

# ASX Release

2 December 2014

## Company Details

ASX Code:	STB
Share Price	\$0.19
Market Cap	\$26M
Shares on issue	139M
Company options	23M
Cash at Bank	\$9M

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## Investor Presentation

South Boulder Mines (ASX: STB) ("South Boulder" or "the Company") is pleased to lodge a copy of the presentation that Mr. Paul Donaldson will be giving at Mines and Money London.

### More information:

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**South Boulder Mines Limited:** Telephone +61 8 6315 1444

**ABN:** 56 097 904 302

Paul Donaldson  
**MANAGING DIRECTOR**

Amy Just  
**COMPANY SECRETARY**

### About South Boulder Mines Ltd

South Boulder is an ASX-listed (ASX: STB) resources company currently developing the emerging, world-class Colluli Potash Project located in Eritrea, Africa. The Colluli Potash Project is located in the Danakil Depression region of Eritrea ~65km from the coast comprising approximately 500km<sup>2</sup>. South Boulder Mines Limited has been actively exploring for potash at the Colluli Potash Project in Eritrea since 2009. Colluli is the world's shallowest potash deposit (starting at 16m), facilitating the low capex open pit mining and favourably positioned to supply the world's fastest growing markets.

The JORC/NI43-101 Compliant Mineral Resource Estimate for the flagship Colluli Potash Project now stands at 1.08 billion tonnes @ 18% KCl for 194Mt of contained potash. Substantial project upside exists in higher production capacity and market development for other contained products. Engineering Scoping Study (ESS) results were favourable, proving that an economic 2Mt p.a. potash mine can be built at a materially lower cost than typical potash development. The start-up capital cost for Colluli is one of the lowest in the industry; couple this with cheap expansion capability via open pit mining methods, excellent infrastructure and location, and it becomes even more attractive, ensuring South Boulder gains a high level of investment interest for the long term. South Boulder Mines Ltd is working steadily towards developing the world's first, modern, open pit potash mine.

## Competent Persons and Responsibility Statement

The Colluli Potash Project has a current JORC/NI43-101 Compliant Measured, Indicated and Inferred Mineral Resource Estimate of 1,079.00Mt @ 17.97% KCl or 11.35% K<sub>2</sub>O (total contained potash of 194.09Mt KCl or 122.61Mt K<sub>2</sub>O). The resource contains 261.81Mt @ 17.94% KCl or 11.33% K<sub>2</sub>O of Measured Resources, 674.48Mt @ 17.98% KCl or 11.36% K<sub>2</sub>O of Indicated Resources and 143.50Mt @ 18.00% KCl or 11.37% K<sub>2</sub>O of Inferred Resources.

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The information in this report that relates to Exploration Results and Mineral Resources is based on information compiled by Greg Knox using estimates supplied by South Boulder Mines Ltd under supervision by Ercosplan. Dr Henry Rauche and Dr Sebastiaan Van

Der Klauw are co-authors of the JORC and NI43-101 compliant resource report. Greg Knox is a member in good standing of the Australian Institute of Mining and Metallurgy and Dr.s' Rauche and Van Der Klauw are members in good standing of the European Federation of Geologists (EurGeol) which is a "Recognised Overseas Professional Organisation" (ROPO). A ROPO is an accredited organisation to which Competent Persons must belong for the purpose of preparing reports on Exploration Results, Mineral Resources and Ore Reserves for submission to the ASX.

MrKnox, DrRauche and Dr Van Der Klauw are geologists and they have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they have undertaken to qualify as a Competent Person as defined in the 2004 Edition of the "Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Knox, Dr Rauche and Dr Van Der Klauw consent to the inclusion in the report of the matters based on information in the form and context in which it appears.

## Quality Control and Quality Assurance

South Boulder Exploration programs follow standard operating and quality assurance procedures to ensure that all sampling techniques and sample results meet international reporting standards. Drill holes are located using GPS coordinates using WGS84 Datum, all mineralisation intervals are downhole and are true width intervals. Assay values are shown above a cut-off of 6% K<sub>2</sub>O. The samples are derived from HQ diamond drill core, which in the case of carnallite ores, are sealed in heat sealed plastic tubing immediately as it is drilled to preserve the sample. Significant sample intervals are dry quarter cut using a diamond saw and then resealed and double bagged for transport to the laboratory. Halite blanks and duplicate samples are submitted with each hole. Chemical analyses were conducted by Kali-UmwelttechnikGmbH Sondershausen, Germany utilising flame emission spectrometry, atomic absorption spectroscopy and ionchromatography. Kali- Umwelttechnik (KUTEC) Sondershausen1 have extensive experience in analysis of salt rock and brine samples and is certified according by DIN EN ISO/IEC 17025 by the Deutsche AkkreditierungssystemPrüfwesen GmbH (DAR). The laboratory follow standard procedures for the analysis of potash salt rocks chemical analysis (K<sup>+</sup>, Na<sup>+</sup>, Mg<sup>2+</sup>, Ca<sup>2+</sup>, Cl<sup>-</sup>, SO<sub>4</sub><sup>2-</sup>, H<sub>2</sub>O) and X-ray diffraction (XRD) analysis of the same samples as for chemical analysis to determine a qualitative mineral composition, which combined with the chemical analysis gives a quantitative mineral composition.



**SOUTH BOULDER**  
MINES LTD



# Colluli: A unique and unrivalled potash opportunity

Mines and Money, London

December 2014

*Paul Donaldson – CEO and Managing Director*

*Helping grow a better future*

# Forward Looking Statements and Disclaimer

The information in this presentation is published to inform you about South Boulder Mines (the “Company” or “STB”) and its activities. STB has endeavoured to ensure that the information in this presentation is accurate at the time of release, and that it accurately reflects the Company’s intentions. All statements in this presentation, other than statements of historical facts, that address future production, project development, reserve or resource potential, exploration drilling, exploitation activities, corporate transactions and events or developments that the ‘Company expects to occur, are forward-looking statements. Although the Company believes the expectations expressed in such statements are based on reasonable assumptions, such statements are not guarantees of future performance and actual results or developments may differ materially from those in forward-looking statements.

Factors that could cause actual results to differ materially from those in forward-looking statements include market prices of potash and, exploitation and exploration successes, capital and operating costs, changes in project parameters as plans continue to be evaluated, continued availability of capital and financing and general economic, market or business conditions, as well as those factors disclosed in the Company’s filed documents.

There can be no assurance that the development of the Colluli Project will proceed as planned. Accordingly, readers should not place undue reliance on forward looking information. Mineral Resources have been estimated using the Australian JORC (2004) Code (‘JORC 2004’), which is a permitted code under Canadian National Instrument 43-101 (‘NI 43-101’). In addition to the CIM Definition Standards on Mineral Resources and Mineral Reserves. Mineral Resource classifications under the two reporting codes are recognised as equivalent in categories with no material differences. To the extent permitted by law, the Company accepts no responsibility or liability for any losses or damages of any kind arising out of the use of any information contained in this presentation. Recipients should make their own enquiries in relation to any investment decisions.





# Corporate Overview

## Capital Structure as at November 2014

Ordinary shares on issue	139.43m
Options on issue	23m
Share Price <sup>1</sup>	\$0.215
Undiluted Market Capitalisation	\$29.98m
Debt	\$0
Cash <sup>1</sup>	\$8.9m
Undiluted Enterprise Value	\$21.1m

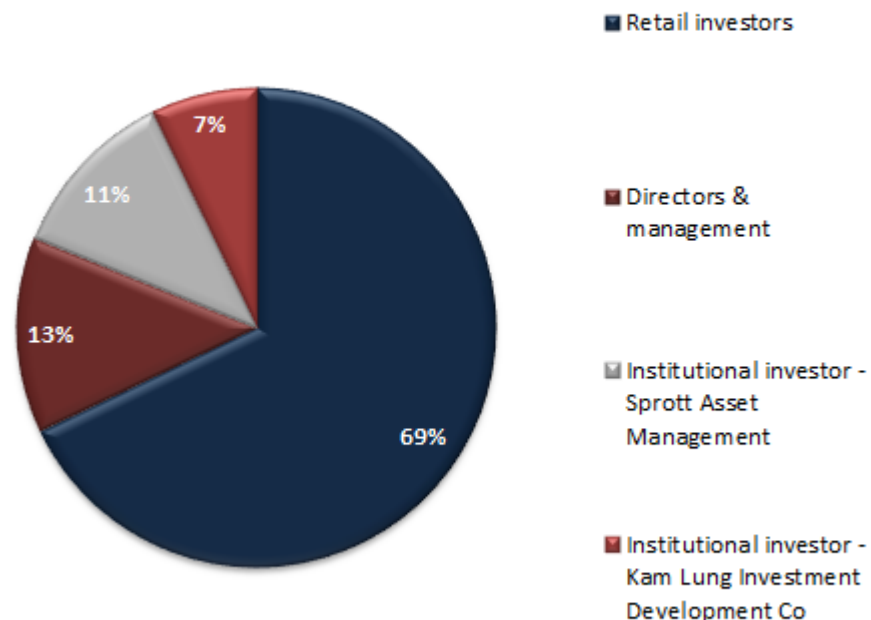
## Directors and Management

Seamus Cornelius	Non executive chairman
Tony Kiernan	Non executive director
Liam Cornelius	Non executive director
Paul Donaldson	Managing Director
James Durrant	Project Manager
Zeray Leake	Country Manager

<sup>1</sup> As of 13<sup>th</sup> November 2014

## Shareholder Distribution

ASX:STB



## Major Shareholders

Sprott Asset Management	10.96%
Kam Lung Investment Development	7.17%
Top 25 shareholders	62.15%
STB Management	13%



# Potash and Demand Drivers

Potash is a generic term used to describe a variety of potassium bearing minerals and manufactured chemicals used primarily as fertiliser.

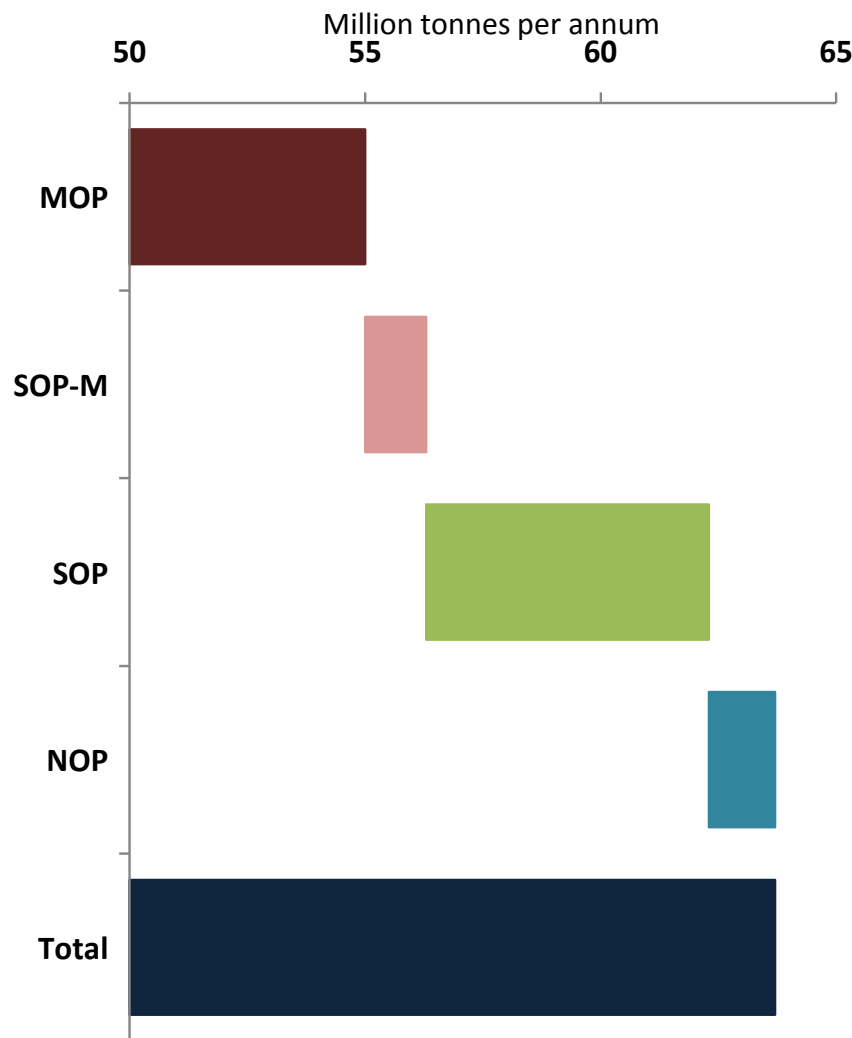


## Key drivers of growth

1. Increasing global population: +80 million people annually
2. Decreasing arable land
3. Changing dietary preferences



# Potash comes in a variety of forms



Source: UN FAO, BMO Capital Markets

Potash Type	US\$/tonne <sup>1</sup>	Nutrients	Uses
Potassium Chloride	340	Potassium	Staples – wheat, corn, chloride tolerant crops
Sulphate of Potash Magnesia	450	Potassium, sulphur and magnesium	Specialty fertiliser, high value crops, limited production centres
Sulphate of Potash	720	Potassium and sulphur	Chloride intolerant and specialty crops such as fruits, vegetables, nuts, beans and coffee
Potassium Nitrate	970	Potassium and nitrogen	Chloride sensitive crops that require additional nitrogen
Total potash market approx. 64 million tonnes			

<sup>1</sup>Source: Greenmarkets, Nov. 2014



# A unique and unrivalled opportunity – Colluli, Eritrea

1. Large, high grade potassium bearing resource close to surface in an emerging potash province.
2. Close proximity to coast and geographically favourable relative to key markets.
3. Highly favourably suite of potassium bearing salts for low cost production of potassium sulphate (SOP or sulphate of potash) using a commercially proven process and simple mineral processing units (flotation and mixing).
4. Joint Venture with Eritrean National Mining Company (ENAMCO) is a key enabler to project success.




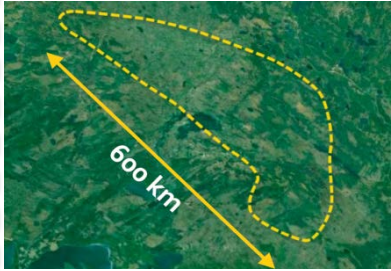
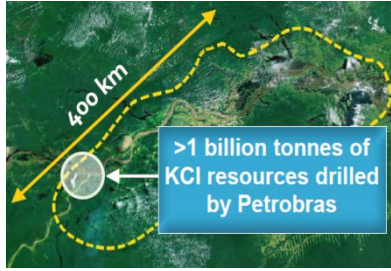
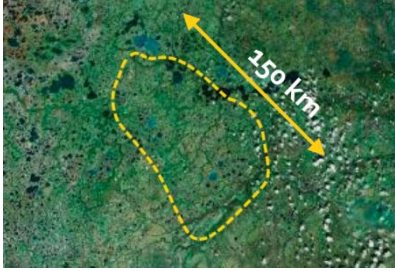


# The Danakil Depression - an emerging potash province

The Danakil Potash belt compares favourably in terms of size, resource depth and environmental issues against other potash belts globally.

**> 4.2 billion tonnes of measured and indicated potassium salts across the Danakil to date<sup>1</sup>**

Key Global Potash Belts<sup>2</sup>

Attributes	Danakil, East Africa – Eritrea, Ethiopia	Saskatchewan, Canada	Manaus – Santarem Basin, Amazonas, Brazil	Urals, Russia
Size				
Operator(s) Profile	<ul style="list-style-type: none"> <li>▪ 350km across</li> <li>▪ Emerging junior mining companies</li> <li>▪ South Boulder, Allana, Circum</li> <li>▪ Mineralised zones occur much closer to the surface</li> </ul>	<ul style="list-style-type: none"> <li>▪ 600km across</li> <li>▪ Established, large cap companies</li> <li>▪ i.e. Canpotex</li> </ul>	<ul style="list-style-type: none"> <li>▪ 400km across</li> <li>▪ Emerging mining companies</li> <li>▪ i.e. Brazil Potash,</li> </ul>	<ul style="list-style-type: none"> <li>▪ 150km across</li> <li>▪ Established, large cap companies</li> <li>▪ K&amp;S Group, Uralkali (Bela-Russian)</li> </ul>
Resource Depth	<ul style="list-style-type: none"> <li>▪ Typically only 20-100m in Eritrea</li> <li>▪ 150 – 950m in Ethiopia<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>▪ Canadian deposits typically range from 1,500–2,000m</li> </ul>	<ul style="list-style-type: none"> <li>▪ Similar depth as Saskatchewan</li> <li>▪ Typically ~500-2,000m<sup>1</sup></li> </ul>	<ul style="list-style-type: none"> <li>▪ Russian depths are typically 1,800 to 2,000m</li> </ul>
Climate	<ul style="list-style-type: none"> <li>▪ Conducive to the use of Evaporation and geothermal power</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cold climate</li> <li>▪ Evaporative solar ponds less effective</li> </ul>	<ul style="list-style-type: none"> <li>▪ Wet climate, heavy rainfall</li> <li>▪ Evaporative solar ponds less effective</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cold climate</li> <li>▪ Evaporative solar ponds less effective</li> </ul>
Environment / Social	<ul style="list-style-type: none"> <li>▪ Flat, arid desert with sparse population</li> <li>▪ Minimal community/social concerns</li> </ul>	<ul style="list-style-type: none"> <li>▪ Heavily populated area</li> <li>▪ Significant community/social concerns</li> </ul>	<ul style="list-style-type: none"> <li>▪ Tropical climate, dense vegetation</li> <li>▪ Considerable environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mountainous terrain</li> <li>▪ Low environmental concerns</li> </ul>

Notes:

1. Measured and Indicated tonnages for Danakil based on combined tonnages from South Boulder Mines, Allana Potash and Ethiopian Potash (Agriminco) South Boulder Mines tonnages from stated N43-101/JORC resource, Allana tonnages from Allana Feasibility N43-101 compliant project summary, Ethiopian Potash (subsequently Agriminco) tonnages obtained from SEDAC, N43-101 resource report
2. Based on Brazil Potash presentation (February 2013).
3. Ethiopia drill depths obtained from Allana reports



# Large, high grade potassium bearing resource

**Over 1 billion tonnes of potassium bearing salts** – all potassium salts in the Colluli resource are suitable for the production of potash fertilisers.

**Shallow mineralisation supports Colluli as open pit** – a proven, safer mining method, easier to expand and better overall resource recovery than underground.

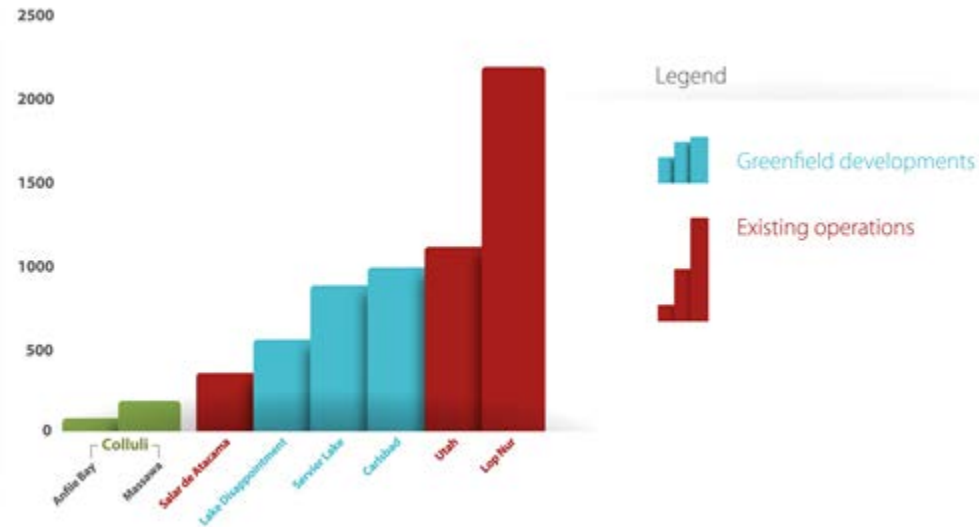
**One of only three** major deposits containing kainite salt (key salt for SOP production) in solid form globally.

Colluli at a Glance	
Location	South Eritrea
Size	Approximately 400km <sup>2</sup>
Product	Sulphate of Potash
Resource <sup>1</sup>	Measured: 262Mt Indicated: 581Mt Inferred: 173Mt <u>Total: 1016Mt</u>
Potassium Bearing Salts	Sylvinite: 110Mt Carnallite: 309Mt Kainite: 597Mt
Process	Flotation/Solar Evaporation
Stage	PFS level testwork program underway

<sup>1</sup> Refer to Resource Statement on Page 18



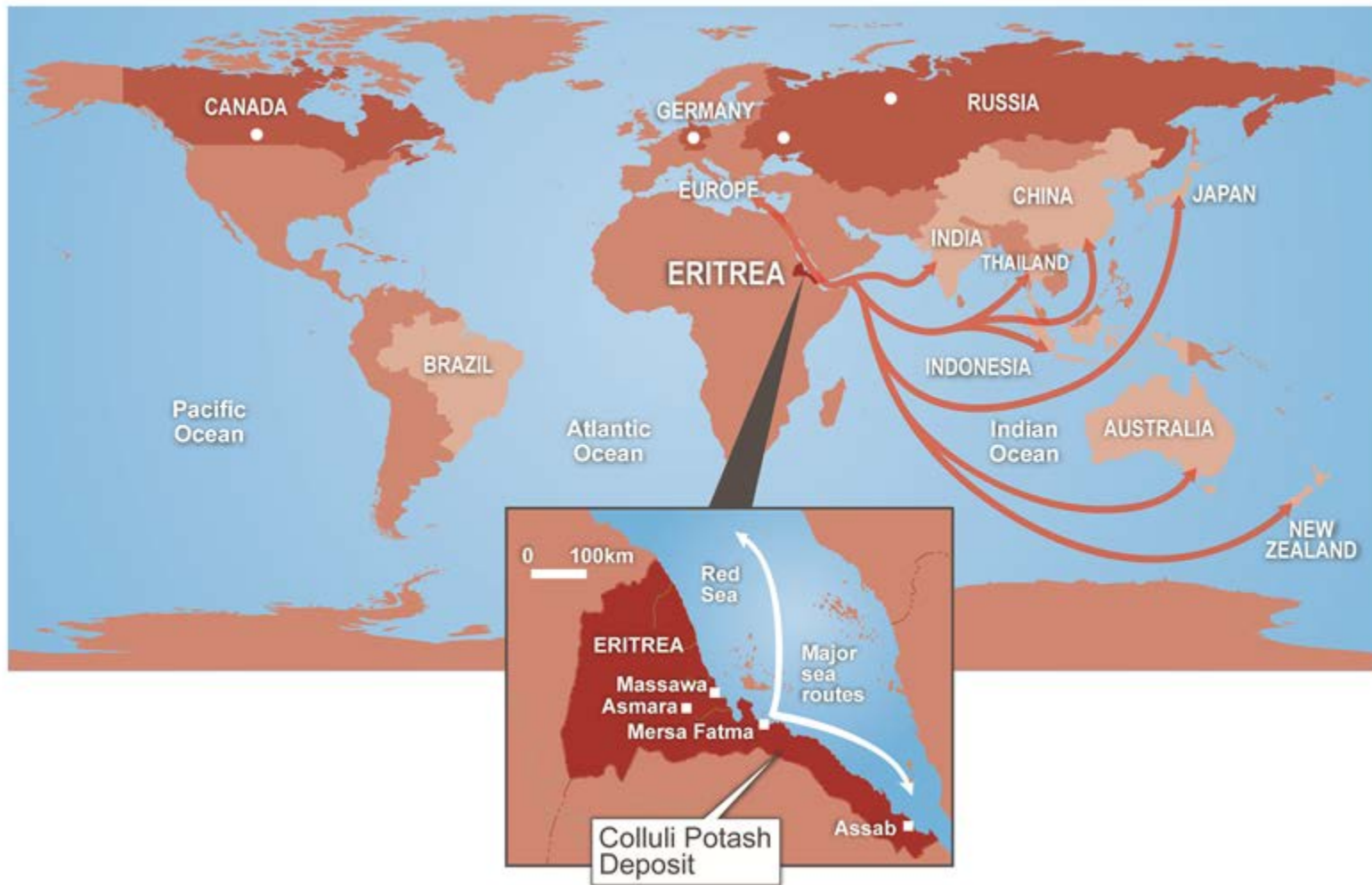
# Close proximity to the coast



- Location is significantly closer to port than potassium sulphate peers.
- Trucking is a low cost option to access port.
- Deepwater access at Anfile Bay suitable for loading vessels up to Panamax size.

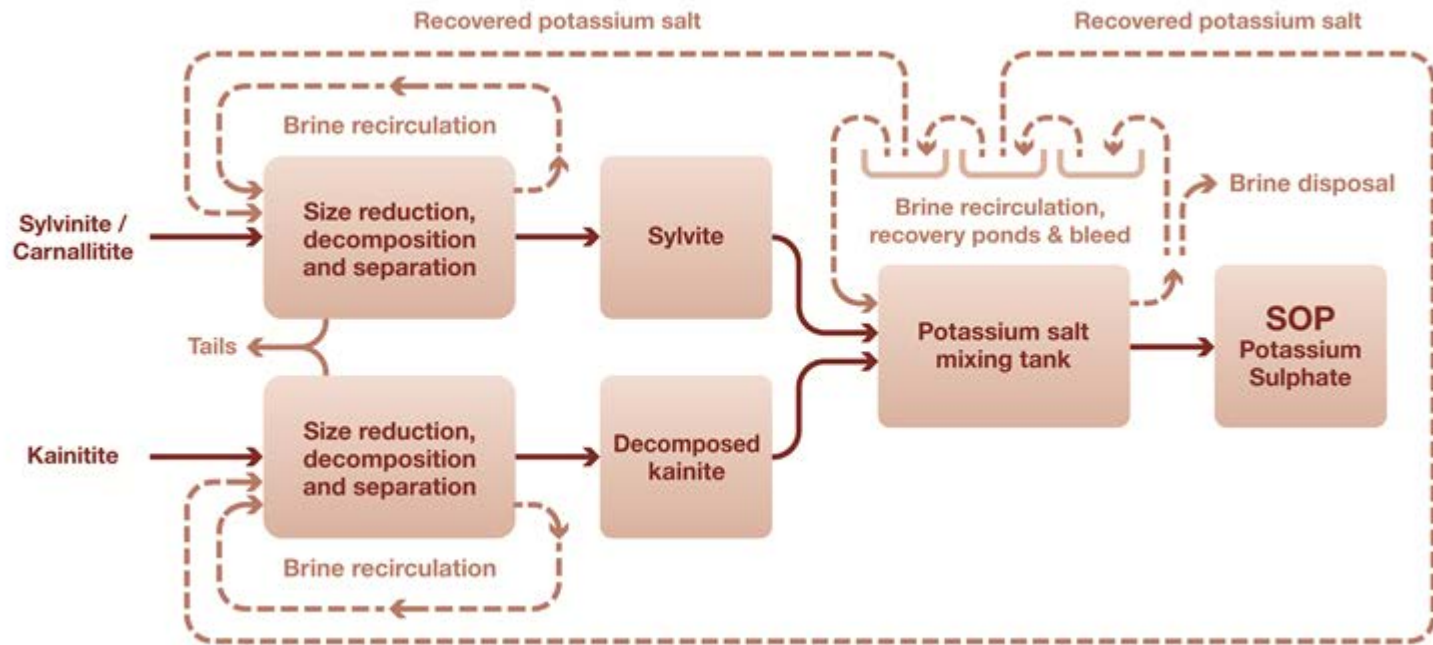


# Geographically favourable position for key markets





# Simple, proven, low energy, high yield process



## Metallurgical Results to date are highly favourable

1. Commercial grade potassium sulphate produced from Colluli salt mix using simulated process.
2. Flotation test results > 80% potassium recovery.
3. Elimination of grinding.
4. Overall circuit recovery expected to be ~ 85% potassium recovery.



## Other advantages include

1. No communities within the exploration tenements.
2. Process insensitive to water quality.
3. Close to established roads.
4. Simple logistics for consumables (only 180km from Massawa port).
5. No clearing required.
6. Ease of access for construction equipment and mining fleet.



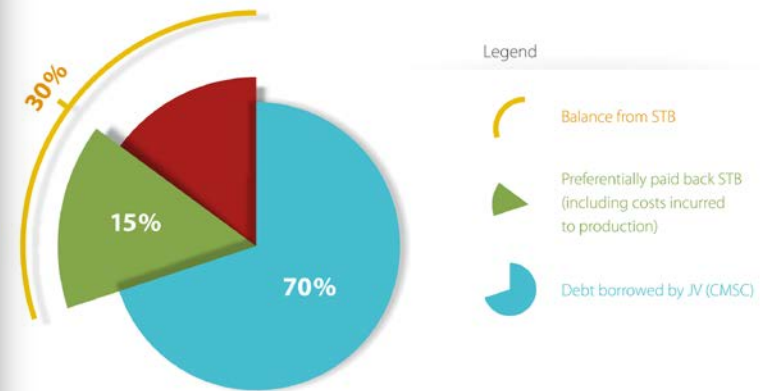
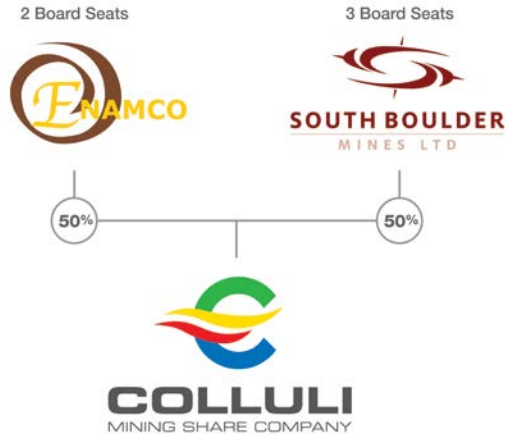


## Joint Venture with Enamco is a key enabler

- Eritrea is a stable jurisdiction; mining is an important component of the country's economic development and government supports new entrants to the industry
- Reputation clear government policy
- STB and the Eritrean National Mining Company (ENAMCO) are working collaboratively on developing the project



# Colluli Mining Share Company (CMSC)



- The Colluli potash project is 100% owned by the Colluli Mining Share Company (CMSC).
- CMSC is a formally incorporated and established entity .
- STB holds 50% stake in CMSC, while Eritrean National Mining Company (ENAMCO) holds the balance.
- Both parties are highly focussed on a successful development.



## PFS well progressed and on track for Feb. 2015 completion

Milestones	2014E			2015E				2016E			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Metallurgical Testwork											
Preliminary Feasibility Study											
Finalise the resource											
Feasibility Study											
Social Environmental Impact Assessment											
Mining License Application											
Funding											
Detailed Engineering											
Phase 1 Construction											



# Colluli Project Summary

1. Large, high grade potassium bearing resource close to surface.
2. Close proximity to coast and geographically favourable relative to key markets.
3. Unique combination of salts suitable for low cost production of potassium sulphate (SOP or sulphate of potash).
4. Strong and effective working relationship with the government.





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# Thank you

# Appendix





*Our vision is to bring the Colluli project into production using the principles of risk management, resource utilisation and modularity, using the starting module as a growth platform to develop the resource to its full potential.*



# Resource statement

The Current Colluli JORC-Compliant Mineral Resource Estimate by potash mineral is as follows:

Occurrence	Tonnes (Mt)	Equivalent KCl	Contained KCl (Mt)	% of Total Resource
Sylvinite (KCl.NaCl)	110	28.4%	31	16%
Polysulphate ( $K_2SO_4.NaCl.MgSO_4.H_2O$ )	65	10.8%	7	4%
Carnallite (KCl.MgCl <sub>2</sub> .H <sub>2</sub> O)	309	12.3%	38	19%
Kainite (KCl.MgSO <sub>4</sub> .3H <sub>2</sub> O)	596	19.8%	118	61%
Total	1,080	18.0%	194	100%

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# Experienced board and management



## **Paul Donaldson, CEO and Managing Director**

Mr Donaldson was appointed to the role of Chief Executive Officer in February 2013. He joins South Boulder Mines from a series of senior management roles with BHP Billiton. Mr Donaldson has experience in large scale open cut mine management, supply chain logistics, mineral processing, business improvement and marketing.



## **Liam Cornelius, Non Executive Director**

Mr Cornelius graduated from Curtin University of Technology with a BAppSc in Geology. He has been involved in the exploration industry within Australia and Africa for 18 years. As a founding member of South Boulder Mines, Mr Cornelius has played a key role in outlining areas of interest for the company.



## **Seamus Cornelius, Non Executive Chairman**

Mr Cornelius has 21 years of corporate experience in both legal and commercial negotiations. He has been based in Shanghai and Beijing since 1993, where he has been living and working as a corporate lawyer. From 2000 to 2011 Mr Cornelius was an international partner with one of Australia's leading law firms, specialising in cross border investments in the energy and resource sectors.



## **James Durrant, Project Coordinator**

Mr. Durrant joined South Boulder Mines after a series of operational roles within BHP Billiton. With tertiary qualifications in both mechanical and mining engineering, Mr. Durrant brings project management, organisational design and operational management of large scale open cut mines skills to the organisation.



## **Tony, Kiernan, Non Executive Director**

Mr Kiernan was previously a commercial lawyer and is currently Chairman of the Australian iron ore producer BC Iron Ltd (ASX:BCI) and a non-executive director of several listed mining companies including Chalice Gold Mines Ltd (ASX: CHN), which has been operating in Eritrea since 2009.



## **Zeray Leake, Country Manager**

Mr Leake is a Geologist with over 12 years experience in the development and exploration of potash, gold, base metals and industrial minerals. Mr Leake previously worked for the Geological Survey of Eritrea.



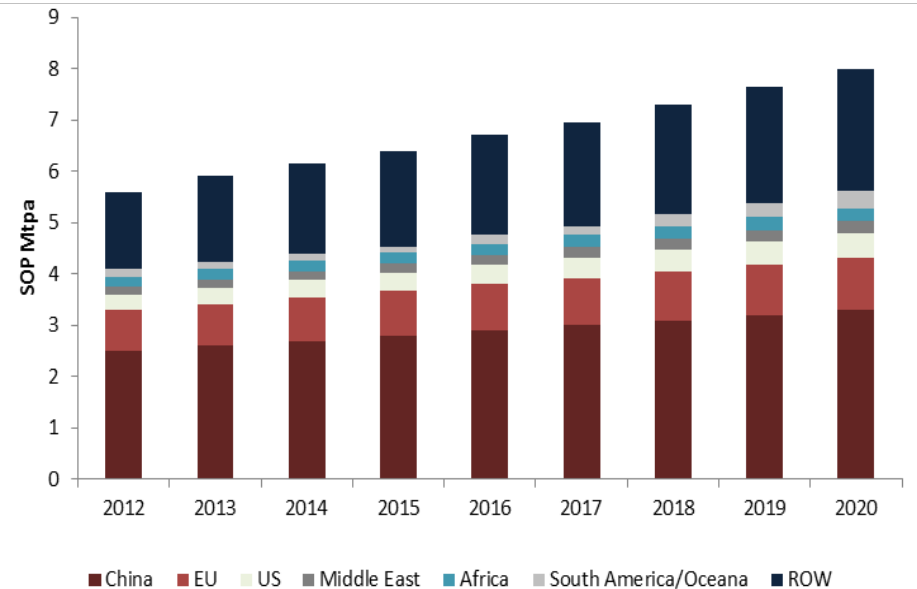
# SOP - solid growth fundamentals and limited new projects

## Fertiliser growth underpinned by:

- Growing population : +80 million people per year
- Reduction in arable land : Increased crop yield per acre required
- Changing dietary preferences: Developing economies changing to higher protein diets and increased fruit and vegetable intake

## Limited greenfield projects

- Potassium sulphate is geologically scarce
- Only one greenfield project at DFS completion stage
- High energy inputs
- DFS Projects = 1
- PFS Projects = 2



**4% CAGR and approx. 2 million tonnes of SOP growth projected over next decade**

Source: Parthenon Analysis, EPM Mining



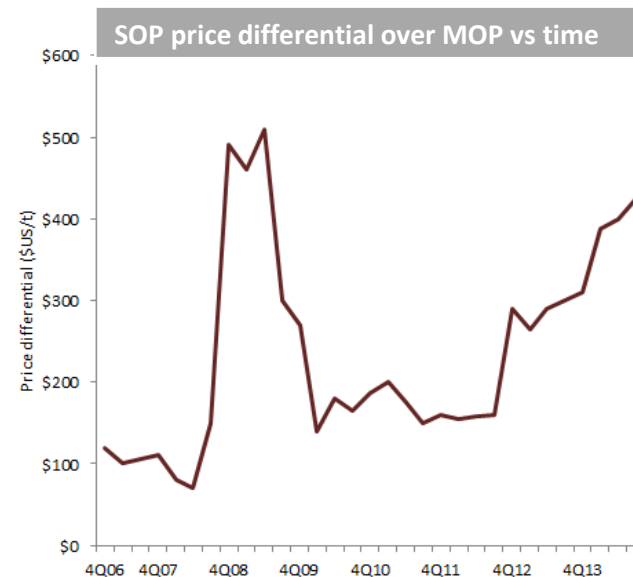
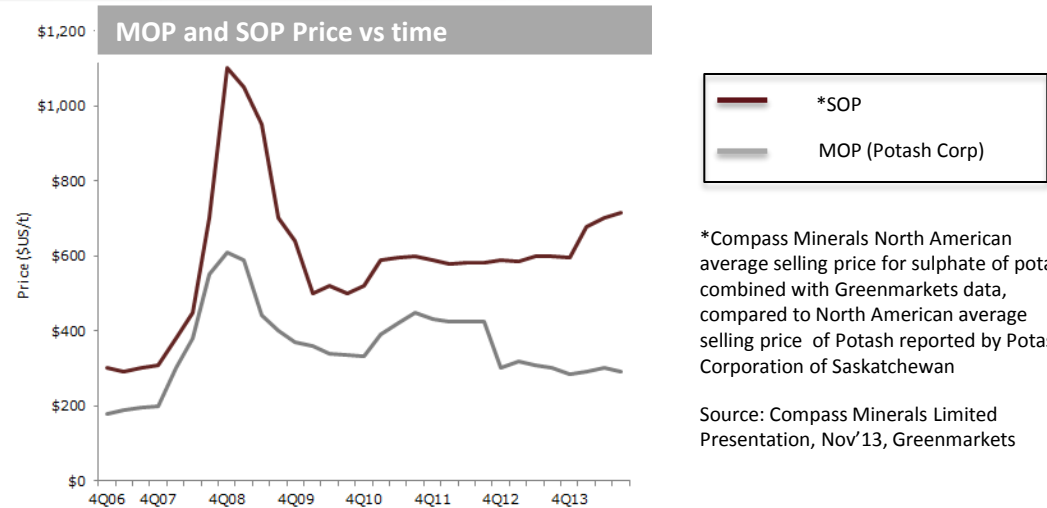
# Substantial price premium over potassium chloride

## Significant price premium over potassium chloride (MOP)

- Historical price premium has been in the order of 35%
- Current premium over 80%

## Price differential reflects lack of new supply

- Price differential has been progressively increasing since 2012
- While potassium chloride supply has grown considerably, low cost potassium sulphate growth has not been realised



# Highly capable team working through SOP PFS



Colluli Study Manager : James Durrant

Commencement Date : May 2014



Resource  
Mine planning  
Mine geotech



Infrastructure and process design  
(with Global Potash Solutions)



Hydrogeology, ponds  
and infrastructure  
geotech



Metallurgical Testing



Export logistics



Social and Environmental Impact  
Assessment





# Potential project upside

Markets for these products are well established.

## Potential Markets for Various Resource Mineralisation

Mineral Present at Colluli	Colluli Resource <sup>1</sup>	Global Market Context
rock salt (NaCl)	+ 650Mt	300Mtpa global salt market
halite (NaCl)		
bischofite (MgCl <sub>2</sub> )	+200Mt	6 – 7Mtpa global market
anhydrite	Avg 4% ( ~40Mt)	187Mtpa Gypsum market
kieserite (MgSO <sub>4</sub> )	40Mt	Established fertiliser segment

<sup>1</sup> Refer to Resource Statement on Page 30

