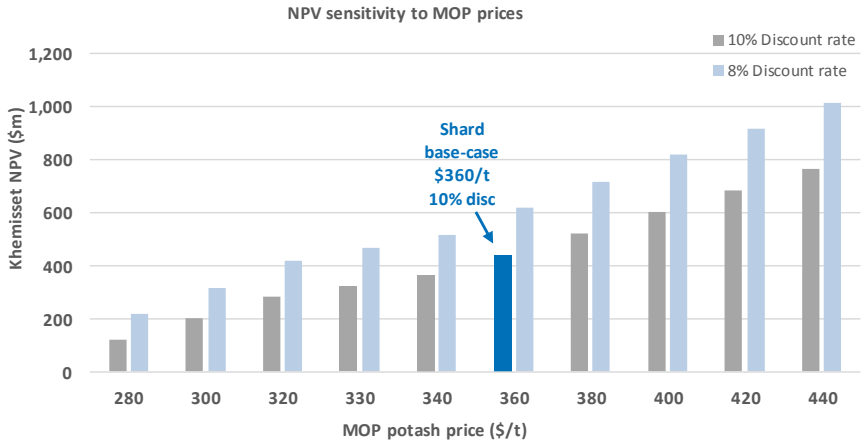
Figure 17 - Sensitivity analysis: MOP price vs discount rate – Shard estimates

Khemisset NPV (US$m) - current

Potash MOP price ($/t)	Discount rate 5%	8%	10%	12%
280	434	214	118	49
300	577	314	198	115
320	720	414	279	180
330	792	464	319	213
340	863	514	359	245
360	1,006	614	**439**	310
380	1,149	714	519	376
400	1,292	813	600	441
420	1,435	913	680	506
440	1,578	1,013	760	572

Khemisset NPV (US$m) - @ start of construction

Potash MOP price ($/t)	Discount rate 5%	8%	10%	12%
280	486	256	150	69
300	643	373	247	151
320	801	490	344	233
330	880	548	393	274
340	959	606	441	315
360	1,116	723	**538**	397
380	1,274	839	636	479
400	1,431	956	733	561
420	1,589	1,073	830	643
440	1,747	1,189	927	724



Source: Shard Capital estimates

Modelling outcomes / Forecasts

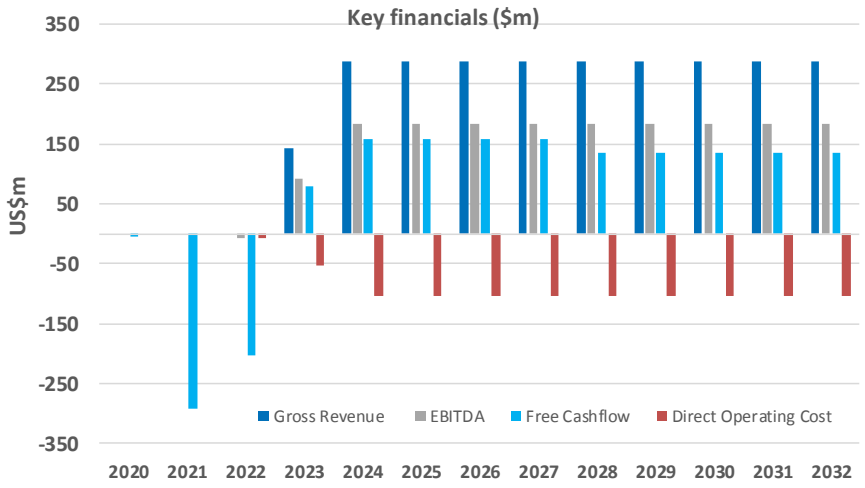
Figure 18 - Key project-level financials - Shard Capital estimates – base case

		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
UG ROM Extraction	Mtpa	0	0	0	0	1,500	3,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
K60 MOP production	ktpa	0	0	0	0	0	400	800	800	800	800	800	800	800
MOP Price CFR Brazil	$/t	360	360	360	360	360	360	360	360	360	360	360	360	360
Gross Revenue	$m	0	0	0	0	0	144	288	288	288	288	288	288	288
Direct Operating Cost	$m	0	0	0	0	-8	-52	-104	-104	-104	-104	-104	-104	-104
EBITDA	$m	0	0	0	0	-8	92	184	184	184	184	184	184	184
EBIT	$m	0	0	0	0	-8	80	160	160	160	160	160	160	160
Free Cashflow	$m	0	-2	-5	-292	-203	79	158	158	158	158	134	134	134
Expansion capex	$m	0	-2	-5	-292	-195	0	0	0	0	0	0	0	0
Sustaining capex	$m	0	0	0	0	0	-13	-26	-26	-26	-26	-26	-26	-26

Source: Shard Capital estimates

Steady-state annual: Revenue $288m, EBITDA $184m, and FCF $158M under our base case scenario

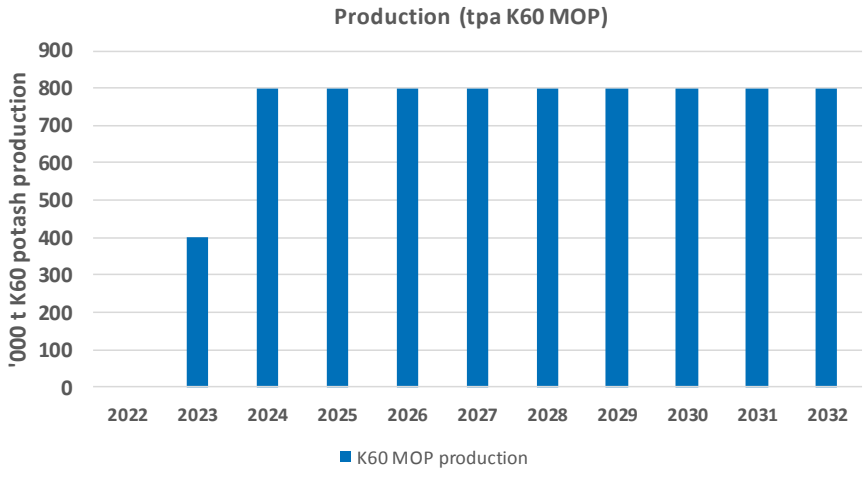
Figure 19 - Key project-level financials



Source: Shard Capital estimates

Annual production 800kt MOP, start up in 2023 (Shard estimate)

Figure 20 - K60 MOP - Production forecast



Source: Shard Capital estimates

Scoping Study summary

Key Scoping Study findings

► EML released the results of the Khemisset Scoping Study in November 2018.

Scoping Study reported a post-tax NPV[10] of $795m and IRR of 29.8%.

Average, steady state, EBITDA margins of nearly 64% and Average, steady state, post-tax cashflow of US$184 million per annum assuming a flat, real, potash price of US$360/tonne CFR Brazil.

Payback period <3.25 years.

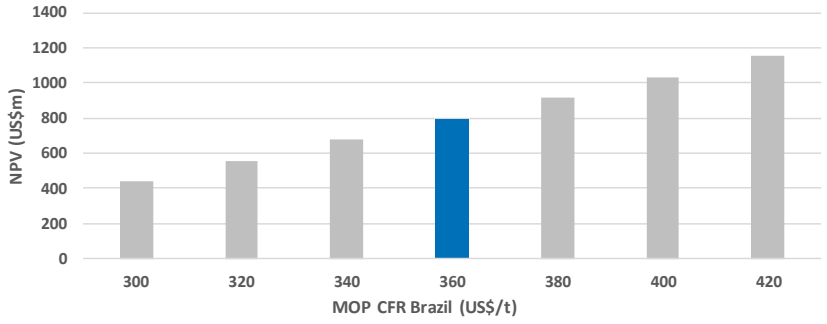
Figure 21 - November 2018 Scoping Study - parameters and assumptions

Parameter	Value
Initial Operating Life	*20 years*
Annual ROM Extraction Rate	*6Mtpa*
Average Life of Mine Grade to Mill	*9.35% K2O*
Average Metallurgical Recovery (LOM)	83.6%
Average Annual Steady State Production Rate	800,000 metric tonnes
Flat Real MOP Price CFR Brazil	US$360/tonne
Capital Cost (including US$90m contingency)	US$405m
Total Cash Cost FOB Port of Mohammedia	US$115.4/tonne
All-in-Sustaining Cash FOB Port of Mohammedia	US$147.6/tonne
Average Steady State EBITDA	US$236m
Average Steady State EBTDA Margin	63.5%
Average Steady State Annual Post-Tax Cash Flow	US$184m
Average Steady State Cash Margin	50.0%
Post Tax NPV10 (nominal)	US$795m
Post Tax IRR (nominal)	29.8%
Post-tax Payback Period	3.25yrs
Key Financial Assumptions for Scoping Study DCF Model	
Flat MOP Prices over Life of Mine (Base case US$360/tonne CFR Brazil)	
Nominal Discount Rate of 10%	
Costs and revenues escalated at 2% per annum over life of mine	
5 Yr Corporate Tax Holiday	
17.5% Corporate Tax Rate on Exported Product	
Two years pre-production, ramp-up 50% in year 1	

Source: Emmerson plc, November 2018 Scoping Study

Figure 22 - Scoping Study - NPV Sensitivity to Potash Price and Discount Rate

Discount rate \ MOP CFR Brazil	300	320	340	360	380	400	420
5.0%	929	1,121	1,312	**1,504**	1,695	1,887	2,078
7.5%	641	791	940	**1,090**	1,240	1,389	1,539
10.0%	**437**	**556**	**676**	**795**	**915**	**1,034**	**1,153**
12.5%	289	386	483	**580**	678	775	872
15.0%	179	260	341	**421**	502	582	663



Source: Emmerson plc, November 2018 Scoping Study

Capital cost breakdown

Figure 23 - Scoping Study – summary of pre-production capital costs

Capital Cost Item	US$M
Mining	123.0
Processing Plant	138.0
Surface Infrastructure	40.2
Total	301.2
EPCM	14.3
Contingency (30%)	90.4
Total Pre-Production Capital Cost	**405.9**
Capital Intensity (US$/tonne product)	520.4

Source: Emmerson plc, November 2018 Scoping Study

Scoping Study capex estimate $405m.

Capital and operating costs were estimated from first principles in line with the Australian Institute of Mines and Metallurgy ("AusIMM") guidelines for a Scoping Study and have been estimated with an accuracy of ±30-50%.

Operating cost breakdown

Figure 24 - Scoping Study – operating costs

Operating Cost Item	US$/t ROM	US$/t MOP
Mining	5.5	42.1
Processing	7.2	55.1
Other Site Operating Costs	0.7	5.0
Administration	0.4	3.2
Total Cash Cost to Mine Gate	13.8	105.4
Trucking to Port of Mohammedia	1.3	10.0
Sustaining Capital	4.2	32.2
All-in-Sustaining Cash Cost (FOB Mohammedia)	19.3	147.6
Freight to Brazil	2.5	15.0
All-in-Sustaining Cash Cost to Brazil	**21.8**	**162.6**

Source: Emmerson plc, November 2018 Scoping Study

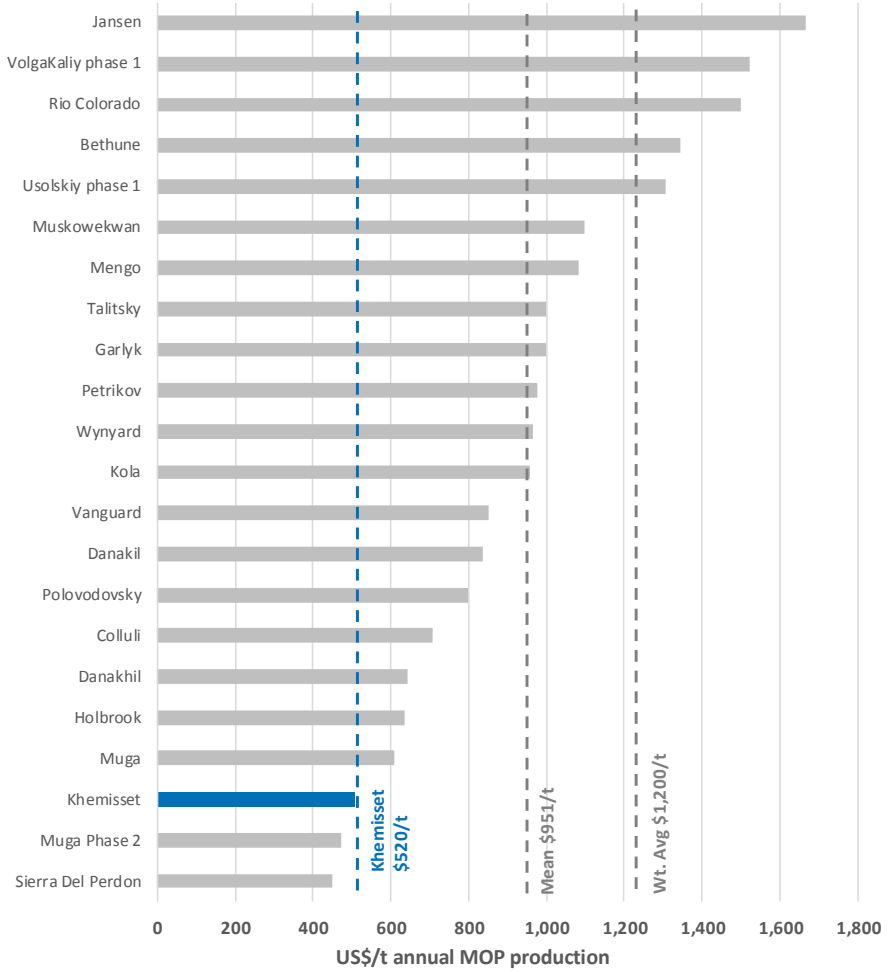
Khemisset versus the industry

Capital intensity

There is no shortage of potash development projects in the global pipeline. However, the initial capital requirements represent a significant barrier to entry, especially for junior companies. High capital requirements stem from the necessary infrastructure required to support large new potash projects in both Africa and Canada. Add to this the fact that most potash mineralisation is deep (often >1km) and capital intensive deep-shaft underground mining or solution mining is required, which introduces a significant upfront capital cost and ongoing development cost. Capex budgets can often run to $1bn to $3bn for a typical deep mine in Canada. We note that Khemisset remains competitive even when pegged against expansions of existing capacity.

We calculate Khemisset's capital intensity is $520/t of annual MOP capacity. This is half the peer average with the mean ($950/t) and weighted average ($1,200/t) for our selected global peers' group.

Figure 25 - Capital intensity (US$/t annual production)



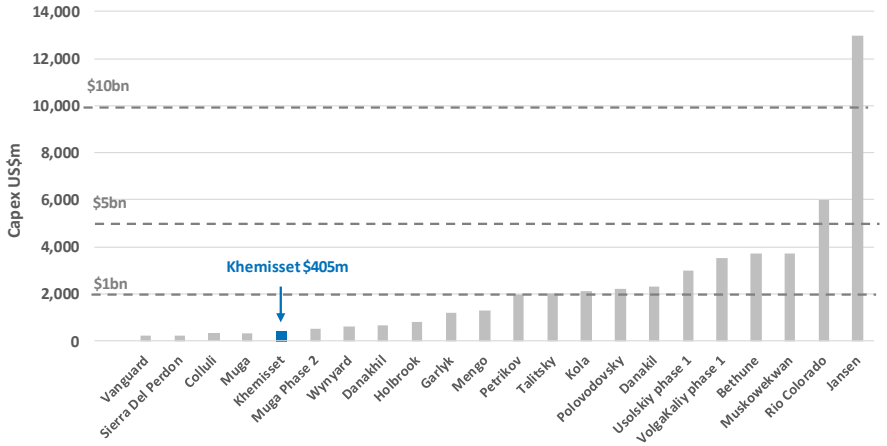
Source: Company reports, Shard Capital estimates
**note all MOP projects except Colluli (SOP)*

Pre-production capital cost

Morocco's excellent infrastructure in combination with shallower mineralisation (cheaper decline access), no overlying aquifers, and proximity to port means that the $405m scoping study capex estimate appears more fundable than a typical Russian or Canadian project with a $2bn capex tag. Khemisset's capex is around a quarter of this. The infrastructure component is critical this with only minor road construction and port refurbishment required. E.g. Kore Potash's Kola project earmarks $179m for marine facilities and $309m for general infrastructure within the $2.2bn capex estimate whereas the Khemisset scoping study includes only $5.8m for port facilities. EML has also reported a potential $7.5m capex (transport and logistics costs) saving for using port and loading facilities at the port of Casablanca.

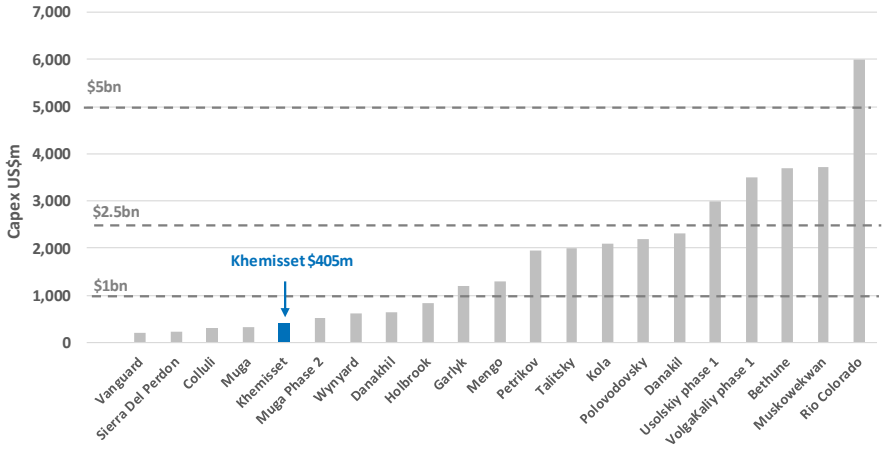
Khemisset's low capex remains highly competitive and is a key differentiator versus peers given that capex is the major barrier to entry

Figure 26 - Pre-production capital cost (US$m)



Source: Company reports, Shard Capital estimates

Figure 27 - Pre-production capital cost (US$m) – excluding Jansen



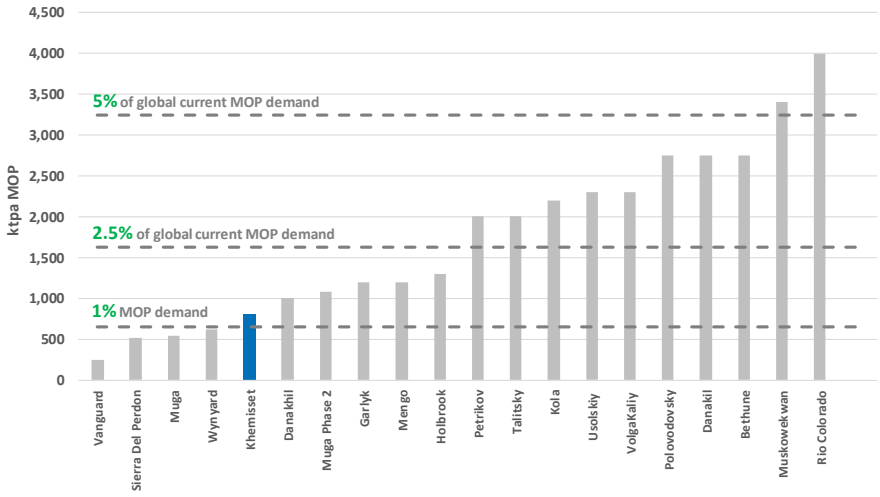
Source: Company reports, Shard Capital estimates

Production scale: Khemisset will sit in the sweet spot

Khemisset is expected to produce approximately 800ktpa MOP. Although the resource could support as larger operation, EML's initial work has been focused on selecting the optimal production rate in terms of opex, capex and markets. At around only 1% of current global MOP demand, Khemisset is unlikely to add price disruptive supply into the market.

Khemisset is unlikely to disrupt the MOP market. We see this as a key positive in the potash space. We remain cautious on SOP or Polyhalite projects due to the market size. As such, we continue to prefer small to medium-sized MOP projects.

Figure 28 - MOP projects – production scale ktpa MOP vs the MOP market size



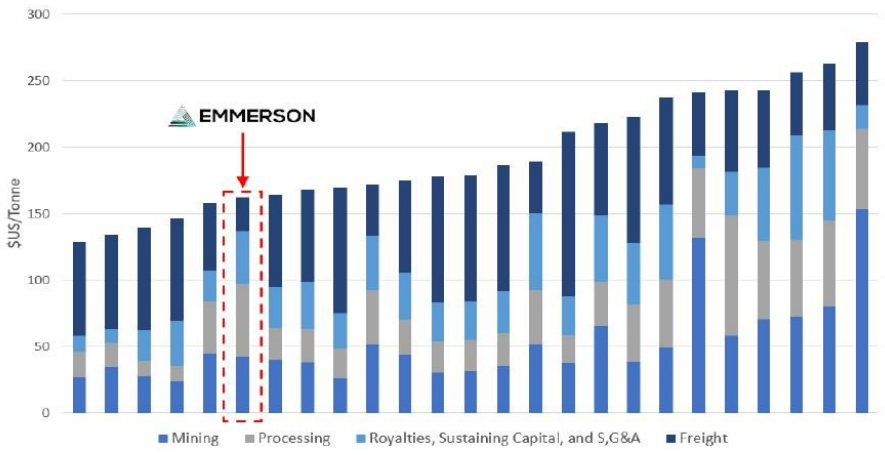
Source: Company reports, Shard Capital estimates

An overall cost advantage delivered to target markets…

Khemisset's total cash cost to the mine gate is forecast at US$105/t MOP (Scoping Study), with AISC to Port of Mohammedia of $147/t and AISC to Brazil of $162/t. The breakdown of the cost base is important and despite Khemisset having higher operating costs to the mine gate than some of the Russian and Canadian peers (the majority represented by mining and processing costs in the chart below), the overall cost delivered to target markets is very competitive.

Khemisset's cost advantage stems from low freight costs with easy access to port (150km away) and proximity to end markets. This translates to the potential for Khemisset's total delivered cost to be bottom quartile even including freight to Brazil. It is even lower cost on an FOB Mohammedia basis for product delivered domestically at the key port in Morocco.

Figure 29 - Industry All-in-Sustaining Delivered Cost Curve to CFR Brazil



Source: Emmerson plc

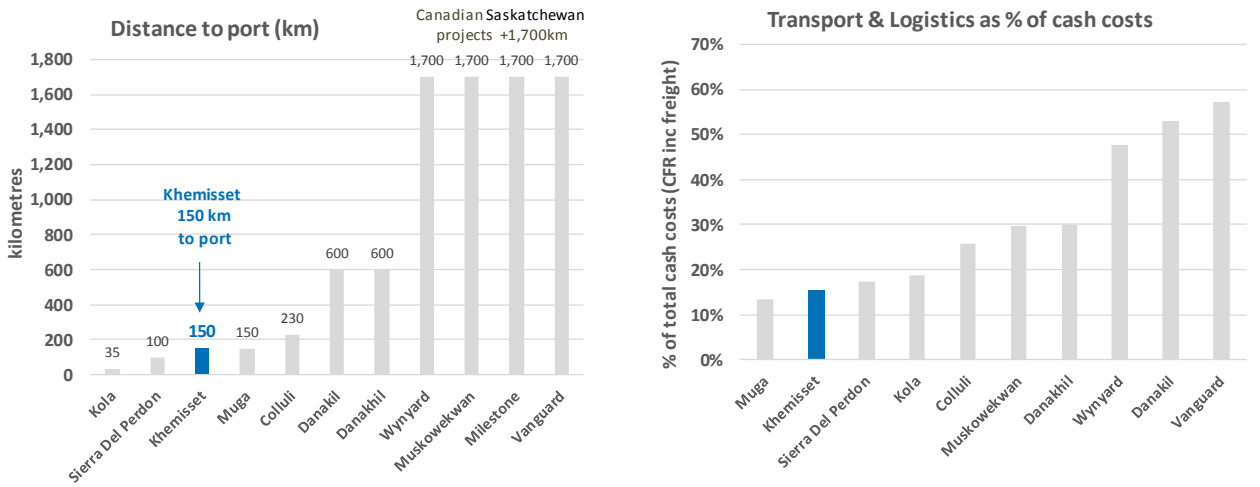
…stems from a location advantage

The net result of Khemisset's location advantage is that transport and logistics costs represent only a small fraction of total cash costs when comparing total rail plus freight as a percentage of total CFR costs delivered to target markets.

A significant component of the project viability equation in potash is the transport and logistics element. The distance from port is a major element, with the potash product often having to make a considerable journey by trucking or rail, prior to its shipment out to target markets. In Saskatchewan, the potash projects are large, but the transport distances are immense, generally around 2,000km which necessitates a significant rail component.

A key advantage for Khemisset is that the proposed project is located only 150km from a dedicated port facility at Mohammedia which currently exports salt for the US de-icing market. Multiple port options exist including Casablanca as per EML's RNS (4th March) which indicates that using the port of Casablanca could result in potential capital cost savings of $7.5m with no change to operating costs.

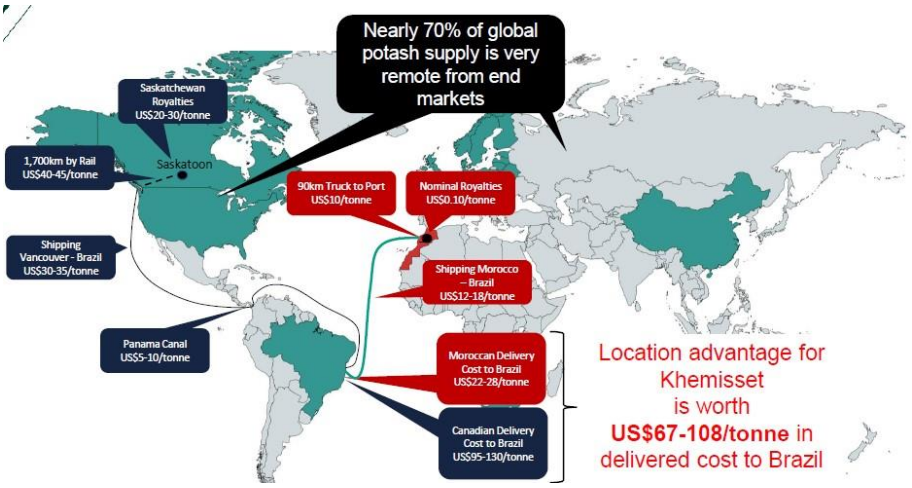
Figure 30 - Distance to port comparison and logistics costs as a proportion of total costs



Source: Shard Capital estimates

EML estimates that royalties, transport and logistics make up 60% to 70% of Canadian delivered cost to Brazil. EML believes this location advantage is worth $67-$108/t delivered cost to Brazil.

Figure 31 - Morocco's location advantage for target markets



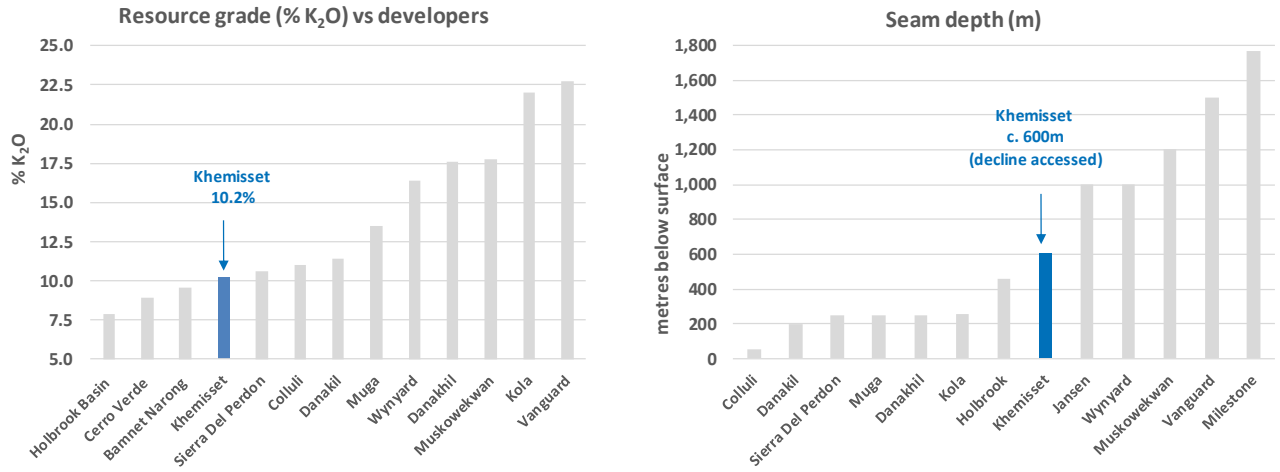
Source: Emmerson plc

Geological and mining context

Khemisset's resource grade of 10.2% K_2O is at the lower end of the spectrum when compared to peer projects. However, in potash mining, grade is not always king. The mineralisation at Khemisset is relatively shallow (decline not shaft) and the logistics and infrastructure are excellent. The logistics costs to get potash "to the ship" are some of the lowest in the world.

The lower grade is compensated for by low power costs in Morocco, low labour costs (<50% vs. Europe), a low corporate tax rate (17.5%) and tax breaks (5-year tax holiday), along with Khemisset's low capital intensity.

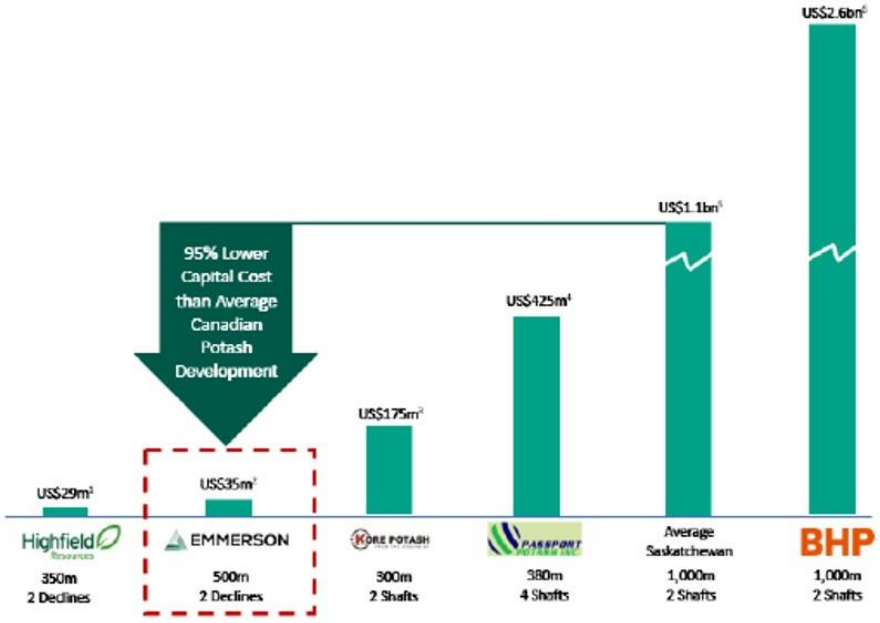
Figure 32 - Resource grade vs peers, and typical potash seam depth



Source: Shard Capital estimates

Initial preproduction capital cost at Khemisset is low relative to peers, driven by shallow decline access. The total capital cost for the Khemisset decline is estimated at $35m versus around $1bn for a typical deep shaft development in Saskatchewan

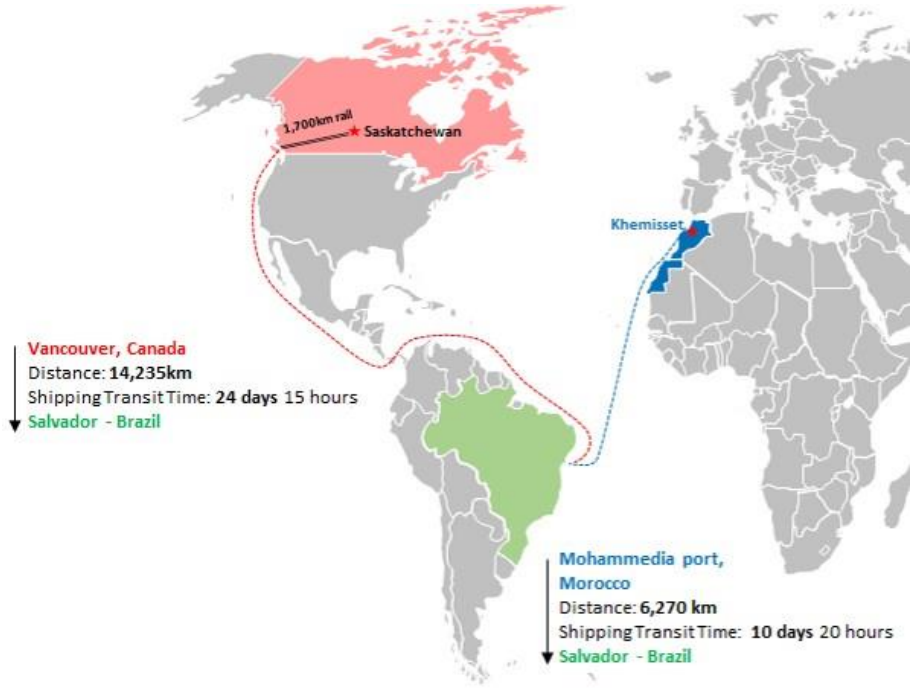
Figure 33 - Comparison of costs for decline and shaft access



Source: Emmerson plc

Indicative shipping transit time from Morocco to key ports in Brazil - Morocco has a 10-day advantage even before considering in-country rail logistics

Figure 34 - Comparison of shipping transit times – Vancouver hub vs Morocco



Source: Shard Capital estimates, searates.com

Figure 35 - Premium netbacks available due to location

Scoping Study assumes 100% of sales to Brazil:

- Second largest potash consumer globally, consuming ~10mtpa of MOP
- Largest potash importer globally
- Premium-priced market owing to remoteness from existing major producers in Canada, Belarus, and Russia

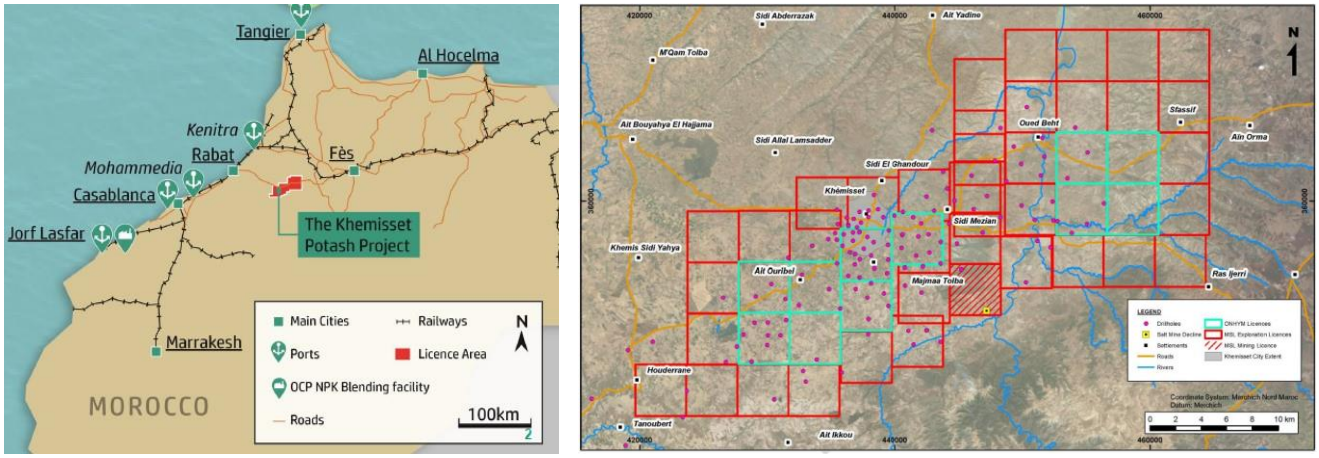
Source: Emmerson plc

Further details on Khemisset

Location, infrastructure, logistics

- Khemisset is located in Northern Morocco, approximately 80km east of Rabat and 150km east of Casablanca. The Khemisset Basin extends over an area of c.1,000km^2 and is easily accessible from the major centres of population including Casablanca, Rabat, Fès and Meknès.

Figure 36 - Khemisset's favourable location



Source: Emmerson plc

The infrastructure in the vicinity of the project and elsewhere in Morocco is outstanding:

- **Roads and Access.** It is proposed that the main point of entry to the mining area is from the main A2 Tollway, a short distance to the south of the Mine Infrastructure Area. An area has been identified where the A2 is straight for approximately 2km allowing for maximum visibility and sufficient room to incorporate a merging lane into the existing road layout.

The A2 toll road is a four-lane highway connecting Casablanca in the west up to Fez in the northeast of Morocco. The road extends to within 5km of the proposed export port at Mohammedia and also runs within close proximity to the Port of Casablanca, a potential alternative.

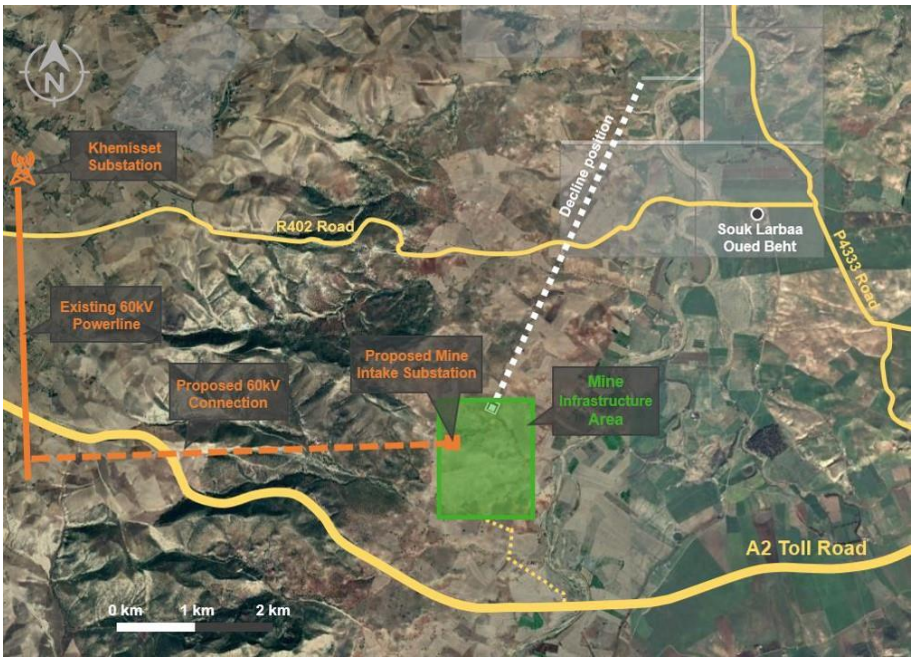
Figure 37 - Mine infrastructure area and connection to the A2 Tollway

Source: Emmerson plc

- **Electricity.** The proposed mine area in Khemisset already has established electrical infrastructure. A 60kV network runs to the north and west of the site. EML believes that that availability would exist on this line, particularly given the low supply requirements for the mine. Capacities for the network and Khemisset substation will be confirmed once construction and operation timelines are finalised.
- Connection to the 60/22kV Khemisset substation approximately 7km to the northwest, or to the substation at Meknes 40km both represent contingency options

The mine area is approximately 5km from the nearest point on the 60kV line

Figure 38 - Power connection relative to Mine Infrastructure Area

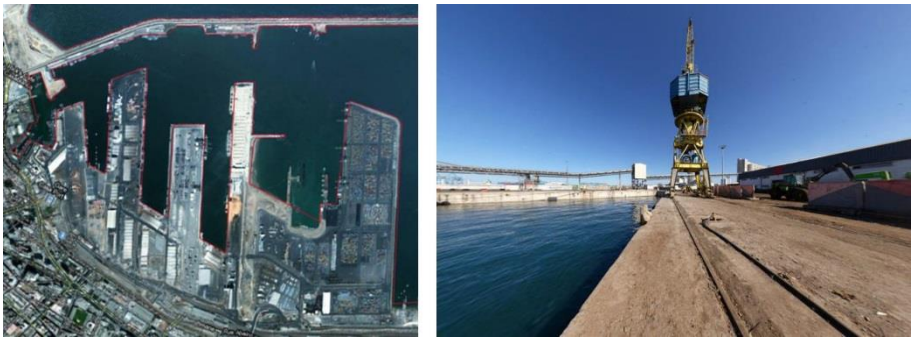


Source: Emmerson plc

- **Gas.** The Processing Plant will require supply of gas; anticipated to be either Liquified Petroleum Gas ("LPG") or Liquified Natural Gas ("LNG"), for the Khemisset processing plant. In Morocco, the most common gas source is LPG. The Company has obtained a proposal from one of the largest gas suppliers in Morocco confirming that it would build and maintain an on-site storage facility at no cost to Emmerson
- **Logistics.** The Scoping Study assumes product will be trucked from the mine, via the A2 Toll Road, to a dedicated port facility at the Port of Mohammedia (150km away), which has the capacity to handle at least 800ktpa of product. US$0.08/km/t transport cost was assumed for the purposes of the Scoping Study. The Port of Mohammedia currently exports salt from the Mohammedia Salt Company, for use in the US de-icing salt market.
- **Casablanca port also a possibility.** In March 2019, EML indicated a potential capex saving of $7.5m by utilising existing storage and loading facilities in Port of Casablanca after discussions with the Moroccan port authorities. Logistics quotes show no change in operating cost from the Scoping Study, despite a slight increase in transport distances given the potential use of rail rather than trucks for the majority of the journey.

- **Casablanca is larger.** The port at Casablanca is larger, more modern and already has outstanding infrastructure in place. It also has a greater draft capacity, allowing a wider range of vessel sizes to be loaded, potentially reducing overall bulk shipping costs to target markets, including Brazil.

Figure 39 - The port of Casablanca



Source: Emmerson plc

- **Target markets.** To maximise its competitive advantage, as a result of its location, Emmerson will focus primarily on supplying to the Atlantic Corridor of markets including Brazil, North West Europe, NOLA and South Africa. In addition, the Moroccan market is one of the fastest growing import markets for potash in the world and has grown over 140% since 2012.

Geology and mineralisation

Triassic basin. The Khemisset basin is one of the marginal sedimentary basins of Morocco which formed in the Triassic and were initiated through the opening of the mid-Atlantic rift. Subsidence and extensional faulting in the Triassic and early Jurassic which led to the formation of clay deposits and critically, the extensive salt/evaporite deposits which host the potash mineralisation. The identified evaporite facies includes halite, gypsum, sylvite and carnallite.

60km of strike. At Khemisset, the potash horizons are hosted by the Lower Salt Formation within the Khemisset Basin which extends for approximately 60km by 20km and represents a regional target for potash exploration. The Lower Salt Formation attains a thickness of up to 190m and is formed of massive banded salt with the principal economic potash layer containing carnallite and sylvinite.

Mineralisation. The main potash minerals in the Khemisset deposits are carnallite KMgCl. 6(H_2O), sylvinite (mix of sylvite KCl and halite NaCl), and rinneite, whether occurring separately or mixed together. The southwest and central areas contain carnallite and sylvinite with a mix of these two minerals. The north area contains only sylvinite.

Previous exploration work. The Khemisset basin was historically explored for potash from the 1950s by Bureau de Recherches et de Participation Minières (BRPM) in conjunction with Mines domaniales des potasse d'Alsace (MDPA) and then from the 1960s onwards by BRPM with assistance from UNDP. The exploration works included surface geophysical surveys, 2D seismic surveys and surface drilling. The most intense phase of exploration occurred between the 1950s and 1970s, with little work undertaken after the 1970s until Emmerson's involvement.

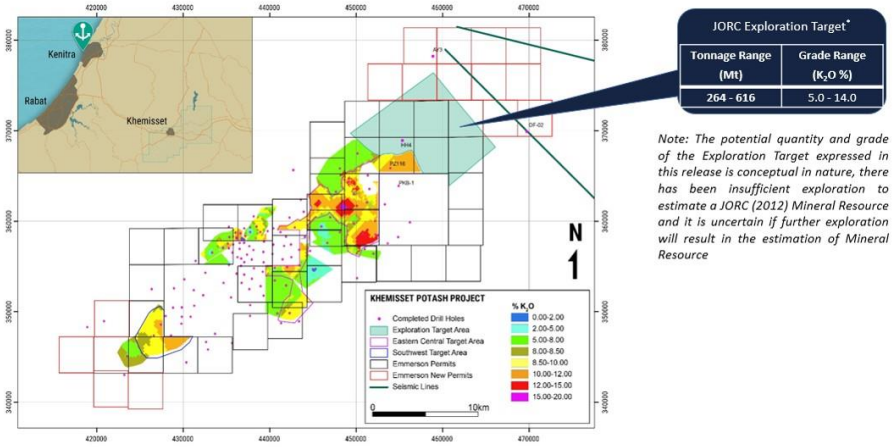
Mineral Resource

A JORC-compliant Mineral Resource was calculated by Independent geological consultant Adam Wheeler, and audited by SRK as part of a CPR authored for Emmerson's re-listing on the LSE.

- **Key parameters** - 8.5% K_2O cut-off grade, commodity price of $290/t MOP, minimum thickness cut-off of 1.5m.
- **Target.** EML also has a JORC Exploration Target of 264-616Mt at between 5-15% K_2O% although we note that at the targeted 6Mtpa processing rate, the current resource already provides sufficient mine life for a major operation.

Figure 40 - Khemisset Project JORC Compliant Mineral Resource Estimate

Classification	Deposit	Tonnage (Mt)	K_2O (%)	Thickness (m)
Inferred	East Central	253.2	10.3	2.3
Inferred	Southwest	58.2	9.5	2.6
Total		**311.4**	**10.2**	**2.4**

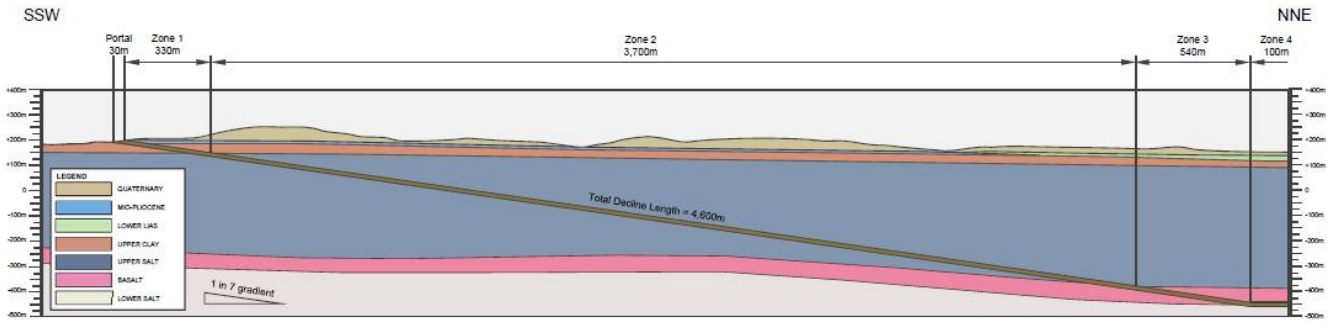


Source: Emmerson plc

Mining

- **Underground mine.** Due to seam depth, Khemisset will be an underground mine.
- **Decline access.** Shaft (skip hoisting) and decline access were evaluated for the scoping study. Decline access with conveyor transport was selected principally due to the absence of an overlying aquifer and with most of the development being in salt, which will allow for a high rate of development using a continuous miner, thus reducing both cost and technical risk compared to shaft construction.
- **Twin declines.** The plan is for a twin decline system. One decline will be used for production of ore and air intake to the mine, while the other will be used for services, personnel movement and as ventilation exhaust from the mine. The declines will be driven at a gradient of around 1:7 with a length of approximately 4,600m and will reach the potash horizon at a depth of approximately 600m below surface.
- **Room and pillar** mining by continuous miner has been selected to retain flexibility when potash thickness varies, to reduce upfront capex and to maintain high production rates and to maintain multiple working faces.
- **No Aquifers** are mapped within the project area.

Figure 41 - Decline Long Section with Lithology



Source: Emmerson plc

Processing

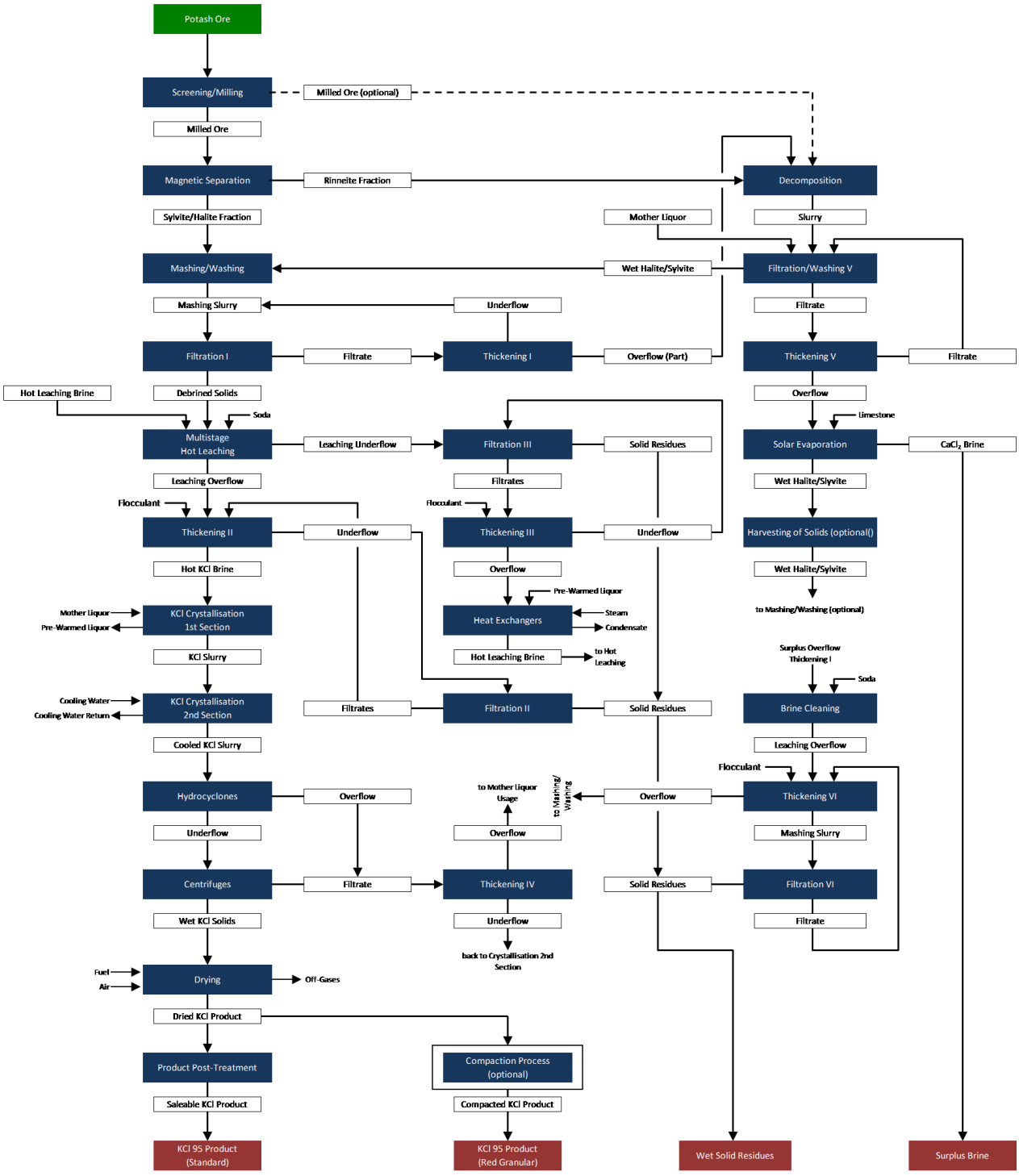
- **Hot leaching and crystallisation selected.** There are two primary methods for processing potash, 1.) flotation, as used extensively in Canada and 2.) Hot leaching and crystallisation which is widely used for processing carnallite rich ores. The later has been selected for Khemisset and it is a process that is well understood from a capital and operating cost perspective.
- **Mineralogy.** In Khemisset, the main potash bearing minerals are Sylvite, Carnallite and minority Rinneite. Processing of Sylvite and Carnallite ores is well-known and proven technology. Apart from some small-scale production in Germany, Rinneite has not been processed on an industrial scale, although EML states that this this is due to its rarity within typical potash ores rather than any major complications expected in the processing route outlined.
- **Proven process.** The simulated hot leaching/crystallisation process for isolating KCl from the potash raw material from the Khemisset potash deposit involves the following main steps:

hot leaching/crystallisation process
Screening/Crushing
Screening/Milling
Magnetic separation of Rinneite
Rinneite decomposition
Carnallite decomposition
Hot leaching and hot clarification
Cooling crystallisation
Product de-brining
Solar evaporation/harvesting
Drying and Product Post-Treatment
Product Storage
Loading

- **Metallurgical recovery.** Based on an assumed head grade of 9.8% K_20, the calculated process for separating KCl from the Khemisset Potash deposit as MOP shows a KCl recovery rate of 84.1%. In other words, 84.1% of the KCl brought into the process with the ore is converted to the saleable KCl 95 (K60) product.
- **Salt by-product.** The primary waste product produced at Khemisset is 95%+ pure NaCl or salt. EML sees the de-icing salt market in the US as a potential market and the scoping study assumes 1Mtpa salt sales with a net margin of $5/t of salt.

- **MOP.** EML plans to produce a standard K60 MOP (muriate of potash) product, the most widely used form of granular potassium for agricultural purposes. MOP remains the most common type of potash used for fertiliser and represents approximately 90% of global sales. MOP is also known as "potassium chloride" or KCl. MOP is distinct from SOP (sulphate of potash, potassium sulphate or K_2SO_4), a low-chloride fertiliser, which receives a price premium to MOP

Figure 42 - Khemisset process flow diagram

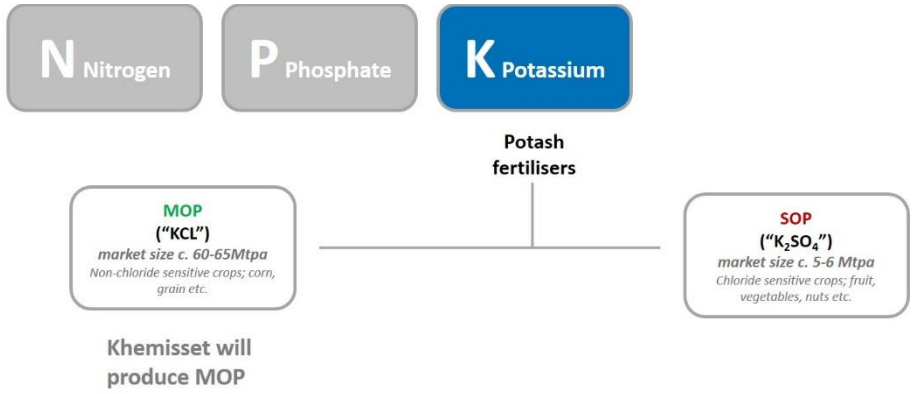


Source: Emmerson plc

Potash market update

- **Potash.** Potash is the common name for various forms of fertiliser containing potassium which is one of the three key elements or macro-nutrients essential for plant growth. The other two elements being nitrogen and phosphorus.
- **MOP at Khemisset.** EML plans to produce a MOP (muriate of potash) product at Khemisset, the most common type of potassium fertiliser. Brazil would likely be the main target export market for Khemisset's potash product, as well as domestic sales in Morocco focussed on the African market.

Figure 43 - Khemisset will produce a standard MOP project



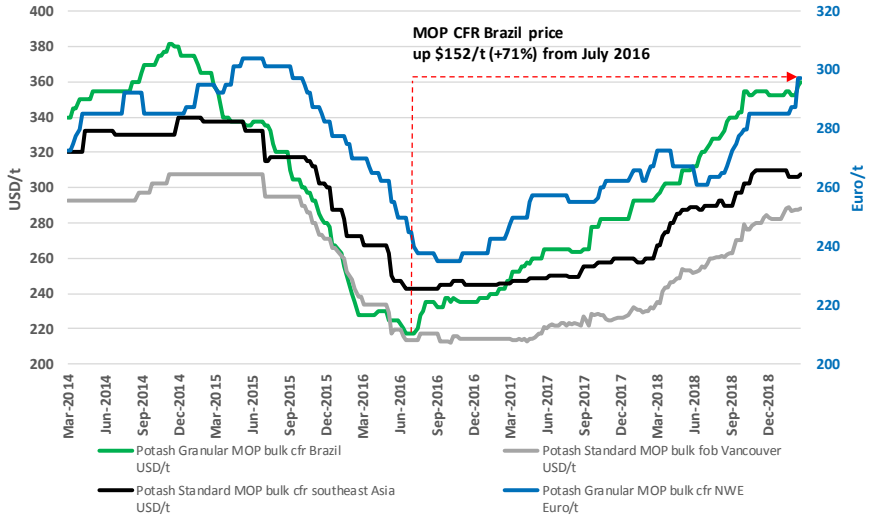
Source: Shard Capital

Price outlook

- **Sustained recovery.** MOP prices have seen a sustained recovery from the cyclical low in mid-2016. MOP prices have risen in the key markets of Northwest Europe (NEW), Brazil, Vancouver and Southeast Asia. The MOP CFR Brazil price is currently $360/t, up 71% from mid-2016 lows.

Potash prices have undergone a sustained recovery since mid-2016

Figure 44 - MOP Potash prices – considerable recovery since mid-2016

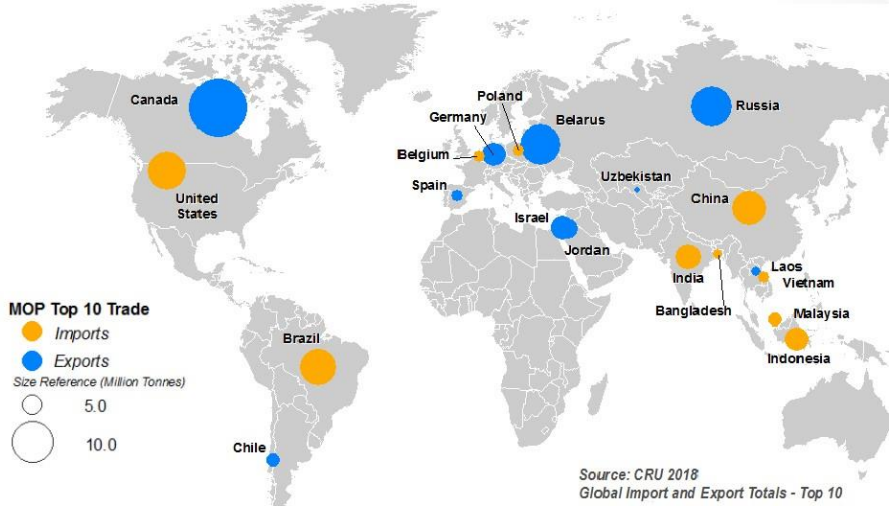


Source: Argus, Shard Capital

- **Upward price trend.** The increase in potash prices over the last 2.5 years is reflective of broad-based demand growth over all regions with the cumulative effect of production capacity increases tempered by slower than expected ramp up of capacity at new projects. 2016 lows hovered close to the margin cost of production on the industry cost-curve, but we don't see much rationale for another major dip in prices given recent agricultural drivers.
- **More stability ahead?** After bouncing off the recent cyclical low, we expect potash prices to return to a more typical normalised level. We expect prices to remain broadly stable, with the steady rise in demand and capacity closures tempered by new supply inventories.
- **Brazil prices remain solid.** We understand that inventories remain tight in Brazil, and crop dynamics suggest that the country will continue to form the backbone of global demand going forward.
- **CAGR outlook.** Demand continues. Most industry analysts continue to predict 2%-4% CAGR demand growth through to 2025, which should potentially off-set the downwards pressure from new supply and the inventory overhang.

Figure 45 - Key 2018 MOP Potash trade flows

US and Brazil still dominate the MOP import market



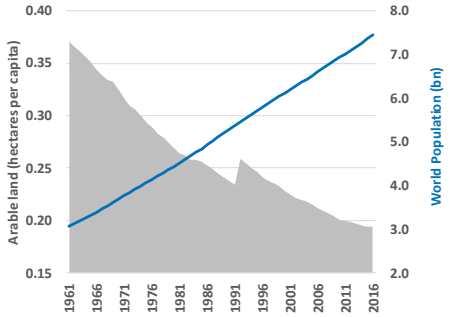
Source: Mosaic, CRU

Demand themes

The fundamental drivers in the potash space remain relevant. The general investment case is well documented, but we reiterate the following key demand drivers.

- **GDP growth** - urbanisation and the rise of the middle classes
- **Population growth** - The world will need to produce 70% more food by 2050 to feed its growing population
- **Decreasing arable land** – crop yields must be maintained or increased
- **Changing dietary patterns** – rising income, better (higher calorie) diets, demand for higher quality fruit, veg, meat etc.

Figure 46 - Decreasing arable land per capita, and global population growth



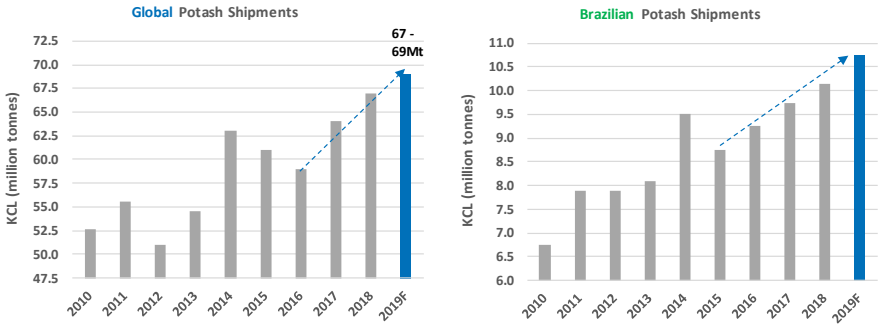
	1960	2010	2050 "F"
Global population	3 billion	6.9 billion	9.7 billion
Arable land per capita	4,300m	2100	1800
Protein per capita	60g/day	80g/day	130g/day

Source: World Bank, K&S

- **Record demand for MOP.** Global potash shipments increased to 67Mt in 2018, up 1.2Mt (1.8%) from 2017 and up 8Mt (17%) from 2016 according to CRU data. CRU forecasts that shipments are set to increase again this year with a projected 67-69Mt in 2019. Brazil demand remains strong with the 10Mt mark breached in 2018 and further gains expected in 2019.

Figure 47 - Global and Brazilian potash shipments – historical trends

CRU estimates that global shipments increased at a CAGR of 3.1% from 2010 to 2017 despite the volatility of up and down sequences. More stability and less volatility expected over the next 5 years.



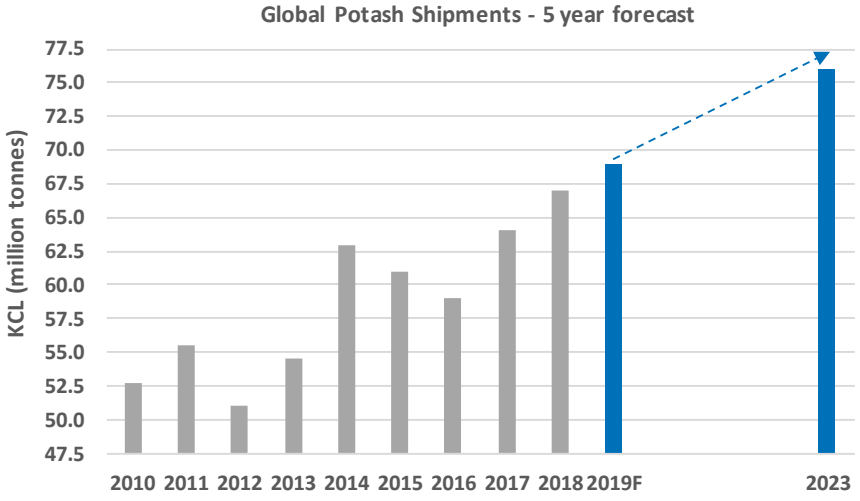
Source: CRU, Mosaic

Figure 48 - Global potash shipments: 5-year outlook

CRU expects global shipments to increase 2.1% per annum, equating to an additional 7Mt of potash by 2023, led by continued strong demand from Brazil and China.

Brazil, China, India, Indonesia and Malaysia projected to account for 2/3 of this gain.

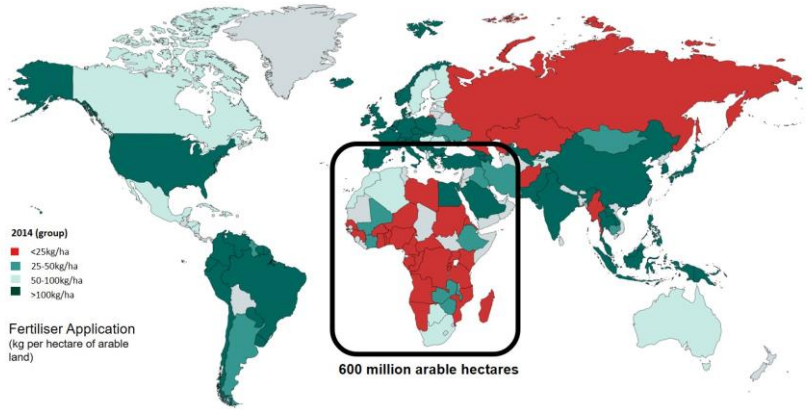
Record world harvests in 2016-2018 resulted in 19.8% increase in K_2O removal from soils according to USDA and Mosaic.



Source: CRU, Mosaic

- **Africa the outlier, but a key future opportunity.** Africa represents approximately 2% of world fertiliser consumption and has not yet seen large-scale investment in potash. Moroccan Group, OCP have entered the fray with a major investment in Ethiopia. Lack of domestic production, lack of infrastructure, high prices and shipping costs have historically held back uptake of fertilisers. Situation frustrated by large number of smallholdings and subsistence farming.

Figure 49 - Africa - a key potash growth area – current applications rates low



Source: Emmerson plc

Africa has 60% of the world's uncultivated arable land and among the world's lowest fertiliser application rates.

- **OCP has major buildout plans in Africa.** Moroccan based OCP Group is one of the world's leading exporters of phosphate rock, phosphoric acid and phosphate fertilisers. The vertically-integrated group has several mining sites and chemical processing units within morocco and has a global footprint with operations and trading offices in Africa, North America, South America and Europe. OPC has approximately 28% of the global market share of phosphates.
- **OCP plans to double mining capacity and triple processing capacity by 2027**. OCP's plan will include four new plants (1Mt DAP each plant) and 5 new granulation units (2x 0.85Mt DAP, 3x 1Mt DAP) in conjunction with a major upgrade to regional logistics infrastructure including new ports at Safi and Laayoune and a port upgrade at Jorf Lasfar. In 2016, OCP signed a deal to build a $3.6bn fertiliser plant in Ethiopia.
- **OCP's expansion plan has important implications for the development of Khemisset** and the domestic market for its product. We understand that OCP is targeting consumption of 2Mtpa of MOP in Morocco to feed its fertiliser growth strategy. EML, with plans to produce 800ktpa could therefore provide baseload supply to satisfy a portion of this demand. OCP would be a logical partner for any potential deal on Khemisset as OCP does not have internal expertise in underground mining or mine-site potash processing.

Figure 50 - OCP's expansion plan and location of Khemisset relative to OCP assets

Source: OCP

Supply themes

- **Oversupply fears not as acute as previously thought.** Whilst there remains the overarching threat of oversupply, the outlook for MOP consumption looks positive. The view amongst most industry experts is that new greenfield supply additions or brownfield expansions are likely to be tempered by project deferrals and curtailments at existing operations.
- **New supply additions…** Recent new supply additions include: Bethune (K+S) mine in Canada with 2Mtpa capacity, ramping to 2.75Mpta, Usolskiy (Eurochem) in Russia commissioning during 2018 with Phase 1 production of 2.3Mtpa MOP, Phase II: 1.4Mpta MOP, VolgaKaliy (Eurochem) - also in Russia, Phase 1 2.3Mtpa, Phase II 2.3Mtpa MOP. Garlyk mine – Turkmenistan, capacity 1.2Mtpa, currently ramping up and reportedly only at 30ktpa at present.
- **…but the build-out is slow.** Whilst these new capacity additions have been weighing on sentiment, the ramp up has been slow. Output from K+S, EuroChem and Turkmenistan projects will reportedly fall short of advertised production this year according to Mosaic.
- **Still potential for supply shocks.** Production shocks can change the supply landscape rapidly in an industry where supply is highly concentrated amongst only a handful of producers. The top 5 producers control 71% of global supply. For example, Mosaic flags that "recent reports indicate that increased rates of fresh water inflows at the Uralkali S2 mine may now exceed pumping and disposal capacities and could threaten production at this mine".
- **Balance.** CRU and Mosaic do not forecast any severe long-term supply and demand imbalance. Production from the six largest new greenfield projects in Turkmenistan, Saskatchewan, Russia (2 projects) and Belarus (2 projects) will be balanced by increased demand, with demand growth outpacing capacity additions until at least 2023 when the two new Belarus projects are projected to come onstream.

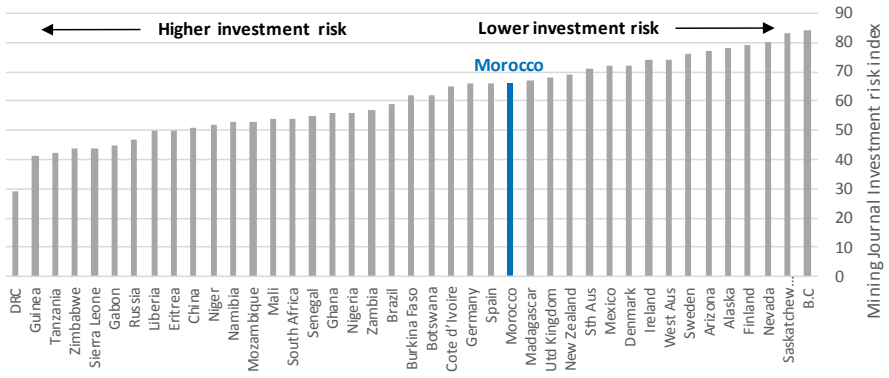
Figure 51 - Global potash supply and demand

Source: CRU, Mosaic

Appendix: Morocco

- **Morocco is a stable jurisdiction**. Despite hosting little mining activity outside of the phosphate sector, the country has an excellent framework which we believe will encourage further investment from the mining sector. Mining activities in Morocco are regulated by the Ministry of Energy, Mining and Sustainable Development, through the Directorate of Mines and Hydrocarbons.
- **Attractive fiscal regime.** Both the government and King of Morocco have set out policies to actively encourage foreign mining investment into the country. The Moroccan government does not take a free-carried stake in projects/companies, and there are no significant royalties to be paid on revenues. The tax rate is 35% but companies are eligible for a 50% reduction for exported products, which brings the realised tax rate down to 17.5%. In addition, mining projects, including Khemisset, are eligible for a 5-year tax holiday from the start of production. The government has indicated that it plans to triple resource sector revenue by 2025.
- **Licences:** The new mining code (Aug 2016) sets out three types of licence in Morocco; Prospecting (2yr term, 1x2yr renewable), Exploration (3yr term, 1x4yr renewable) and Mining (10yr term, renewable in 10yr tranches until reserve depletion). The application fees and holding costs for licences are minimal.
- **Low investment risk.** In comparison to other jurisdictions where the majority of new potash development projects are located, Morocco stands up well. According to the Mining Journal Investment Risk Index (2018 World Risk Report), Morocco scores particularly highly in terms of overall investment risk ranking with a score of 66 in the range of DRC (29) to Ontario (84). Morocco stands out as the highest-ranking African country bar Madagascar. Many other development projects with European-facing supply logistics are in countries with onerous permitting regimes (e.g. Spain), this is one less barrier for EML developing a project in Morocco.

Figure 52 - Morocco scores highly in the Mining Journal's Investment Risk Index

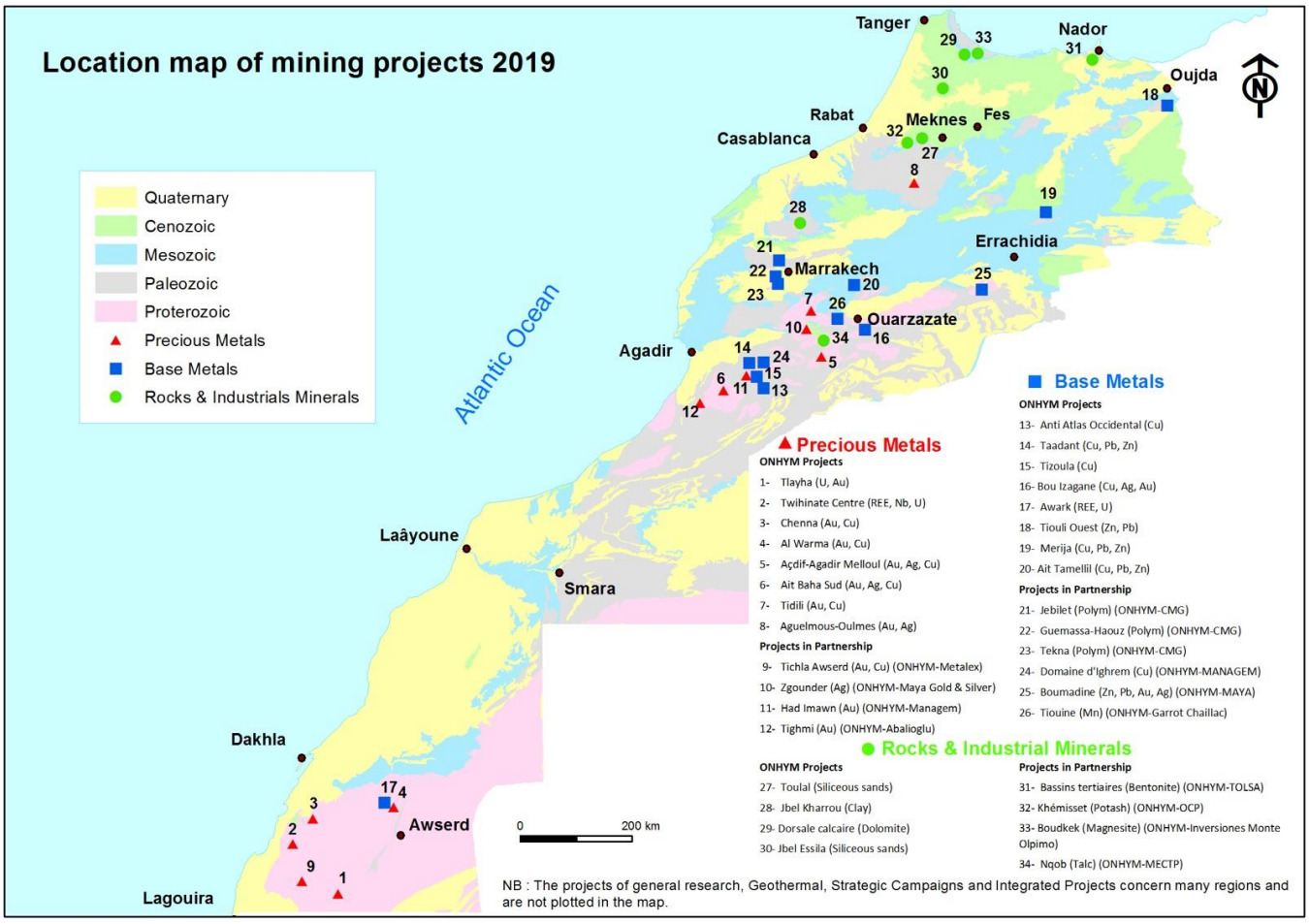


Source: Mining Journal World Risk Report 2018

African countries and major potash producing countries

- **Surprisingly good infrastructure.** Morocco has good infrastructure and holds the position as a major economic hub in North Africa and the gateway from Africa to Europe. Reflecting the country's position as the commercial bridge between two continents, the Moroccan government invested $15bn from 2010 to 2015 to upgrade its basic infrastructure. Whilst the perception of the country to some may be as a "desert outpost", the reality is very different, and the country has 7,000km of highways, 1,300km of rail, 15 major commercial ports, and an extensive electricity distribution network. The government is planning to develop six new full-integrated ports around Morocco, including a deep-water port on the Mediterranean coast in the north-east Rif region. The population is growing, and the government began a New Cities Program aimed at creating 15 new cities by 2020.
- **Mining activity in Morocco.** The majority of mining activity in Morocco is centred on Phosphate production as the country hosts 75% of the world's known phosphate reserves. In addition to the largest private mining company in Morocco, SNI (Société Nationale d'Investissement), activity from foreign domiciled companies is increasing. Currently active companies include Kasbah Resources (ASX: KAS) which is developing the Achmmach tin project. Achmmach is fully permitted (including an ESIA) underground mining project – the DFS is complete and funding is underway.

Figure 53 - Mining activity in Morocco



Source: ONHYM

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