Danakali: Why This Little-Known Potash Developer Is A Buy

Feb. 11, 2021 12:36 PM ET**Danakali Limited (DNKLY)**, **SBMSF**CMP, NTR, TSDOF...12 Comments3 Likes

Summary

- Danakali is developing the tier-1 Colluli potash project, Eritrea, which boasts the world's lowest costs and >200 years of mine life.
- Colluli has been largely de-risked in terms of geopolitics, infrastructure, off-take, and financing, with the module I scheduled to come on-stream in 2022.
- Danakali, currently undervalued and standing for a massive re-rating upon the first production, should be considered by risk-tolerant investors with a long time horizon.
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In the sprawling mining sector, potash mining is unique in that potash mines typically last decades to even centuries, thus forcing the miners to deploy capital for the long-term return, and that transportation of bulk-tonnage potash tends to lead to regional monopolies. Therefore, a wide moat that's rarely seen in miners of other commodities can be found among potash miners, such as Nutrien Ltd (NTR), as discussed by fellow Seeking Alpha authors.

It thus follows we should keep an eye on emerging potash producers. Below, let's look at Danakali Ltd. (DNK.ASX) (OTCPK:SBMSF) (OTCPK:DNKLY), which operates in Eritrea.

Potash macro

In food production, potassium is removed from the soil in harvested crops and must be replaced in order to maintain future crop growth. Fertilizer potash is needed in the sustainable production of grains, oilseeds, fruits, and vegetables. There are many sources of potassium, including

- Muriate of potash, i.e., MOP (KCl; 0-0-60), which is used for wheat, corn, and other chloride-tolerant crops;
- Sulfate of potash or SOP (K2SO4; 0-0-50-18S), which also supplies both potassium and sulfur for high yields and quality;
- Potassium-magnesium sulfate, i.e., SOP-M (K2SO4-2MgSO4; 0-0-22-22S-11Mg) used as specialty fertilizer;
- Potassium thiosulfate (K2S2O3; 0-0-25-17S); and
- Potassium nitrate (KNO3; 13-0-44) used for chloride sensitive crops that require additional nitrogen (see here).

World potash demand has grown at an average rate of 2.5-3.0% per year since 2000 (Fig. 1). In the long run, potash consumption is expected to continue to grow as a result of population expansion.

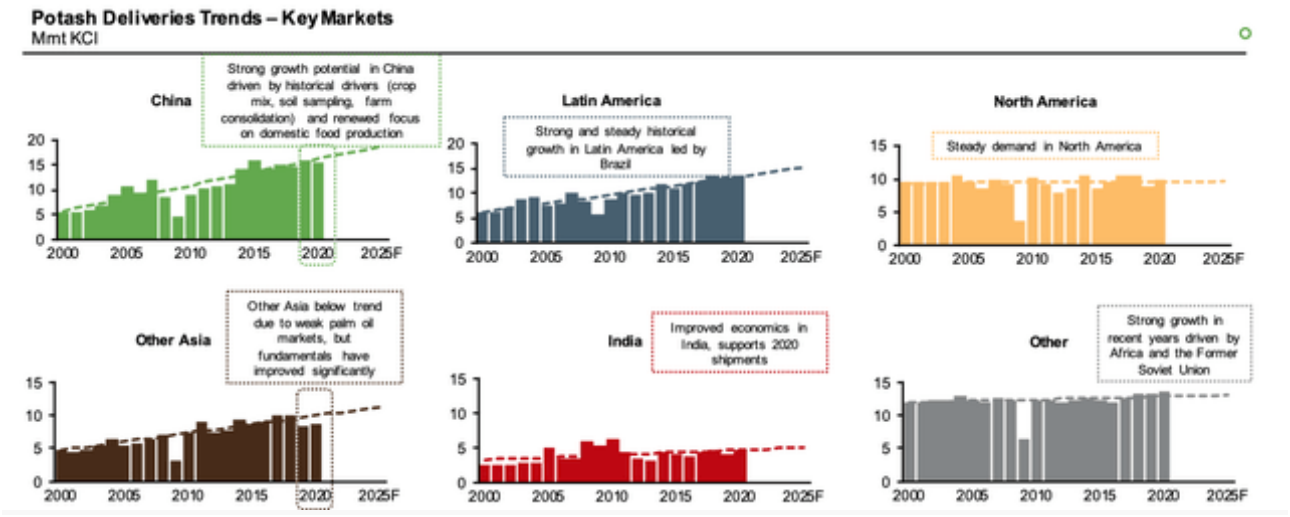

Fig. 1. Potash historical demand trends by region, from this source.

Potash demand is largely driven by the need to increase crop production and by improved potash application rates, particularly in developing countries such as Asia, Africa, and Latin America, where potash has been historically under-applied relative to scientifically-recommended levels (Fig. 2).

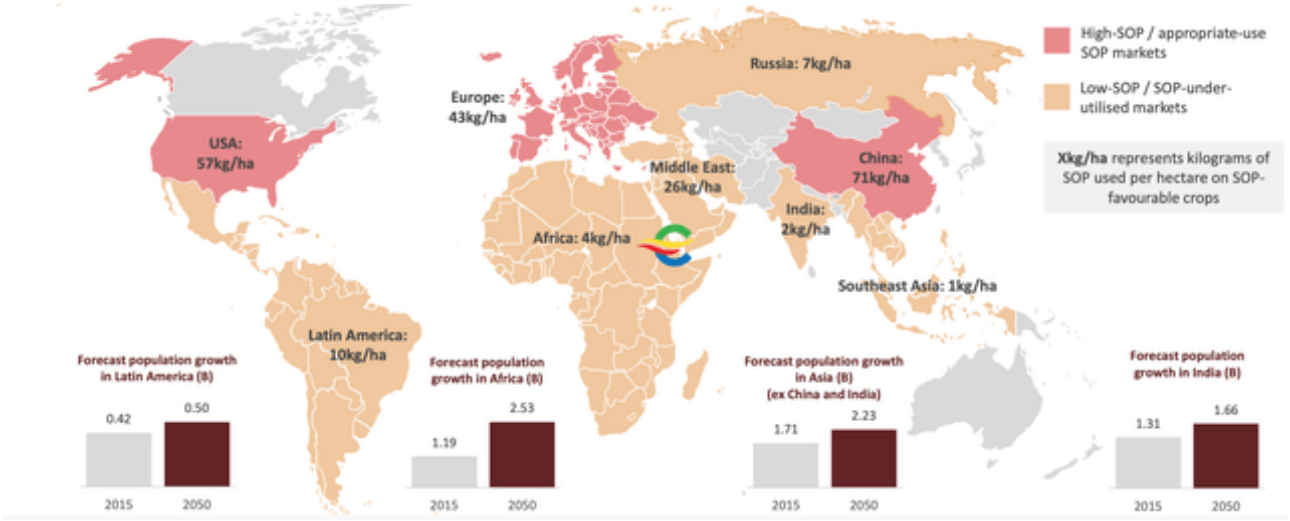

Fig. 2. The underapplication of SOP in developing regions where the highest rates of population growth are expected, from this source.

In spite of the projected long-term growth of potash demand, the building of new production capacity has been lagging in the past few years, thanks to low potash prices. Some 7 Mt of potash capacity as being forecasted back in 2015 has been removed from the supply side (Fig. 3).

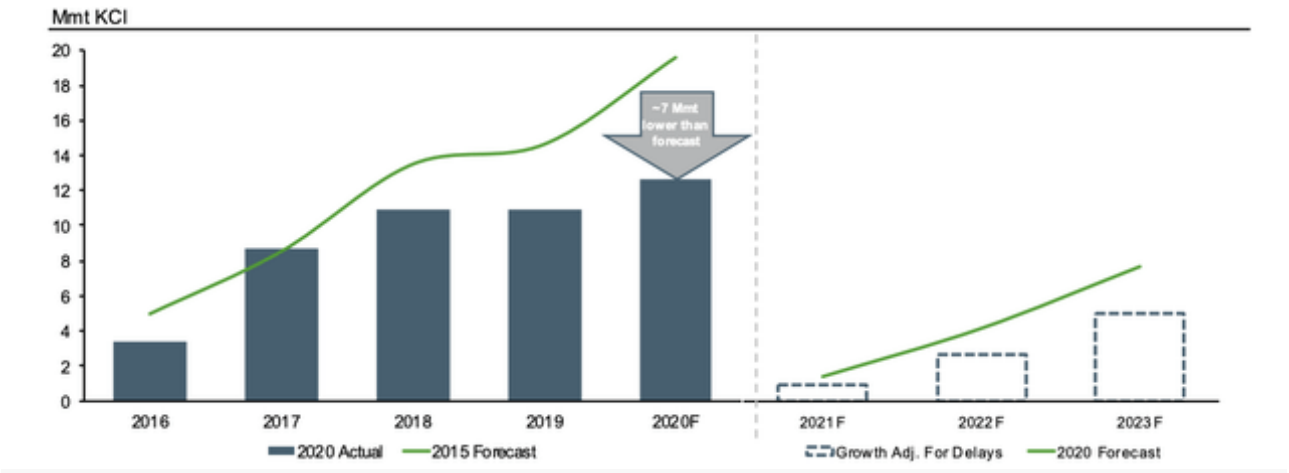

Fig. 3. The shortfall of projected and actual global potash capacity, from this source.

Potash supply has historically been controlled by production cartels, such as a German export monopoly in the early 1900s, the agreement strategies between German and French producers until 1939, and then oligopolistic competition prevailing on world markets (see here). In July 2013, major producer Belaruskali broke up with former Belarusian Potash Company cartel partner Uralkali, and in a move to grab market share, signed a potash sales contract for the Chinese market at US$315/t MOP. Since then, potash price has fallen from the neighborhood of US$600/t MOP to as low as USS$200/t MOP by 2017, and has since been fluctuating between US$200/t and US$270/t. SOP - a premium grade fertilizer - usually grabs a higher price at US$500-650/t (see here).

The Colluli potash project

Danakali has a 50% interest in a JV with the Eritrean National Mining Corporation (or *ENAMCO*), which operates the Colluli project. Colluli is located in the Danakil Depression on the Eritrean side of the Eritrea-Ethiopia border, a barren desert area ideal for large mine operations (Fig. 4).

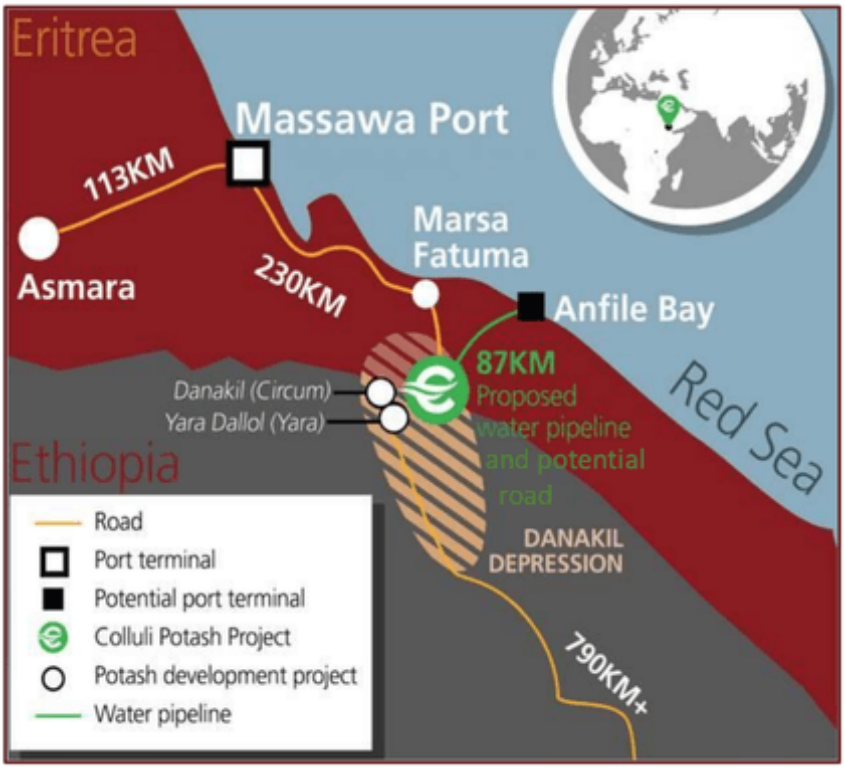

Fig. 4. The location of the Colluli potash deposit, from this source.

Mineral resource and reserves

The Danakil Depression, which extends over 300km into eastern Ethiopia, hosts over 6,000 Mt of potassium-bearing salts suitable for the production of potash fertilizers.

At Colluli, the JORC-2012 compliant mineral resource is estimated at 1,289 Mt at 11% K2O for 260 Mt of contained SOP equivalent. The JORC-2012 compliant ore reserve estimate at Colluli is estimated at 1,100 Mt at 10.5% K2O for 203 Mt of contained SOP equivalent (Fig. 5).

Area	Rock unit	Measured		Indicated		Inferred		Total	
		Mt	K2O equiv.	Mt	K2O equiv.	Mt	K2O equiv.	Mt	K2O equiv.
Area A	Sylvinite	66	12%	38	11%	10	8%	115	11%
	Carnallitite	55	7%	190	9%	6	16%	251	9%
	Kainitite	86	12%	199	11%	1	10%	285	11%
Area B	Sylvinite	24	15%	122	13%	5	12%	150	13%
	Carnallitite	25	6%	114	7%	8	7%	147	7%
	Kainitite	48	13%	289	13%	4	13%	341	13%
Subtotal Areas A & B	Sylvinite	90	13%	160	13%	15	9%	265	12%
	Carnallitite	80	7%	303	8%	15	11%	398	8%
	Kainitite	133	12%	488	12%	5	12%	626	12%
TOTAL		303	11%	951	11%	35	10%	1,289	11%

	Proved		Probable		Total		
Occurrence[2]	Mt	K2O equiv.	Mt	K2O equiv.	Mt	K2O equiv.	K2SO4 equiv. Mt[4]
Sylvinite (KCl.NaCl)	77	15.0%	173	12.1%	250	13.0%	
Carnallitite (KCl.MgCl2.H2O)	77	6.9%	279	7.8%	356	7.6%	
Kainitite (KCl.MgSO4.H2O)	131	11.8%	363	11.2%	494	11.4%	
TOTAL	285	11.3%	815	10.3%	1,100	10.5%	203

Fig. 5. The JORC-2012 compliant mineral resource estimate, from this source.

The above mineral reserves support 215 years of SOP production at 944 Ktpa as envisaged in modules I and II development plan.

Uniqueness of Colluli

A number of unique characteristics make Colluli one of the world's largest and lowest-cost deposits of SOP.

- Unlike other potash producing basins of the world, the Danakil region contains a variety of potassium-bearing salts, enabling the opportunity to generate a range of potash fertilizers. Colluli contains three potassium-bearing salts in solid form, namely, sylvinite, carnallite, and kainite, which are uniquely suitable for high-yield, low-energy production of SOP, besides sulfate of potash-magnesia (SOP-M) and MOP (Fig. 6). Pilot test studies completed on the Colluli salts with Colluli process design suggests that the Colluli product will have a purity of 98% SOP, higher than the typical 94% produced elsewhere (Fig. 7).

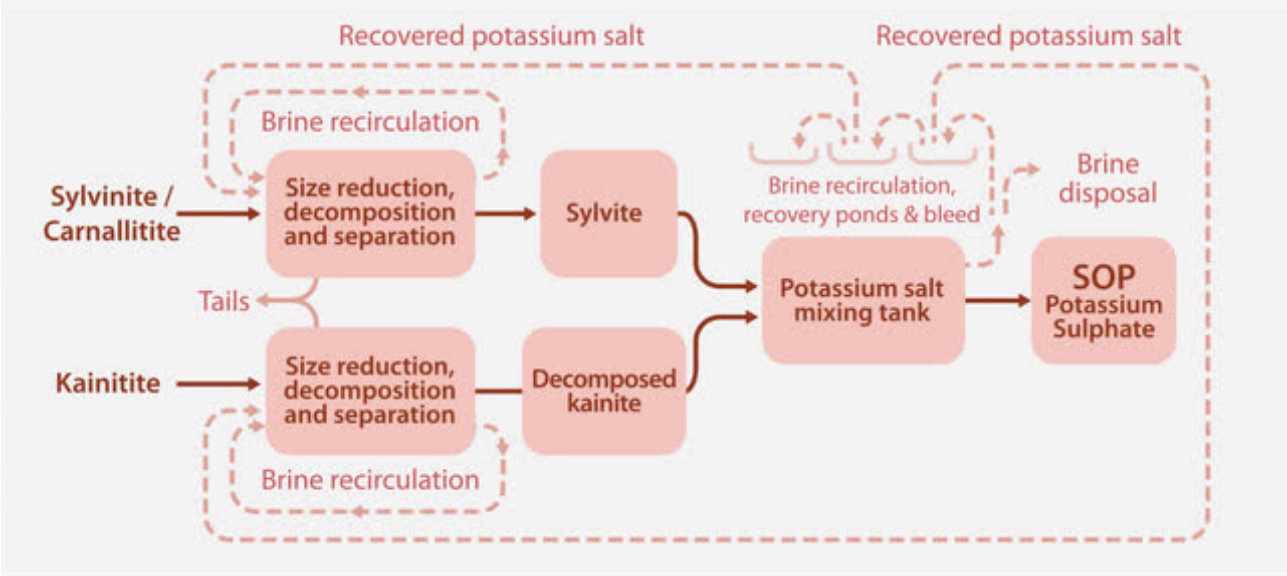

Fig. 6. Simplified process flow for the production of SOP from the Colluli resource, from this source.

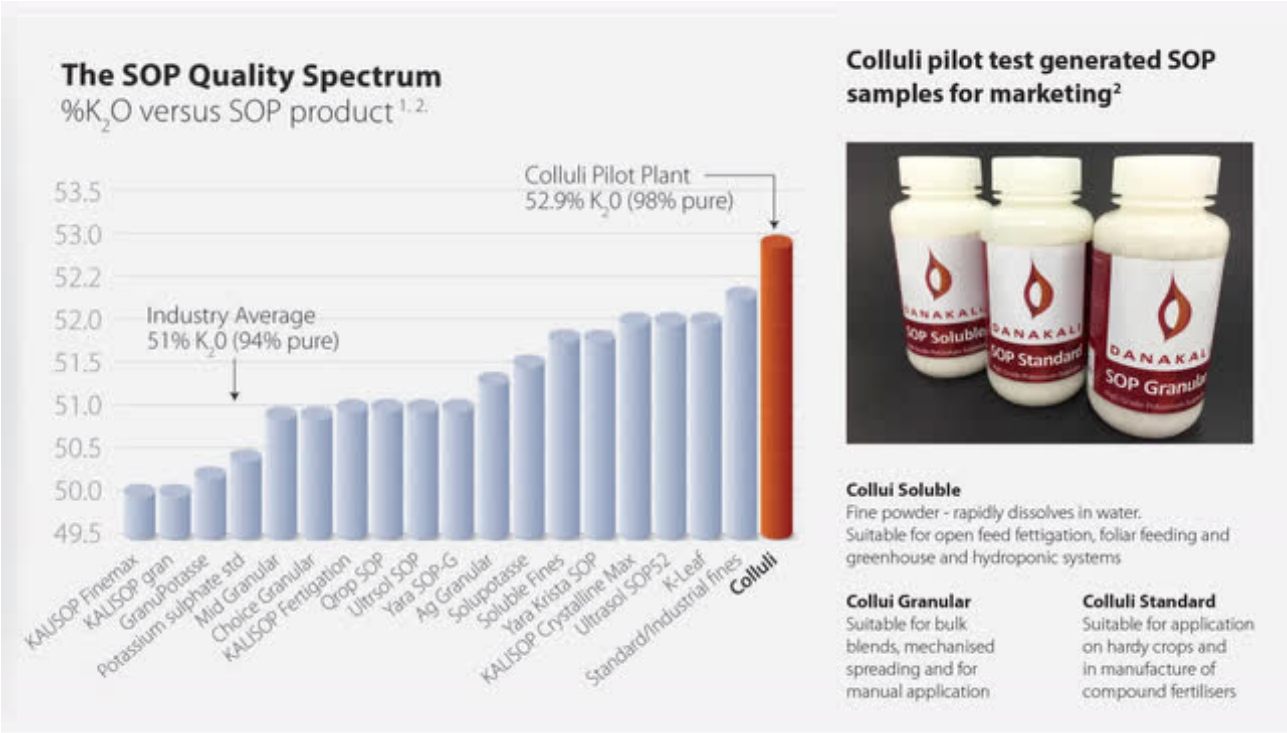

Fig. 7. The SOP quality spectrum, from the same source as Fig. 6.

- The mineralization in the Colluli deposit starts at just 16m, making it the shallowest known potash deposit in the world, and thus amenable to low-cost, open-cut mining. Open-cut solid salt mining beats underground solid salt mining, lacustrine brine, and playa brine in operating costs.

- Colluli is only 75km from the Red Sea coast, 87km from a port planned at the Anfile Bay, and 230km from the existing Port of Massawa, making it

the SOP deposit closest to a coastline and giving it an advantage over competing projects in neighboring Ethiopia, such as the Yara Dallol project of Yara International ASA (OTCPK:YARIY) (OTCPK:YRAIF) (Fig. 4; Fig. 8). The proximity to an established port infrastructure gives Colluli unrivaled access, via one of the busiest trade routes in the world, to the global export markets, especially emerging regions with the fastest population growth - Africa, India, and Southeast Asia.

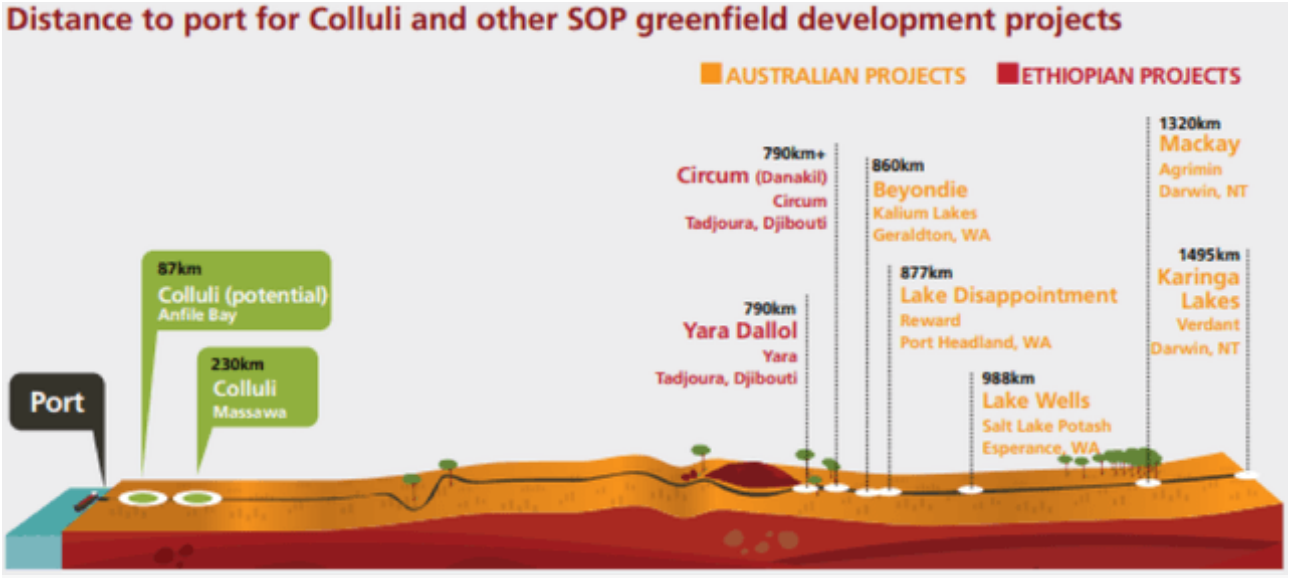

Fig. 8. A comparison of the Colluli and competing greenfield SOP development projects in terms of the distance to the export port, from the same source as Fig. 6.

- The Colluli project requires low upfront development costs and is highly scalable for long-life production. The project will be developed in multi-modules, with Module I serving as a platform for future growth. In addition to SOP, MOP, and SOP-M producible at Colluli, Danakali can also produce rock salt, kieserite, gypsum, and magnesium chloride, upon the completion of the Anfile Bay port.

The above advantageous features combine to make Colluli the lowest-cost SOP producer outside of China (Fig. 9). At mine-gate production costs of US$149-165/t or total cash costs of US$242-258/t, Colluli can be profitable even at the current low SOP price of US$500-650/t.

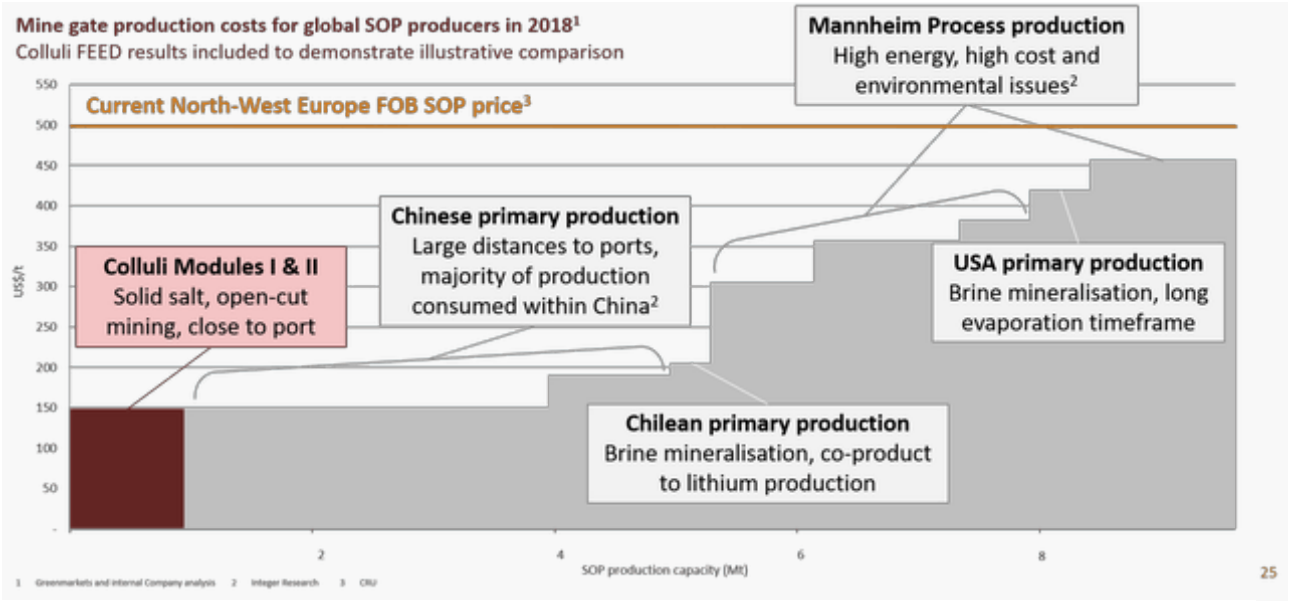

Fig. 9. The cost curve of SOP production as of 2018, from the same source as Fig. 6.

Project economics

The FEED economic studies envisage the production of 472 Ktpa in module I for development capital of US$302 million and another 472 Ktpa in module II beginning year 6 for additional investment of US$202 million.

Net to Danakali's 50% interest, Module I is projected to generate NPV-10 of 242 million, on average delivering an undiscounted FCF of US$43 million per year, with a post-finance IRR of 29.7%; module I&II is projected to generate NPV-10 of 439 million, on average delivering an undiscounted FCF of US$85 million per year, with a post-finance IRR of 31.3% (Table 1).

Key FEED economic estimates and outcomes[1,2]	Module I[3]	Modules I & II[4,5]
100% of the Project (equity / pre-debt basis)		
Annualised SOP production	472ktpa	944ktpa
Module I development capital[6]	US$302M	
Incremental Module II development capital[5,6]		US$202M
Capital intensity[6]	US$640/t	US$534/t
Incremental Module II capital intensity[6]		US$427/t
Average mine gate cash costs[7]	US$165/t	US$149/t
Average total cash costs[7,8]	US$258/t	US$242/t
Average annual undiscounted free cash flows[7]	US$88M	US$173M
Post tax NPV (10% real)	US$505M	US$902M
Post tax IRR	28.1%	29.9%
Danakali's 50% share of the Project (post finance basis)		
Average annual undiscounted free cash flows[7]	US$43M	US$85M
Post finance NPV (10% real)	US$242M	US$439M
Post finance IRR	29.7%	31.3%

Table 1. The FEED economic estimates, from the same source as Fig. 4.

Risk analysis

Eritrea had been under UN sanction per Security Council Resolution 1907 since December 23, 2009, for the government's role in aiding Al-Shabaab in Somalia and refusing to withdraw troops from its disputed border with Djibouti following a conflict in 2008. On July 9, 2018, a joint declaration of peace and friendship was signed between Eritrea and Ethiopia. On September 11, 2018, the Eritrea-Ethiopia border re-opened for the first time since 1998. The UN sanction was lifted by the UN in November 2018 under Resolution 2444, by the EU in the following month, and by the U.S. in May 2019. The removal of Eritrea from the sanction list opened up the country for foreign investments, thus significantly reducing geopolitical risk. As a matter of fact, Zijin Mining (OTCPK:ZIJMF) acquired Nevsun Resources along with its Bisha zinc-copper mine in Eritrea on December 28, 2018.

The Eritrean government, through ENAMCO, has a 50% interest in the Colluli project. According to the UNDP report entitled "*Analysis of the potential contribution of Colluli potash project to sustainable development goals in Eritrea*," Colluli is estimated to attract US$614 million of direct capital investment, generate 3% of Eritrean GDP once module I is up running, and account for 50% of Eritrean Exports by when module II is on stream. Therefore,

the Eritrean government has a strong incentive to see the project be built, in production, and run successfully.

As a tier-1 potash deposit with a number of unique advantages to its favor, the fully-permitted Colluli carries little underground geological risk. To lower infrastructure uncertainties, in August and October 2020, respectively, Danakali appointed RA International Group PLC as the preferred contractor for the supply of accommodation, support services, and other infrastructure buildings, and Aggreko (AGK.LSE) as its preferred power supply contractor for its 12MW HFO power plant at Colluli under a five-year BOOT contract, removing a major infrastructure uncertainty.

In June 2018, Danakali reached a binding take-or-pay offtake agreement with EuroChem Trading GmbH. Under the terms of the agreement, EuroChem will take, pay, market, and distribute up to 100% of the module I SOP production over a 10+3 year term from the project commissioning.

In August 2019, Danakali announced Africa Finance Corporation and African Export-Import Bank (Afreximbank) have obtained formal credit approval to provide US$200 million in senior debt finance, as part of the overall project funding package used for the construction of Colluli, with the documentation finalized on December 23, 2019. On December 3, 2019, Africa Finance Corporation also agreed to make a US$50 million equity investment in two tranches at A$0.60 per Danakali share. The company is yet to secure an additional US$52 million of capital.

Investor takeaways

Colluli is obviously a tier-1 asset, boasting the lowest-costs in the world and >200 years of mine life. The project has been largely derisked with regard to geopolitics, infrastructure, off-take, and financing.

With the first production scheduled for 2022, Danakali is well positioned to emerge as a pure-play SOP producer in the coming years, especially considering its low-cost structure (Fig. 10).

	DANAKALI	SQM (SQM.NYSE)	K+S (SDF.FSE)	Compass (CMP.NYSE)	Tessenderlo (TESB.BSE)
Market capitalisation[1]	A$197M (US$136M)	US$8.12Bn	€3.02Bn (US$3.37Bn)	US$1.76Bn	€1.27Bn (US$1.41Bn)
EBIT (2018)[1]	NA (average annual cash flows to Danakali of US$85M expected from SOP Modules I & II)	US$670M	€165M (US$186M)	US$135M	€100M (US$113M)
Key focus areas	Primary – Fertiliser Secondary – Deicing Tertiary – Industrial salts	Lithium, iodine & derivatives Fertiliser Deicing Industrial chemicals	Fertiliser Deicing Consumer & industrial salts	Fertiliser Deicing Consumer & industrial salts	Fertiliser Crop protection Gelatins, proteins & fats Industrial solutions
SOP					
SOP production	Module I: 472ktpa Modules I & II: 944ktpa	340ktpa	850ktpa	500ktpa	580ktpa
SOP production type	Primary (solid salts)	Primary (brine)	Secondary (salt decomposition)	Primary (brine)	Secondary (Mannheim Process)
Other production					
Other fertiliser and salt production lines	Potential for Rock Salt (stockpiled at rate of 1.8Mtpa), SOP-M, MOP, $MgSO_4$, MgCl and Gypsum production	MOP (primary) Other specialty fertilisers Rock Salt NOP, MgCl	MOP Other specialty fertilisers Rock, industrial & consumable salts Magnesium products	Rock, solar & evaporated salt MgCl Other specialty fertilisers	Specialty fertilisers Crop protection products

Fig. 10. A comparison of Colluli with vertically-integrated SOP producing competitors, from the same source as Fig. 4.

At a forward P/FCF multiple of 2.6X for Module I (2022-) and 1.3X once Module II comes on-stream in 2028, Danakali appears to be undervalued. In comparison, Tessenderlo (OTC:TSDOF) and Compass Minerals (CMP) have a P/FCF multiple of 10.0X and 20.9X, respectively.

The stock seems to be agitating for a breakout in recent weeks (Fig. 11). I have taken a starter position and plan to build a position of meaningful size in the next couple of years.

Fig. 11. The stock chart of Danakali, modified from this source.

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