

## GoviEx Uranium (GXU CN)

### Initiation: Well-connected African uranium developer with scale and torque

RECOMMENDATION: **BUY**

PRICE TARGET: **C\$0.70**

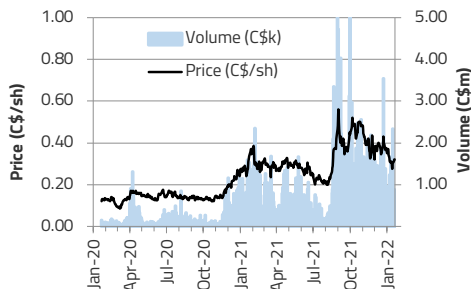
RISK RATING: **HIGH**

SHARE DATA	C\$0.32/sh
Shares (basic, FD)	545 / 658
52-week high/low	0.385 / 0.085
Market cap (US\$m)	US\$140m
Net cash (debt) (US\$m)	1
1.0xNAV8% @ US\$60/oz (US\$m)	411
1.0xNAV7% FD (p/sh)	C\$0.78
P/NAV (x)	0.41x
Average daily value (C\$m, 3M)	0.50

FINANCIALS	CY26E	CY27E	CY28E
U3O8 produced (000lbs)	2,931	4,204	4,986
Revenue (C\$m)	176	252	299
AISC (C\$/lb)	28.83	30.49	34.19
Income (C\$m)	33.6	55.8	49.9
EPS (C\$/sh)	0.04	0.06	0.05
PER (x)	9.1x	5.5x	6.2x
CFPS (C\$/sh)	0.10	0.12	0.11
P/CF (x)	2.5x	2.0x	2.2x
EBITDA (C\$m)	91.4	126.1	128.7
EV/EBITDA (x)	4.1x	2.3x	1.5x

NAV over time	2022E	2022E	2022E
1xNAV8% FD (C\$/sh)	0.74	0.69	0.67
ROI to 1xNAV (% pa)	132%	47%	28%

SOTP 1xNAV8% US\$60/oz	US\$m	C\$/sh
Madaouela NPV 1Q22	107	0.20
Mutanga NPV 1Q22	116	0.22
Falea (US\$1.5/lb)	66	0.13
Exploration / Resources	196	0.37
Central SG&A & fin costs 1Q22	(90.8)	(0.17)
Net cash + options	17.7	0.03
TOTAL	411	0.78



Source: S&P capital IQ

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#### Friedland African uranium developer with 229Mlb uranium portfolio

Founded by Govind Friedland in 2006, GoviEx acquired its flagship Madaouela Project in Niger in 2008, defined a 138Mlb resource, permitted the project and is in the process of completing the FS to target project development in 2023. During the downturn, GoviEx used the opportunity to add to its portfolio at low cost, acquiring the 60Mlb Mutanga heap leach project in Zambia from Denison in 2016 along with the 31Mlb Falea Project in Mali from Denison for 25% of pro-forma shares, and consolidating the adjacent Chirundu Project (Zambia) in 2017. GoviEx is targeting first production at Madaouela by 2025 and Mutanga in 2027 for a combined 5Mlbs production profile.

#### Madaouela: 138Mlb fully-permitted mega-resource in prolific trend

We like Madaouela for three reasons. First, it is large, already permitted and well drilled, therefore can respond quickly to rising prices. Second, with DFS completion on a 20-year, 2.5Mlb project, there is a starter project that works at US\$60/lb. Third, it is located in a major uranium mining hub. The district includes Orano's Somair and Cominak mines within 20km, and Orano's Imouraren, CNNC's Azelik and Global Atomic's Dasa projects within 100km.

#### Mutanga: 2.5Mlb pa low capex heap leach project in Zambia

Mutanga is a low capex heap leach project in Zambia, one of Africa's top mining jurisdictions. For low capex (US\$123m per 2017 PEA), it adds a technically straightforward 2.5Mlbs pa second project with significant exploration upside. The development plan at Mutanga is to complete environmental re-permitting (2022), infill Dibwe, develop Mutanga for first production in 2027.

#### Right price, right time: High quality U exposure at discount valuation

We think GoviEx is an excellent high torque uranium stock due to its well connected management and board, large resource base, permitted (Madaouela) / advanced permitting (Mutanga) projects and resource and exploration upside. NAV increases by 54% from US\$60 to US\$70/lb and another 35% from US\$70-80/lb. At US\$0.72/lb EV-resource, the optionality comes at better value relative to other African peers.

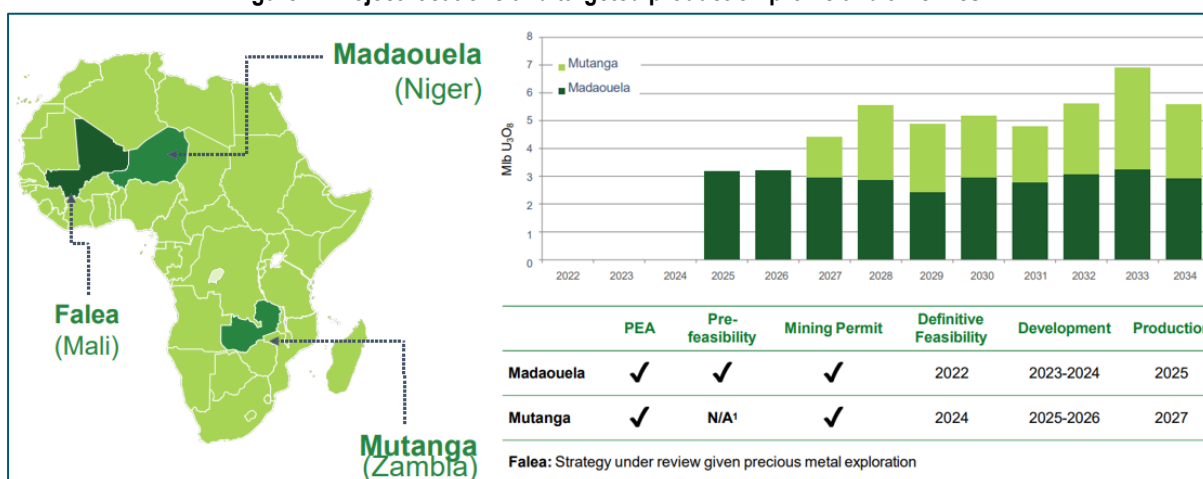
#### Recommendation: initiate with a BUY rating and C\$0.70/sh PT

We model Madaouela and Mutanga matching GXU's PFS/PEA inputs at our US\$60/lb LT uranium price and 8% DR. This generates an NPV8%-60/lb of US\$108m for Madaouela and US\$116m for Mutanga, equivalent to ~US\$2.0 and US\$3.9/lb of mine plan inventory, respectively. We add US\$1.50/lb for lbs outside the mine plan and for Falea, and US\$25m for exploration. This generates a fully diluted NAV of US\$411m or C\$0.78m per share. Adding our funding assumption of US\$100m of equity at 0.7x NAV generates SCPE fully-funded NAVPS of C\$0.67 which generates our C\$0.70/sh price target. This equates to 0.65x NAV at US\$70lb price, which we think is reasonable as investors buy African projects for torque to the uranium price and strategic value.

## Summary: 229Mlb portfolio with 5Mlb production profile and heavyweight mgmt. and board

GoviEx is a uranium developer with a portfolio of three projects that total a combined 229Mlbs in attributable resources. This includes the permitted 138Mlb, 2.5Mlbs per year feasibility stage Madaouela project in Niger (80% owned, 10% Govt free-carry, 10% Govt non-free carry), located within 20km of Orano's Somair and Cominak mines; the 60Mlb, 2.5Mlbs per year Mutanga heap leach project in Zambia; and the 31Mlbs Falea exploration project in southern Mali, which has both uranium, gold and copper exploration potential and is situated near IAMGOLD's Siribaya and Orano's Saraya East property. **Management** includes Executive Chairman Govind Friedland, of the prolific Friedland mining family; and CEO Daniel Major, who has extensive mining finance experience and has advanced Madaouela and built out the asset portfolio during the 2013-2020 uranium downturn. The board has significant African experience including current Aya Gold & Silver CEO and Semafo-founder Benoit La Salle, Denison Mines CEO David Cates, experienced African business operators Salma Seetaroo and Eric Krafft, and Canadian Merchant Banker Christopher Wallace. Between Madaouela and Mutanga, GoviEx has an actionable portfolio that can deliver >5Mlbs per year of production with exploration and resource optionality to increase significantly beyond this at higher uranium prices. The Friedland family connection and the strong board means the company has the needed connections and experience to work with the large utilities, international finance providers, and potential M&A counterparts needed to develop uranium projects in Africa.

Figure 1. Project locations and targeted production profile and timelines



Source: GoviEx

**Corporate History:** GoviEx was founded in 2006 and acquired the Madaouela project in 2007. Intensive exploration was undertaken from 2008-2013 with more than 620,000m of drilling completed and a PFS was completed in 2013 (updated in 2015). During the uranium downturn, GoviEx took the opportunity to build its portfolio, acquiring the former Rockgate assets (Mutanga and Falea) from Denison in 2016 for 56.1M common shares or 25% of the pro-forma company (28% fully diluted including 22.4M warrants). GoviEx continued to advance the assets to production readiness during the downturn, including a PEA on Mutanga in 2017, and updated PFS on Madaouela in 2021, delineating a 20-year 2.5Mlbs per year mine life.

Figure 2. GoviEx share price and market cap history with key events



Source: Bloomberg, annotated by SCPe

### Forget your biases, Africa is the place to go for torque in a uranium bull market

I) The macro backdrop is highly conducive. Utility contracting has yet to kick off in earnest but with contracted volumes below consumption, and the SPUT and Yellow Cake vehicles pulling material out of the spot market, we think contracting will be a 2022 story. Moreover, we expect increased demand pull going forward as higher prices and geopolitical constraints have reduced the attractiveness of natural gas, and high carbon intensity has reduced the attractiveness of coal, particularly in Western Markets. The combination of the two means we see a sharp acceleration of market activity due to contracting, and a long lived cycle due to strengthening demand.

II) Geopolitical competition for materials is heating up and Africa represents one of few geopolitically flexible sources of supply. We think this is highly relevant for China, France, and other major consumers. Other major supply sources such as Kazakhstan, Canada and Australia are geopolitically aligned to a greater degree and this makes African projects attractive to utilities that need to source external supply (such as China, France, Japan, Korea, Russia). The above has resulted in Niger providing ~5% of global production since the 1970s with capacity in Namibia to produce up to 10% of global supply per the World Nuclear Association.

3) African projects are large and conventional. Traditional open pit and underground, vanilla processing techniques, fast permit turnaround times, and moderate temperature ranges make African projects attractive from an operator perspective, particularly for vertically integrated operators such as Orano, CNNC and Rosatom. There are several multi-billion-dollar transaction precedents in the African uranium space, including CGN's US\$2.3bn acquisition of Extract Resources (Husab project, Namibia) in 2012, ARMZ's (Rosatom) US\$1.2bn acquisition of Mantra Resources (Mjuku River project, Tanzania) in 2010 and Areva's (now Orano) US\$2.3bn acquisition of UraMin in 2007.

Figure 3: Selected African uranium M&A transactions

Target	Acquiror	Date	Flagship		Resource (Mlbs)	Transaction	
			Project	Location		Entp Value (US\$m)	EV/Resource (US\$/lb)
Mantra Resources	ARMZ (Rosatom)	2010	Mjuku River	Tanzania	101	1,019	10.1
Extract Resources	China Guangdong Nuclear Power Group (CGN)	2012	Husab	Namibia	488	2,262	4.6
UraMin	Areva (now Orano)	2007	Trekkopje	Namibia	152	2,272	14.9

Source: S&P Capital IQ Pro, Factset, SCPE

### GoviEx offers the torque to higher prices that investors in African uranium projects seek

Below we show key financial metrics at US\$60-80/lb. Only a 25% increase in our LT uranium price to US\$80/lb results in a 170% increase in mines NPV of US\$610m. FCF/share doubles to US\$0.20/sh vs GoviEx's current share price of C\$0.32/sh. Including a fixed in-situ valuation for Falea and lbs outside the mine plan, this doubles NAVPS. We think this understates the upside to higher prices as resource to reserve conversion and exploration upside would likely result in an enlarged production and FCF profile.

Figure 4: Key SCPE valuation metrics at US\$60-80/lb

Uranium Price (US\$/lb)	\$60	\$65	\$70	\$75	\$80
Madaouela + Mutanga NPV8%	224	321	417	513	610
FD NAV (US\$m)	411	523	634	747	859
FD/FF NAVPS (C\$/sh)	0.79	1.01	1.22	1.43	1.64
P/NAV	0.40x	0.32x	0.26x	0.22x	0.19x
Steady state (2028E) FCFPS (US\$/sh)	0.10	0.12	0.15	0.18	0.20
Implied share price @ 12% FCF yld (C\$/sh)	0.99	1.27	1.55	1.83	2.10
Uplift	210%	298%	385%	470%	555%
Annualised uplift	21%	26%	30%	34%	37%

Source: SCPE

## 229Mlb portfolio offers long life with reserve conversion and resource growth opportunities

To this point, GoviEx has a 229Mlbs resource base (202Mlbs attributable accounting for Madaouela Niger Government free carry) that supports significant reserve conversion as an operator, and moves the scale for an acquirer in an M&A scenario. We think it also makes GoviEx an attractive counterpart for utilities as it can be a long-life and diversified supplier. Both flagship assets have belt sized licences (599km<sup>2</sup> with another 1,557km<sup>2</sup> under application at Madaouela and 720.5km<sup>2</sup> at Mutanga) mean that we think GoviEx can add lbs quickly should the market reward exploration. Moreover; the projects can be actioned quickly; Madaouela has its mining and environmental licenses while Mutanga has its mining permit and environmental permits and should be able to be refreshed within an 18-24-month timeline.

Figure 5: GoviEx Reserves and Resources

Property	Own	Country	Type	Reserves (2P)			Resources (M&I)			Resources (Inferred)			Resources (Total Contained)		
				Tonnes (Mt)	U308 grade (ppm)	U308 (Mlbs)	Tonnes (Mt)	U308 grade (ppm)	U308 (Mlbs)	Tonnes (Mt)	U308 grade (ppm)	U308 (Mlbs)	Tonnes (Mt)	U308 grade (ppm)	U308 (Mlbs)
Madaouela	80%	Niger	OP/UG	24.9	845	46.4	37.0	1,357	110.8	9.5	1,326	27.7	46.5	1,351	138.4
Mutanga	100%	Zambia	OP/HL	--	--	--	21.6	318	15.1	74.6	273	44.9	96.2	283	60.0
Falea	100%	Mali	OP	--	--	--	6.9	1,150	17.4	8.8	690	13.4	15.7	893	30.8
<b>Total</b>				<b>24.9</b>	<b>845</b>	<b>46.4</b>	<b>65.5</b>	<b>993</b>	<b>143.3</b>	<b>92.8</b>	<b>420</b>	<b>86.0</b>	<b>158.3</b>	<b>657</b>	<b>229.3</b>

Source: GoviEx; Madaouela as at 2 March 2016 per 2021 PFS; Mutanga Per 20 November 2017 per 2017 PEA; Falea per 2015 MRE

## At the right valuation: Upside to African peer multiples and the wider space

With a large resource endowment, permitted flagship asset, and torque to higher uranium prices, we think GoviEx offers the key parameters for an attractive African uranium stock. Moreover, as shown below, GoviEx's is significantly cheaper than most of its African peers. With the exception of Global Atomic, which is higher grade but for which we think standalone development would be a risk at current prices, we think peer group has similar incentive price dynamics, requiring a price of US\$50-60/lb to justify restart, and US\$70/lb plus to generate outsized buy and hold returns. Of these, we think GoviEx offers the best combination of attractive entry multiples, a high grade resource, and an option on a next project. Moreover, we think M&A prospects for the peer group are similar. Though Southern and Eastern Africa may be more secure jurisdictions, Niger offers better grade and as good or better exploration potential, which we think makes it a suitable M&A jurisdiction for Orano, CNNC, CGN or others in a bull market.

Figure 6: African Uranium peer comps

Company	Lotus Resources	Paladin	Global Atomic	Bannerman	Deep Yellow	GoviEx	Forsys Metals
Asset	Kavelekera	Langer Heinrich	Dasa	Etango	Tumas	Madaouela	Norasa
Location	Malawi	Namibia	Niger	Namibia	Namibia	Niger	Namibia
Status	DFS Underway	Care & mnt	FS	PFS	DFS Underway	PFS	DFS
Permits	Permitted	Permitted	Permitted	Various	Various	Permitted	Permitted
Ownership (%)	85%	75%	90%	95%	100%	80%	100%
Study	2020 Scop Study	2021 Restart	2021 DFS	2021 PFS	2020 PFS	2021 PFS	2015 DSF
Deposit type	Sandstone	Calcrete	Sandstone	Alaskite	Calcrete	Sandstone	Alaskite
Mining	OP	OP	OP / UG LH	OP	OP	OP/ UG R&P	OP
Reserve grade (% U308)	--	448 ppm	5,267 ppm	232 ppm	345 ppm	996 ppm	200 ppm
Reserves (Mlbs U308 100% Proj.)	--	84.8	47.2	60.3	68.4	54.7	90.7
Resource Grade (ppm U308)	630 ppm	415 ppm	1,765 ppm	220 ppm	258 ppm	1,351 ppm	151 ppm
Resources (Mlbs U308 100% Proj.)	37.5	96.1	189.2	207.8	114.1	138.4	183.0
Other projects (Mlbs U308)		317.5	61.0		81.9	90.8	
Sales Royalty (%)	7.25%	3.25%	5.5-12.0%	3.25%	3.25%	5.5-12.0%	3.00%
Tax Rate (%)	30.0%	37.5%	30.0%	37.5%	37.5%	30.0%	37.5%
Avg annual production (Mlbs)	2.3	3.4	3.8	3.5	3.0	2.5	5.2
LOM total production (Mlbs)	16.4	77.4	45.4	52.9	64.1	54.7	78.0
Initial Capex (US\$m)	50.2	80.8	207.6	274.0	320.0	347.0	94.0
Capital intensity (US\$/lb LOM)	3.06	1.04	4.57	5.18	4.99	6.34	1.21
Operating cash cost (US\$/lb)(1)	32.72	27.40	15.64	37.40	27.56	22.50	34.70
AISC (US\$/lb)	39.83		21.93	40.30	30.93	29.10	
FD mkt cap (US\$m)	229.5	1,413.2	493.9	193.7	207.9	180.3	126.3
Compared to basic market cap	28%	1%	10%	4%	0%	31%	11%
Net cash and investments (US\$m) <sup>(2)</sup>	27.1	(68.2)	11.8	12.0	51.5	35.0	12.9
FD EV (US\$m)	202.4	1,481.3	482.1	181.7	156.4	145.3	113.4
EV/Reserve (\$/lb)	--	17.47	10.21	3.01	2.29	2.65	1.25
<b>EV/Resource (US\$/lb)</b>	<b>6.35</b>	<b>3.80</b>	<b>2.08</b>	<b>0.92</b>	<b>0.80</b>	<b>0.72</b>	<b>0.62</b>

Source: Company disclosure, Factset, SCPe, (1) Self-reported study C1 cash cost - Paladin and Deep Yellow reported excluding royalties, Goviex includes Mo byproduct credits; (2) Includes ITM option proceeds

## Well connected management team more likely to draw international support

Unlike gold or silver, developing a customer base is a key work stream for a uranium developer. This requires establishing trust with large counterparties in major markets (US, France, China, Japan, India, Korea) in order to build a contract book. In this respect we think GoviEx has significant advantages over its peers. Executive Chairman Govind Friedland lived in China for a significant period of time, and is well connected in Asia as well as Europe and North America. Moreover, the Friedland family has a proven track record of discovering, partnering facilitating development of globally significant assets, including the Voisey's Bay Nickel Mine in Canada (now part of Brazil's VALE), the Oyu Tolgoi copper mine in Mongolia (now Rio Tinto) and Ivanhoe Mining's Kamao/Kaluka copper mine in the DRC (with project partner Zijin). CEO Daniel Major brings international finance and development experience and has advanced Madaouela and built the company's portfolio during the downturn. Marketing Chief Chris Lewis brings 28 years of uranium marketing experience including 18-year stints at BHP, five years at Cameco and five at Uranium One. The board also includes Aya Gold & Silver CEO and Semafo-founder Benoit La Salle, Denison Mines CEO David Cates, experienced African business operators Salma Seetaroo and Eric Krafft, and Canadian Merchant Banker Christopher Wallace. In short, this is a team that runs in the circles needed to facilitate development.

## Recommendation: initiate coverage with BUY rating and C\$0.70/sh PT

We value GoviEx on a DCF valuation using an 8% discount rate and at our US\$60/lb long-term uranium term contract price. We model Madaouela based on the PFS inputs (but not including Molybdenum by-product credits or associated capex/costs), with project construction start in 2023 and first production in 2025. We model Mutanga following a schedule two years behind Madaouela with first production in 2027. This generates an NPV8%-60/lb of US\$108m for Madaouela and US\$116m for Mutanga, equivalent to ~US\$2.0 and US\$3.9/lb of mine plan inventory, respectively. We add lbs outside the mine inventories at US\$1.50/lb totalling US\$236m and US\$25m for exploration. Subtracting US\$85m for SG&A and adjusting for last reported cash and ITM options, we generate a FD NAV of US\$418m or C\$0.79/sh. Assuming US\$100m of equity finance for the mine build at 0.7x NAV at year-end 2022 (C\$0.42/sh), we generate a fully diluted, fully funded NAVPS estimate of US\$0.67/sh. We apply a 1.0x NAV multiple to generate our target price of C\$0.70/sh. At US\$70/lb, this equates to 0.65x NAV, which we think is a realistic multiple as we think those buying the shares are seeking outsized torque to higher uranium prices.

Figure 7: SCPe production profile and key metrics

Production (Mlbs)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Madaouela	--	--	--	3.3	2.9	2.7	2.3	2.2	2.7	2.5	2.8
Mutanga	--	--	--	--	--	1.5	2.6	2.4	2.1	2.0	2.6
<b>Total</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>3.3</b>	<b>2.9</b>	<b>4.2</b>	<b>5.0</b>	<b>4.6</b>	<b>4.9</b>	<b>4.6</b>	<b>5.4</b>
Cash Cost (US\$/lb)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Madaouela	--	--	--	20.7	21.7	22.4	27.2	23.6	19.6	28.6	28.0
Mutanga	--	--	--	--	--	27.8	30.7	36.1	38.8	43.2	31.7
<b>Total</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>20.7</b>	<b>21.7</b>	<b>25.3</b>	<b>30.6</b>	<b>31.6</b>	<b>29.5</b>	<b>36.5</b>	<b>31.3</b>
Capex (US\$m)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Madaouela	2.0	159.0	181.0	1.0	--	2.0	--	11.0	48.0	18.0	25.0
Mutanga	--	--	--	49.2	74.2	--	--	27.5	--	20.8	--
<b>Total</b>	<b>2.0</b>	<b>159.0</b>	<b>181.0</b>	<b>50.2</b>	<b>74.2</b>	<b>2.0</b>	<b>--</b>	<b>38.5</b>	<b>48.0</b>	<b>38.8</b>	<b>25.0</b>
FCF (US\$m)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Madaouela	-2.0	-159.0	-181.0	112.2	96.4	85.8	54.2	46.2	28.8	33.9	29.8
Mutanga	--	--	--	-49.2	-74.2	33.3	54.2	12.8	31.8	3.2	51.7
Other incl prepayment	-5.4	90.0	-21.0	-58.3	-22.3	-27.6	-16.9	-2.8	-4.0	-5.0	-4.5
<b>Total</b>	<b>-7.4</b>	<b>-69.0</b>	<b>-202.0</b>	<b>4.7</b>	<b>-0.2</b>	<b>91.6</b>	<b>91.4</b>	<b>56.2</b>	<b>56.7</b>	<b>32.1</b>	<b>77.0</b>

Source: SCPe

## Catalysts

- 2022: Madaouela DFS, offtake and finance
- 2023: SCPe Madaouela construction start (price dependent)
- 1H25: SCPe first production at Madaouela
- 1H27: SCPe first production at Mutanga

<b>Ticker:</b> GXU CN	<b>Price / mkt cap:</b> C\$0.32/sh, C\$174m	<b>Market P/NAV:</b> 0.41x	<b>Assets:</b> Madaouela
<b>Chan / B Gaspar / E Magdzinski</b>	<b>Rec / PT:</b> BUY / C\$0.70	<b>1xNAV<sub>2020</sub> FD:</b> C\$0.78/sh	<b>Country:</b> Niger

Group-level SOTP valuation					Share data				
	3Q21	1Q22							
	US\$m	O/ship	NAVx	C\$/sh	Basic shares (m):	FD + options (m):	657.9	FD + FF	960.4
Madaouela NPV 1Q22	107	80%	1.0x	0.20					
Mutanga NPV 1Q22	116	100%	1.0x	0.22					
Falea (US\$1.5/lb)	66	80%	1.0x	0.13					
Central SG&A & fin costs 1Q22	(91)	--	1.0x	(0.17)					
Lbs outside mine plan (\$1.50/lb)	171	100%	1.0x	0.32					
Exploration	25	100%	1.0x	0.05					
Cash and restr. cash 3Q21	7	--	1.0x	0.01					
Debt 3Q21 excl convert	(7)	--	1.0x	(0.01)					
ITM options	17	--	1.0x	0.03					
<b>1xNAV8% US\$60/lb</b>	<b>411</b>			<b>0.78</b>					
Assumed build equity issuance	100			0.10					
<b>1xNAV fully funded8% US\$60/lb</b>	<b>511</b>			<b>0.67</b>					
P/NAV (x):				<b>0.48x</b>					
<b>Target multiples</b>	<b>Multiple</b>			<b>C\$/sh</b>					
<b>Target P/NAV Multiple</b>	<b>1.00x</b>			<b>0.70</b>					
<b>Target price</b>				<b>0.70</b>					

Sources	Uses		
Madaouela PFS capex	US\$330m	SCPe 3Q20 cash + ITM options	US\$95m
SCPe contingency	US\$91m	Mine debt @ 60% gearing	US\$200m
SCPe G&A + fin. cost to first Au	US\$56m	Build Equity	US\$100m
SCPe working capital	US\$17m	Offtake	US\$100m
<b>Total uses</b>	<b>US\$495m</b>	<b>Total proceeds</b>	<b>US\$495m</b>

1xNAV sensitivity to gold price and discount / NAV multiple					
1xNAV Mines (C\$m)	\$40/lb	\$50/lb	\$60/lb	\$70/lb	\$80/lb
10% discount	-211	-7	156	317	477
9% discount	-214	10	188	364	539
8% discount	-216	30	<b>224</b>	417	610
7% discount	-219	54	266	478	690
6% discount	-221	81	313	547	780
5% discount	-223	112	368	626	884

Valuation (C\$/sh)	\$40/lb	\$50/lb	\$60/lb	\$70/lb	\$80/lb
0.50xNAV	neg	0.10	0.35	0.55	0.75
0.75xNAV	neg	0.15	0.50	0.85	1.15
1.00xNAV	neg	0.20	<b>0.70</b>	1.10	1.55
1.25xNAV	neg	0.25	0.85	1.40	1.90
1.50xNAV	neg	0.30	1.00	1.65	2.30

Valuation over time	1Q22E	1Q23E	1Q24E	1Q25E	1Q26E
Mines NPV (US\$m)	240	261	454	686	672
Cntrl G&A & fin costs (US\$m)	(91)	(92)	(89)	(73)	(32)
Net cash at 1Q (US\$m)	3	35	(166)	(150)	(148)
Other Assets + Options	278	278	278	278	278
1xNAV (US\$m)	430	483	478	741	771
P/NAV (x):	0.4x	0.5x	0.5x	0.3x	0.3x
1xNAV share px FD (C\$/sh)	0.74	0.69	0.67	1.01	1.01
ROI to equity holder (% pa)	132%	47%	28%	33%	26%

Resource / Reserve	Mt	ppm U3O8	Mlbs	EV/lb
Measured, ind. & inf. - Madoeula	46	1,351	138.4	1.05
Measured, ind. & inf. - Total Attr	149	614	201.6	0.72
Group 2P Reserves	25	845	46.4	3.14

Production (100%)	CY25E	CY26E	CY27E	CY28E	CY29E
Madaouela (000mlbs U3O8)	3.3	2.9	2.7	2.3	2.2
Mutanga (000mlbs U3O8)	--	--	1.5	2.6	2.4
Group cash cost (US\$/lb)	21.72	25.33	30.65	31.62	29.46
Group AISC (US\$/lb)	28.83	30.49	34.19	37.67	43.39

Balance sheet	CY23E	CY24E	CY25E	CY26E	CY27E
Cash (US\$m)	135	34	50	52	44
Accounts receivable (US\$m)	--	--	8	7	10
Inventories (US\$m)	--	--	22	20	30
PPE & exploration (US\$m)	231	412	462	498	453
Other (US\$m)	0	0	0	0	0
<b>Total assets (US\$m)</b>	<b>366</b>	<b>446</b>	<b>541</b>	<b>577</b>	<b>538</b>
Debt (US\$m)	100	200	200	200	100
Other liabilities (US\$m)	108	141	136	121	111
Shareholders equity (US\$m)	388	389	400	403	403
Retained earnings (US\$m)	(242)	(263)	(174)	(140)	(84)
Minority int. & other (US\$m)	12	12	12	12	12
<b>Liabilities+equity (US\$m)</b>	<b>366</b>	<b>480</b>	<b>575</b>	<b>595</b>	<b>541</b>
Net Cash	35	(166)	(150)	(148)	(56)
Net Debt to NTM EBITDA (x)	nmf	1.5x	1.6x	1.2x	0.4x

**Madaouela (80% GXU): Permitted and build-ready 2.5Mlb pa backed by huge 138Mlb endowment**

**Overview:** Madaouela is located 9km SW of the town of Arlit (pop 120k) and within 10km of Orano’s Somair and Cominak Mines in the Saharan Zone of Niger, West Africa. The area is connected to the capital city of Niamey by road, which is paved for the majority of the journey. There are airstrips at Arlit (operated by Orano) and at Agadez. There is a coal-fired power station at Sonichar that supplies grid power to the region. The PFS assumes grid power at US\$0.174/kWh. Water is to be sourced by wellfield and supported by a detailed hydrogeological assessment conducted to support the 2015 PFS.

**Figure 8: (A) Madaouela location within Niger, (B) Drill map of Mad I and Agal licenses**



Source: GoviEx

**Project History:** CEA conducted grid drilling of 100-800m spacing and drilled Marilyn down to 50m and sunk a 67m shaft and 330m of drifts for test mining. Exploration in the area was commenced by CEA (a French state company) in 1963-1965. CEA’s efforts shifted to Somair in 1965. PNC, a Japanese company operated the project from 1980-2000 and completed feasibility studies in 1993 and 1999. The studies evaluated open pit and underground mining at the Marilyn and Marianne deposits and concluded that UG mining would be feasible. After limited drilling during Chinese ownership from 2003-2006 GoviEx acquired the project in 2007 GoviEx drilled out Marianne and Marilyn with >200,000m of RC and DDH from 2008-2013 and completed >300,000m of regional drilling which discovered and defined the open pit-able Miriam deposit and the UG MSNE deposits. GoviEx completed a scoping study in 2010, PFS in 2013 and updated PFS 2015 and in 2021.

**2021 PFS refresh:** The 2021 PFS outlined a 20-year mine life starting with open pit mining in years 1-6 and underground production commencing in year seven of the mine life, producing 2.48Mlbs pa at a head grade of 1,000ppm. LOM cash costs are US\$32.30/lb.

**Figure 9: 2021 PFS mine plan**

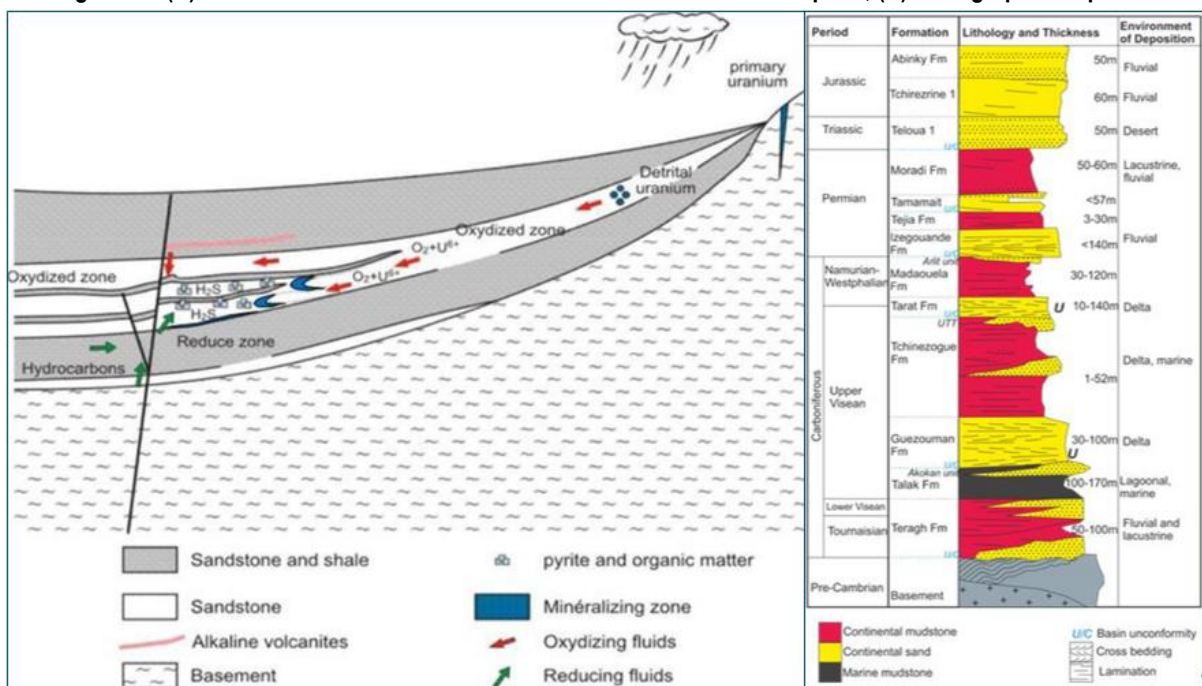
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	LOM
Open pit ore tonnes (kt)			1,237	1,281	1,316	1,388	1,402	1,160	--	--	--	--	--
UG tonnes (kt)			--	--	--	--	--	180	1,240	1,330	1,241	1,293	7,784
Tonnes mined (kt)			1,237	1,281	1,316	1,388	1,402	1,340	1,240	1,330	1,241	1,293	17,143
Ore milled (kt)			1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	20,000
Grade (ppm U3O8)			1,509	1,297	1,179	979	920	1,156	1,203	1,333	1,521	1,344	1,218
Recovery (%)			95%	95%	95%	95%	95%	94%	93%	93%	93%	93%	93.1%
Production (Mlbs)			3.2	2.8	2.5	2.1	2.0	2.5	2.5	2.7	3.1	2.7	50.0
Cash cost (incl Royalty, net Mo byproduct)			25.2	27.3	27.6	33.5	32.1	28.3	32.8	32.6	28.5	32.4	32.2
Capex (US\$m)	159	181	1	--	2	--	12	48	18	25	22	32	640

Source: GoviEx, SCP compiled mine plan from PFS document

Geology:

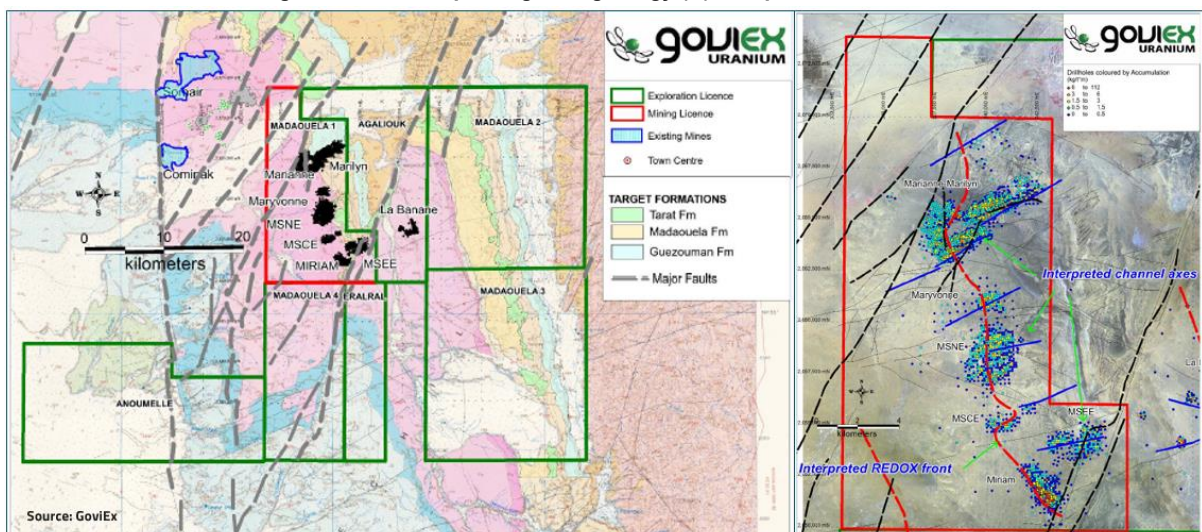
The Madaouela deposits are sandstone-hosted. Uranium mineralisation is believed to be sourced from erosion of outcropping granitic rocks to the east, transported S-SW along fluvial channels and deposited along a redox-front boundary. Uranium occurs in the form of pitchblende and coffinite as disseminations in the matrix of sandstone. The stratigraphic sequence consists of alternating sandstones and mudstones. Mineralization is primarily hosted in the contact between the underlying Talak argillite (100-170Ma) and the Guezouman sandstone. Deposition is controlled by the reducing environment and lesser permeability of the Talak argillites and the paleo groundwater redox boundary in the Guezouman sandstone. **Key takeaways:** Sandstone hosted deposits account for 25-30% of global production and are common among African uranium deposits. As with the Akouta, Arlit and Imouraren deposits, mineralisation forms in one tabular horizon. The style of deposit is well understood both in national and global contexts. Given the topography and location, grid pattern drilling at wide spaces, interpreting redox fronts, and advancing prospective targets to tighter spacing has proven an effective method of exploration. Mineralization is shallow and the topography is flat, therefore amenable to low-cost RC drilling.

Figure 10: (A) Schematic cross section of a fluvial sandstone uranium deposit; (B) Stratigraphic sequence



Source: GoviEx

Figure 11: Plan map of regional geology (B) interpreted redox front



Source: GoviEx



**Madaouela R&R: 138Mlbs supports 20-year mine life with significant resource conversion optionality**

Currently resources stand at 46.5Mt at 1,351ppm U<sub>3</sub>O<sub>8</sub> for 138Mlbs including 29.3Mlbs at 1,031ppm U<sub>3</sub>O<sub>8</sub> of open pit and 109.1Mlbs at 1,474ppm of underground resources. The current MRE is sufficient to sustain more than double the current PFS mine plan with significant reserve conversion potential at higher uranium prices. The drill database includes 518,170m of RC drilling and 11,452m of RC/DD drilling on the MAD1 licence and a further 57,880m on the other licences. The resource was estimated using 2D methods, except for more complicated areas of Marianne/Marilyn and Miriam where 3D methods were used. Grades were estimated using co-kriging thickness (Th) and grade-thickness (GTh).

**Figure 12: Madaouela resource and reserve summary**

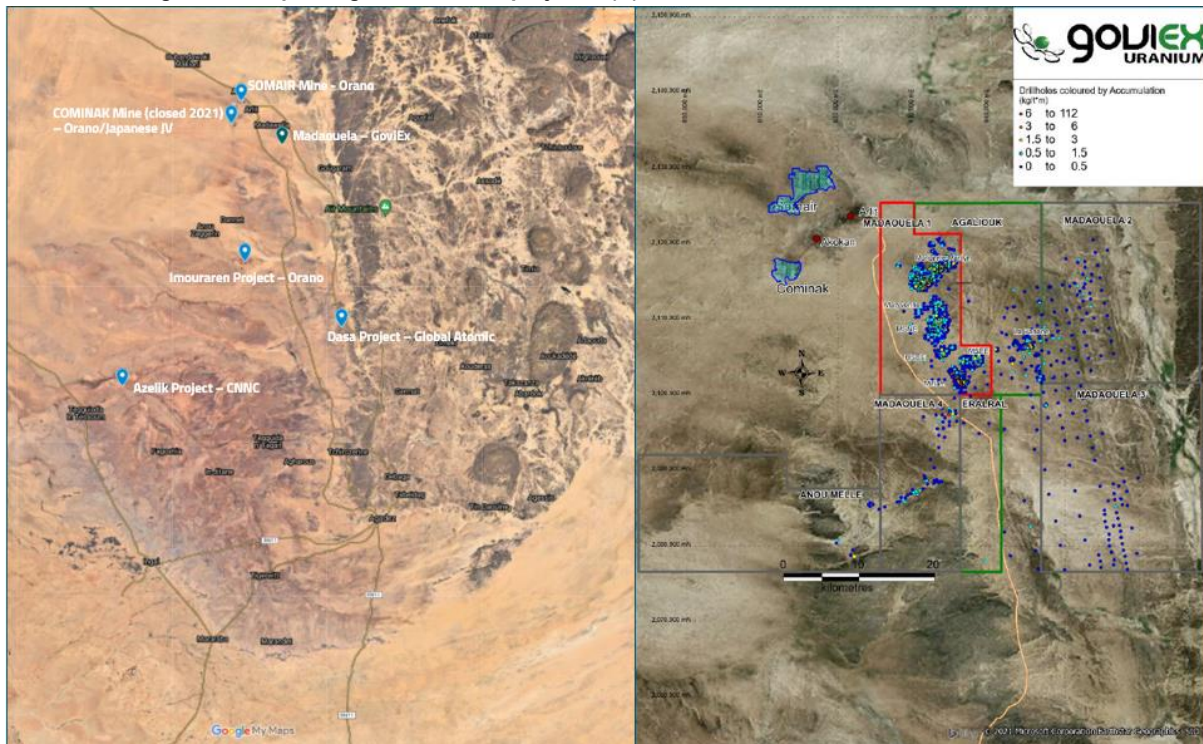
Property	Type	Reserves (2P)			Resources (M&I)			Resources (Inferred)			Resources (Total Contained)		
		Tonnes (Mt)	U308 grade (ppm)	U308 (Mlbs)	Tonnes (Mt)	U308 grade (ppm)	U308 (Mlbs)	Tonnes (Mt)	U308 grade (ppm)	U308 (Mlbs)	Tonnes (Mt)	U308 grade (ppm)	U308 (Mlbs)
Marianne/Marilyn	UG	10.5	1,033	23.9	16.9	1,473	54.8	5.0	1,172	13.0	21.9	1,404	67.8
Miriam	OP	7.8	1,001	17.2	12.3	1,017	27.6	0.6	1,329	1.7	12.9	1,031	29.3
MSNE	UG	6.7	935	13.7	5.1	1,606	17.9	0.1	1,330	0.3	5.2	1,601	18.2
Maryvonne	UG	--	--	--	1.2	1,785	4.8	0.4	1,674	1.6	1.7	1,757	6.4
MCSE	UG	--	--	--	--	--	--	0.7	1,814	2.9	0.7	1,814	2.9
MSEE	UG	--	--	--	--	--	--	1.5	1,636	5.2	1.5	1,636	5.2
La Banane	UG	--	--	--	1.6	1,650	5.7	1.2	1,179	3.0	2.7	1,451	8.7
<b>Total</b>		<b>24.9</b>	<b>997</b>	<b>54.7</b>	<b>37.0</b>	<b>1,357</b>	<b>110.8</b>	<b>9.5</b>	<b>1,326</b>	<b>27.7</b>	<b>46.5</b>	<b>1,351</b>	<b>138.4</b>

Source: GoviEx 2021 PFS update; Resource as at 2 March 2016, cut-off 400ppm U308

**Exploration potential is significant**

GoviEx controls 599km<sup>2</sup> of granted tenements and 1,557km<sup>2</sup> of area under application in a highly prolific uranium trend. Orano’s SOMAIR (open pit, heap leach/mill, 5-6Mlbs per year) and COMINAK (recently closed UG mine, 3.6Mlbs/year) mines are 20km NE of Madaouela. Other major projects along the trend include Orano’s Imouraren 450Mlbs at 700ppm (reserves per Orano, 2016) open pit project, Global Atomic’s 189Mlb Dasa OP/UG project and CNNC’s 40Mlbs Azelik project. GoviEx’s exploration efforts continued to grow mineralisation through 2013, after which new discovery drilling stopped due to low uranium prices, but we are confident that in a rising price environment, Madaouela could be expanded significantly.

**Figure 13: Map of regional uranium projects; (B) Plan view of GoviEx drill holes 2008-2013**

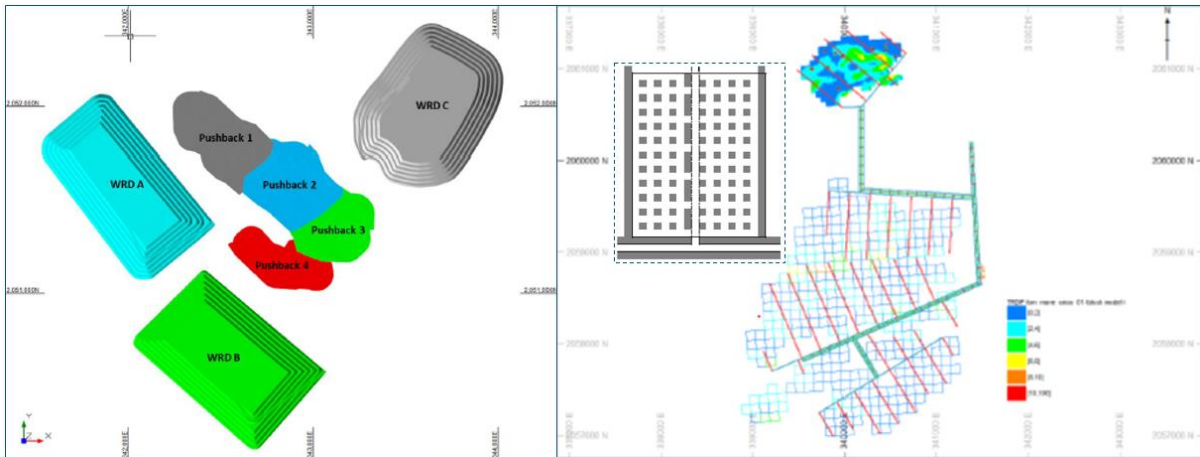


Source: SCPe, Google Maps, GoviEx

Mining and processing

Open pit mining is scheduled for the first 6 years of the mine life from the Miriam deposit, averaging 1.3Mtpa of ore and 7.8Mtpa of waste, with 30Mt of pre-strip. The OP life of mine includes a single pit providing a total of 7.8Mt of ore at 1,000ppm U<sub>3</sub>O<sub>8</sub> for 14.6Mlbs (2.5Moz at 1.9g/t AuEq at \$1850/oz Au and \$60/lb U<sub>3</sub>O<sub>8</sub>) at a strip ratio of 9.9:1 (6.0:1 excluding the 30Mt pre-strip). The pit slope angles are 53° overall including 51° within 40m of surface to 57° below 40m with one dual-lane ramp optimized for 44t trucks. The pit was constrained at a US\$50/lb U<sub>3</sub>O<sub>8</sub> price with 2% mining loss and 5% mining dilution applied at a minimum mining width of 30m and 10m vertical bench height. The pit whittle optimisation parameters included 44t haul trucks and US\$3.15/t mining costs. The PFS assumes US\$2.70/t mining costs.

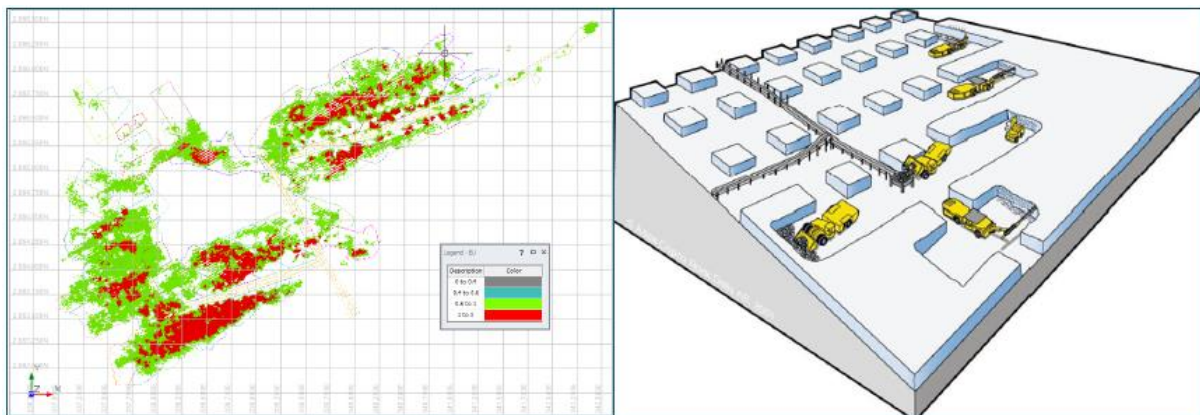
Figure 14: (A) Plan view of PFS open pit and waste dump; (B) plan view of underground development at MSNE-Maryvonne and inset schematic plan view of a production panel showing mined areas and remnant pillars



Source: GoviEx

Underground mining is scheduled for years 6.5-19 of the mine life, averaging 1.37Mtpa (~3,750tpd), and totalling 17.1Mt at 995ppm U<sub>3</sub>O<sub>8</sub> (840ppm U) for 38Mlbs U<sub>3</sub>O<sub>8</sub> 14.5tU. UG mining is selected for the Marianne-Marilyn and MSNE-Maryvonne deposits, which are within 100m of surface. The planned mining method is room and pillar with decline access. The UG mine is designed for low profile equipment with most mining seams 1.8m thickness. The mine design includes conveyors to transport ore to surface. Each deposit is planned to have its own access decline but otherwise vertical development is limited to raise boring for ventilation. The overall underground mine plan was benchmarked against the Akouta UG mine at Orano’s nearby COMINAK operation, which is also composed of flat lying bedded sandstones. COMINAK installs 1.8m tensioned anchor bolts on a regular 1m square pattern. The PFS assumes 1.8m resin bolts spaced between 1-1.5m between rings. Roof conditions are expected to be good due to sub-horizontal parting of the bedding planes, therefore it is not expected that shotcreting of the roof will be required in most areas, but a shotcreter and low-profile transmixer are included in the mine fleet for areas of poorer ground conditions. No pillar recovery was assumed in the assessment.

Figure 15: (A) Plan view of Marianne-Marilyn areas >1.8m min mining height; (B) schematic of room and pillar m

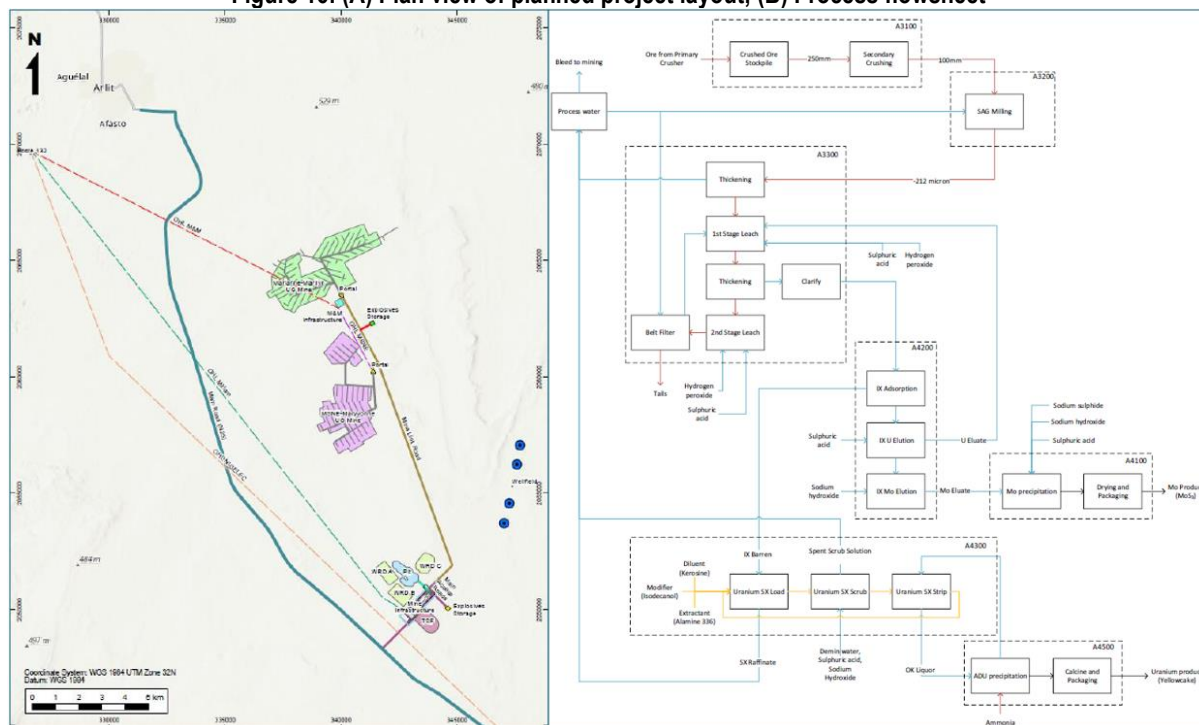


Source: GoviEx, EpiRoc

**Processing** includes size screening (course, medium and fine) and radiometric ore sorting (for UG) of medium and fine material to deliver 1Mpta (~2,750tpd) to the processing plant. The assumed ore sorting mass pull is 74.5% and the assumed 25% undersize is not sorted; we calculate that overall plant feed is 80% of mined ore at 98% ore recovery. The process plant is a standard uranium recovery mill including primary and secondary crushing, SAG mill to P80 212µm, two-stage leaching with sulphuric acid, IX to recovery molybdenum and SX to recovery uranium. SX is a standard uranium recovery method for higher tenor concentrations. 94.5% recovery is assumed for open pit material and 92.5% for UG material for overall 93.1% recovery. High grade ore is hard at 18.4kWh/t to 212µm. Overall power consumption is 6.2-7.0MW to be supplied by grid power (up to 8MW of available grid capacity).

**Our view:** Madaouela has favourable mineralogy with low carbonate content and is amenable to high recovery shorter residence-time acid leaching as opposed to a sodium bicarbonate leach. The use of radiometric ore sorting has potential to reduce capex and opex but is not a common flowsheet item. Overall most elements of the flowsheet are quite standard.

**Figure 16: (A) Plan view of planned project layout; (B) Process flowsheet**



Source: GoviEx

## Putting it all together: Permitting, Development Plan, Capex, Ramp-up

**Permitting and timeline:** The project is fully permitted so feasibility and mine financing are the main lead items. GoviEx is targeting DFS completion in mid-2022 to enable project finance completion by year-end 2023. We model a 24-month construction period commencing in 1H23 with first production in 1H25.

**Capex:** The PFS estimates US\$330m of initial capital (US\$347m including molybdenum recovery circuit). This includes US\$61.1m for 30Mt of pre-strip, US\$25m for infrastructure, US\$192m for processing (US\$209 including Mo) and US\$38m for mining. Sustaining capital includes US\$15m for processing, US\$5m for tailings, US\$5m for water and US\$276m for mining, primarily underground mine establishment and development.

**Molybdenum** is present in the deposit and test work (at 417ppm Mo) indicates it could be recovered using ion exchange to produce a by-product molybdenum concentrate. The molybdenum mineralization has not been included in the resource or reserve estimate. The 2021 PFS included a Molybdenum by-product scenario, assuming flat 472ppm head grade and 84.7% Mo recovery. Initial capex is an incremental US\$17m for the molybdenum circuit. This generates annual production of ~539t per year or incremental revenue or LOM revenue of US\$288m and a US\$150m increase in LOM FCF and a US\$57m increase to NPV<sub>8%-55/1b</sub>. As molybdenum grades have not been estimated in resources or reserves, we do not include Mo in our base case estimates.

## Modelled Scenario

**Scenario:** Our base case estimates are modelled on the reserves only case in the PFS.

**Build schedule:** We match the PFS build capex of US\$330m and two year build timeline with project commencement in 2023 and first production in 2025.

**Mining schedule:** We model open pit production only from 2025 through 2030, with the underground mine starting in late 2030 and running through 2043. To simplify the grade logic in the model we do not assume ore stockpiling. Whilst in practice we do expect some stockpiling, this does not have major impact on the economic outcomes.

**Opex:** We base operating costs on the PFS, including US\$2.70/t for open pit mining, US\$31.7/t for UG mining costs, US\$24.9/t processed and US\$8/t for G&A. There is a 5.5-12% sliding scale government royalty (5.5% if operating margins are <20%, 9% if 20-50%, 12% if >50%); we model 9%. This results in LOM cash costs of US\$32.40 and LOM AISC of US\$38.4/lb at US\$60/lb. The applicable profit tax rate in Niger is 30%. There is also a 10% Government of Niger free carry and 10% government equity stake. In practice we expect and have modelled a 20% government free carry with FCF distributions to the Government once project capital is repaid.

**Economics: PFS Mirror:** To confirm model accuracy we first modelled the PFS scenario at US\$55/lb, mirroring the PFS inputs, though with a simplified stockpiling schedule. The resulting economics match the PFS within US\$2m. **Base Case:** We increase the uranium price to our LT price of US\$60/lb. This increases NPV by 103% to US\$127m and IRR to 16%. **Molybdenum case:** Incorporating molybdenum at 1Mtpa at 472ppm and 84% recovery adds 8.0kt of LOM production. At US\$40k per tonne and assuming 75% pay-ability, NPV increases by 29% to US\$163m and IRR increases to 17%.

**Sensitivities:** Below we show NPV sensitivities to discount rate, price, open pit and underground mining costs and uranium recovery. The US\$108m base case NPV is at present whereas we estimate US\$127m NPV at build start. The strongest sensitivity is to uranium price. As highlighted earlier we think GoviEx is attractive to uranium bulls for precisely this reason; it offers significant torque to the uranium price. We think the sensitivity understates this, as it takes the mine plan as a given, whereas we would expect mine expansion, mine life extension, and significant resource growth at US\$70/lb or higher. There is also high sensitivity to the discount rate. Unlike other situations, we think this may be an advantage for GoviEx, as we suspect European or Asian utilities, potentially state linked, are likely potential investors in the project or M&A acquirers. The point here is the project's size and strategic value could draw strategic interest from parties with low or zero cost of capital. The NPV is more sensitive to UG mining costs than OP mining costs due to 119% more contained metal contribution to the mine plan. Aside from price and discount rate, met recovery is the most consequential operating parameter on the project NPV.

**Table 1: Madaouela mine economic analysis and NPV sensitivities**

	GoviEx PFS			SCPe		
	Reserves	Reserves + Mo	PFS mirror	Base case	Base case + Mo	
Uranium price (US\$/lb U3O8)	55	>>	>>	60	60	
OP ore inventory (Mt)	7.8	>>	7.8	>>	7.8	
OP grade (ppm U3O8)	1,000	>>	1,000	>>	1,000	
OP contained (Mlbs U3O8)	17	>>	17	>>	17	
Strip ratio (x)	9.9	>>	9.9	>>	9.9	
UG ore inventory (Mt)	17.1	>>	17.1	>>	17.1	
UG grade (ppm U3O8)	995	>>	995	>>	995	
UG contained (Mlbs U3O8)	37.6	>>	37.6	>>	37.6	
LOM (years)	20	>>	20	>>	20	
Throughput (Mtpa)	1,000	>>	1,000	>>	1,000	
Recovery (% U3O8)	93.1%	>>	93.1%	>>	93.1%	
LOM production (Mlbs U3O8)	50	>>	50	>>	50	
Avg annual production (Mlbs U3O8)	2.5	>>	2.5	>>	2.5	
LOM Mo production (kt)	--	14	--	--	8	
Initial Capex (US\$m)	330	347	340	340	357	
Sustaining capex (US\$m)	301	301	301	301	301	
OP mining cost (US\$/t)	2.7	>>	2.7	>>	>>	
UG mining cost (US\$/t)	31.7	>>	31.7	>>	>>	
Processing cost (US\$/t)	24.9	>>	24.9	>>	27.1	
G&A (US\$/t)	8.0	>>	8.0	>>	>>	
Cash cost - net of byproduct (US\$/lb)	32.3	22.5	31.9	32.4	28.9	
AISC (US\$/lb)	38.9	29.1	37.9	38.4	39.7	
NPV8% (US\$m)	60	117	62	127	163	
IRR (%)	11%	14%	12%	16%	17%	

Madaouela NPV (US\$m)	US\$40/lb	US\$50/lb	US\$60/lb	US\$70/lb	US\$80/lb
0.0%	-187	216	465	736	1,008
5.0%	-164	50	196	345	495
8.0%	-155	-1	108	218	328
10.0%	-150	-24	68	159	249
12.0%	-145	-41	37	114	189

Madaouela NPV (US\$m)	US\$40/lb	US\$50/lb	US\$60/lb	US\$70/lb	US\$80/lb
OP mining cost: US\$2.50/t	-149	3	113	223	333
US\$2.60/t	-152	1	111	221	330
US\$2.70/t	-155	-1	108	218	328
US\$3.00/t	-165	-10	102	211	321
US\$3.20/t	-171	-16	97	207	316

Madaouela NPV (US\$m)	US\$40/lb	US\$50/lb	US\$60/lb	US\$70/lb	US\$80/lb
UG mining cost: US\$30.0/t	-147	4	113	223	333
US\$31.7/t	-155	-1	108	218	328
US\$35.0/t	-171	-13	99	209	319
US\$40.0/t	-195	-33	86	196	305
US\$45.0/t	-220	-56	72	182	292

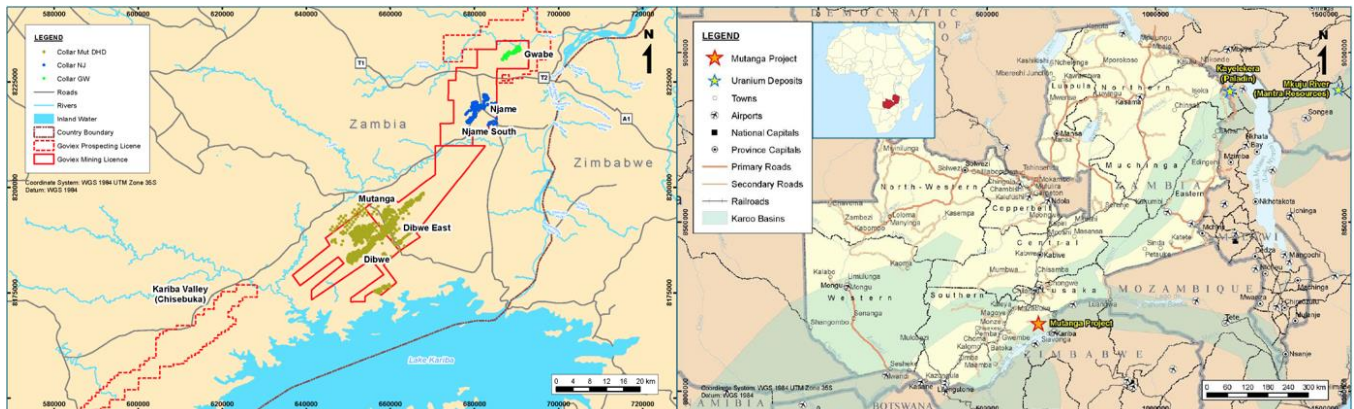
Madaouela NPV (US\$m)	US\$40/lb	US\$50/lb	US\$60/lb	US\$70/lb	US\$80/lb
Recovery: 88.0%	-192	-40	72	176	280
92.0%	-163	-9	101	209	318
93.1%	-155	-1	108	218	328
94.0%	-149	4	115	226	337
95.0%	-142	10	122	234	346

Source: GoviEx, SCPe

**Mutanga (100% GXU): Low capex 2.5Mlb heap leach project**

**Overview:** Mutanga is located in the Siavonga district of SW Zambia. The project consists of three licenses (Mutanga, Dibwe and Chirundu) totalling 720.5km<sup>2</sup>. The project is accessible by road, ~175km from the capital of Lusaka. Most of the way is on sealed main roads from Lusaka to Siavonga, with the last section on gravel roads to the project area. The project area is considered tropical wet and dry with a November-March wet season. The region is sparsely populated. The closest urban areas and towns are Siavonga (~25km from Mutanga) and Chirundu (~25km from the Chirundu license).

**Figure 17: (A) Madaouela location within Niger, (B) Drill map of Mad I and Agal licenses**



Source: GoviEx, SCPe

**Project History:** Uranium was first discovered in 1957 and exploration work intensified in the 1970s and 80s by the Government, and AGIP, an Italian petroleum company. OmegaCorp Minerals acquired the Mutanga project in 2006 and drilled 11 holes to confirm prior work by AGIP, and was acquired by Denison in 2007. African Energy commenced exploration work on Njame in 2005 and advanced the Chirundu and Kariba Valley project to PFS in 2011. GoviEx consolidated the projects by acquiring the Mutanga, Dibwe and Dibwe East deposits from Denison in June 2016 and the Gwabe, Njame and Njame South projects from African Energy in October 2017.

**2017 PEA:** The 2017 PEA combined the prior PFS on Njame and the study work done by Denison on Mutanga. It outlined a 10-year mine life producing 26.4Mlbs and LOM cash costs of US\$36.37/lb (US\$31.10/lb excl royalty) based on open pit mining and heap leach / ion exchange processing with a total of 41Mt at 333ppm U3O8 (0.7g/t AuEq at \$60/lb and \$1850/oz) mined at a 3.4x strip ratio and US\$123m of initial capex.

**Figure 18: 2021 PFS mine plan**

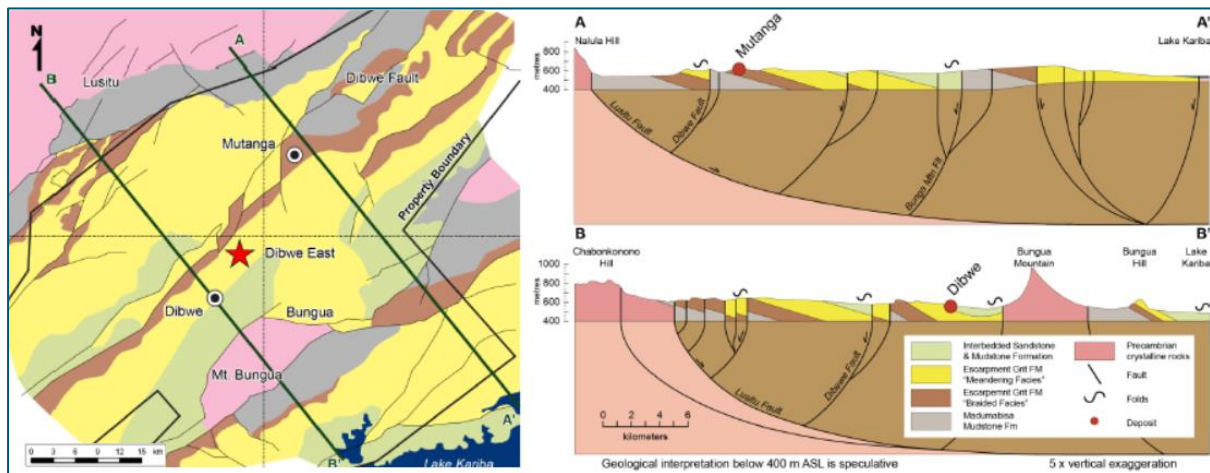
	-Y2	-Y1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	LOM
Open pit ore tonnes (kt)			2,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	2,800	40,800
Grade (ppm U3O8)			381	341	310	277	263	337	459	337	316	354	309	7,784
Strip Ratio (x)			1.5	3.4	4.0	3.7	3.8	3.7	3.9	3.7	3.5	2.2	2.6	3.4
Ore milled (kt)			2,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	2,800	40,800
Grade (ppm U3O8)			381	341	310	277	263	337	459	337	316	354	309	333
Recovery (%)			85%	90%	90%	90%	90%	86%	89%	90%	90%	85%	80%	85.0%
Production (Mlbs)			1.4	2.7	2.5	2.2	2.0	2.5	3.6	2.6	2.5	2.7	1.5	26.4
Cash cost (incl royalty)			34.3	34.0	38.8	41.2	47.3	36.6	28.1	35.4	37.7	32.9	42.0	36.4
Capex (US\$m)	49	74	--	--	--	28	--	21	--	--	--	--	11	183

Source: GoviEx from November 2017 PEA

**Geology: Karoo sediment hosted deposit**

The deposits are hosted in the Karoo Supergroup, a thick late carboniferous to early Triassic sediment package widespread of much of Southern Africa, that hosts several notable uranium deposits including Letlhakane (Botswana), Mjuku River (Tanzania), and Keyelekera (Malawi). Mineralization is hosted in sandstones of the Escarpment Grit Formation, overlying mudstones that are believed to have acted as an impermeable layer that formed a base of mineralization. Uranium is believed to be sourced from the surrounding Proterozoic gneisses and plutonic basement rocks, and precipitated along redox zones. Mineralization appears to be younger than the normal faults that cut the Escarpment Grit formation. The most abundant ore mineral is coffinite. Uranium is disseminated in sandstones, conglomerates and within mud layers.

**Figure 19. (B) Regional geology**



Source: GoviEx

**Resources**

Current resources: The project has total MRE of 60Mlbs at 283ppm (1.9Moz AuEq at 0.6g/t Au at \$60/lb and \$1850/oz) as of 20 November 2017. The resource estimates are supported by 169,121m of RC and DD drilling, split ~53/47% RC/DD. Grades were interpolated using ordinary kriging. Dibe East and Dibe are classified as inferred due to drill spacing of 100x200m at Dibe East and 100x50m at Dibe. GoviEx has prioritized infill drilling at Dibe East in 2022 to upgrade resources to the indicated category.

**Figure 20. Mutanga resource estimate as at 20 November 2017**

Property	Measured			Indicated			Inferred			Resources (Total Contained)			Strip Ratio	In-situ @US\$60/lb		AuEq	
	Tonnes (Mt)	U308 grade (ppm)	U308 (Mlbs)	Tonnes (Mt)	U308 grade (ppm)	U308 (Mlbs)	Tonnes (Mt)	U308 grade (ppm)	U308 (Mlbs)	Tonnes (Mt)	U308 grade (ppm)	U308 (Mlbs)		(\$/t)	\$m	US\$60/lb (g/t)	\$1850/oz (Moz)
Mutanga	1.9	481	2.0	8.4	314	5.8	7.2	206	3.3	17.5	288	11.1	1.4	38.1	666	0.6	0.4
Dibe	--	--	--	--	--	--	17.0	239	9.0	17.0	239	9.0	4.1	31.6	537	0.5	0.3
Dibe East	--	--	--	--	--	--	43.1	304	28.9	43.1	304	28.9	3.4	40.2	1,733	0.7	0.9
Gwabe	1.3	237	0.7	3.6	313	2.5	0.7	178	0.3	5.6	278	3.4	1.9	36.8	206	0.6	0.1
Njame	2.7	350	2.1	3.7	252	2.1	2.1	225	1.0	8.5	276	5.2	6.0	36.6	311	0.6	0.2
Njambe South	--	--	--	--	--	--	4.4	250	2.4	4.4	250	2.4	--	33.1	146	0.6	0.1
<b>Total</b>	<b>5.9</b>	<b>367</b>	<b>4.8</b>	<b>15.7</b>	<b>299</b>	<b>10.4</b>	<b>74.5</b>	<b>273</b>	<b>44.9</b>	<b>96.1</b>	<b>283</b>	<b>60.0</b>	<b>3.4</b>	<b>37.5</b>	<b>3,599</b>	<b>0.6</b>	<b>1.9</b>

Source: GoviEx, as at 20 November 2017; Resources not pit constrained but within 125m of surface, cut-off grade of 100ppm; strip ratio relates to PEA mine inventory not total MRE

**Figure 21. Mutanga 2017 PEA mine inventory by deposit**

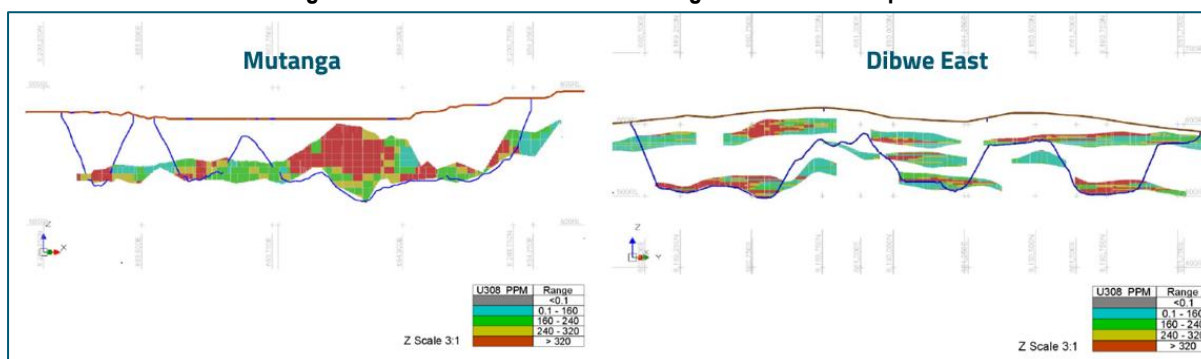
	Measured (Mt)	Indicated (Mt)	Inferred (Mt)	Total RoM (Mt)	U <sub>308</sub> (ppm)	Waste (Mt)	SR (t:t)	Total (Mt)
Dibe East			21.4	21.4	339	90.5	4.2	112.0
Dibe			4.1	4.1	250	12.1	2.9	16.2
Gwabe	0.8	2.2	0.1	3.1	345	5.9	1.9	9.0
Mutanga	1.7	6.0	1.7	9.4	346	13.0	1.4	22.4
Njame	1.6	0.5	0.6	2.7	360	16.4	6.0	19.2
<b>TOTAL</b>	<b>4.1</b>	<b>8.7</b>	<b>28.0</b>	<b>40.8</b>	<b>333</b>	<b>138.0</b>	<b>3.4</b>	<b>178.8</b>

Source: GoviEx, 2017 PEA

## Mining and processing

**Mining:** The PEA mine plan assumes conventional drill and blast, truck and shovel open pit extraction. The pit shells were optimized at US\$50/lb with 10% mining dilution at nil grade, 90% mining recovery and 80% processing recovery at slope angles of 40 degrees. The PEA did not account for ramps but noted that given the shallow nature of the pits, it expects the impact on waste to be less than 8%. The mine plan totals 11 years. Mutanga (Years 1-6) and Dibwe East (Years 2-10) for the majority of the mine plan. The mine plan assumes 5 cubic metre buckets and 44t trucks. The study assumes contractor mining and did not include mining fleet in capex. Waste rock dumps are planned adjacent to the pits. Rather than hauling ore to a central pad, the PEA plan involves three crushing and leaching areas. The PEA estimates open pit mining costs of US\$2.53/t excluding re-handle; US\$2.64/t total.

Figure 22. Cross sections of the Mutanga and Dibwe East pits



Source: GoviEx

**Processing:** The three crushing and leach areas planned are Mutanga/Dibwe East (30.8Mt), Dibwe (4.1Mt) and Njame/Gwabe (5.8Mt). Per the PEA, ore will be crushed to P<sub>80</sub> 25mm, agglomerated, stacked and treated with acidic solution. The leach pads and pregnant leach solution ponds will have a bottom liner of a clay or geosynthetic clay layer. The drainage layer will be placed, overlain by a 60mm HDPE liner. Once pregnant solution reaches a concentration of 30g/L, it will be pumped to the central processing facility or mobile ADR plant to be stripped from solution, loaded onto resin, and wasted to produce U<sub>3</sub>O<sub>8</sub>. Acid leach has been selected over alkaline leach, due to better recoveries and leach times. Test work indicates acid consumption is low at four of five deposits ranging from 3.9kg/t at Mutanga to 6.4 at Dibwe East to 9.3 at Njame. The Gwabe deposit has higher acid consumption at 18.5kg/t and ferric sulphate may be used to speed extraction from slow-leaching silicates. Overall process recovery of 88% is assumed in the PEA with test work at -25mm indicating 75-93% recovery by deposit including 85% at Mutanga and 93% at Dibwe East. Processing costs total US\$7.08/t.

**Infrastructure and other:** Project infrastructure includes a mine camp, pregnant and barren solution ponds and administrative and civil buildings. Power will be provided by a 66kV power line from Chirundu to site. A new site access road will be constructed using a right of way. The resettlement action plan includes the resettlement of 1,300 people from 19 local villages. The PEA estimates 384 employees. Total G&A costs are US\$1.49/t including environmental and product transport.

## Putting it all together: Permitting, Development Plan, Capex, Ramp-up

**Permitting and timeline:** GoviEx is progressing Mutanga to enter production two-years behind Madaouela, most likely 2027 on current timelines. The Mutanga and Dibwe deposits had a mining permit but the environmental permit needs to be refreshed; this is targeted for completion in 2022. In parallel, GoviEx is drilling out Dibwe East to upgrade inferred lbs to indicated for inclusion in PFS and DFS studies.

**Capex:** The PEA estimates US\$123m including US\$83m for the plan. Mine mobilization costs are not included as this is assumed to be borne by the contractor. US\$59.5m of sustaining capital is assumed, of which US\$27m relates to processing; most of this is the establishment of the Dibwe and Njame/Gwabe satellite heap leach and ore processing sites.

## Modelled Scenario

**Scenario:** Our base case estimates match the inputs from the PEA.

**Build schedule:** We assume a two-year mine build starting in 2025 with first production in 2027.

**Opex:** We base operating costs on the PEA, including US\$2.64/t for open pit mining, US\$7.08/t for processing and US\$1.49/t for G&A, environmental and product transport. The PEA assumed 9% royalty costs but Government royalties have since been amended to 5%. This generates LOM cash costs of US\$34.18/lb (PEA US\$36.40) and LOM AISC of US\$36/lb. The applicable profit tax rate is 30%. GoviEx owns 100% of the project; there is no Government free carry.

**Economics:** **PEA Mirror:** To confirm model accuracy we first modelled the PFS scenario at US\$58/lb, mirroring the PFS inputs, though with a simplified stockpiling schedule. Our modelled build start NPV matches the PEA at US\$112m NPV<sub>8%</sub>. **Base Case:** We increase the uranium price to our LT price of US\$60/lb. We also model a 3.7x strip ratio vs 3.4x in the PEA to account for the addition of ramps to the pits. We also lower the royalty rate to 5% to match the current Zambian Govt royalty rate. The lower royalty more than offsets the strip ratio, resulting in a US\$1.0/lb decrease in cash costs and AISC. This increases NPV by 29% to US\$145m and IRR to 25%. **Upside:** At US\$70/lb, NPV<sub>8%</sub> increases by 72% to US\$248m and IRR increases to 35%.

**Sensitivities:** Below we show NPV sensitivities to discount rate, price, open pit mining costs, strip ratio and uranium recovery. The US\$115m base case NPV is at present whereas we estimate US\$145m NPV<sub>8%</sub> at build start. The strongest sensitivity is to uranium price. Sensitivity to met recovery is high, while sensitivities to open pit mining costs and strip ratio are moderate.

**Table 2: Mutanga mine economic analysis and NPV sensitivities**

	GoviEx PEA		SCPe		Mutanga NPV (US\$m)					
	Base Case	PFS mirror	Base case	Upside	US\$40/lb	US\$50/lb	US\$60/lb	US\$70/lb	US\$80/lb	
Uranium price (US\$/lb U3O8)	58	>>	60	70	Discount rate: 0.0%					
OP ore inventory (Mt)	40.8	>>	>>	>>	-46	150	327	502	678	
OP grade (ppm U3O8)	333	>>	>>	>>	5.0%	-59	62	172	280	389
OP contained (Mlbs U3O8)	30	>>	>>	>>	8.0%	-61	32	116	199	282
Strip ratio (x)	3.4	>>	3.7	>>	10.0%	-61	17	88	158	228
LOM (years)	11	>>	>>	>>	12.0%	-60	6	66	126	185
Throughput (Mtpa)	400	>>	>>	>>	Mutanga NPV (US\$m)					
Recovery (% U3O8)	88%	>>	>>	>>	US\$40/lb	US\$50/lb	US\$60/lb	US\$70/lb	US\$80/lb	
LOM production (Mlbs U3O8)	2.6	>>	>>	>>	OP mining cost: US\$2.25/t	-31	58	141	224	307
Avg annual production (Mlbs U3O8)	2.4	>>	>>	>>	US\$2.50/t	-50	41	125	208	291
Initial Capex (US\$m)	123	>>	>>	>>	US\$2.64/t	-61	32	116	199	282
Sustaining capex (US\$m)	60	59	>>	>>	US\$3.00/t	-91	7	93	176	259
Royalty (%)	9%	>>	5%	>>	US\$3.25/t	-113	-10	77	160	243
OP mining cost (US\$/t)	2.64	>>	>>	>>	Mutanga NPV (US\$m)					
Processing cost (US\$/t)	7.08	>>	>>	>>	US\$40/lb	US\$50/lb	US\$60/lb	US\$70/lb	US\$80/lb	
G&A (US\$/t)	1.49	>>	>>	>>	Strip Ratio 3.0x	-31	57	141	224	307
Cash cost - incl royalties (US\$/lb)	36.4	36.4	35.4	35.9	3.4x	-48	43	126	209	293
AISC (US\$/lb)	38.2	38.2	37.2	37.7	3.7x	-61	32	116	199	282
NPV <sub>8%</sub> (US\$m)	112	112	145	248	4.0x	-75	21	105	188	271
IRR (%)	25%	22%	25%	35%	4.5x	-99	1	87	170	253
					Mutanga NPV (US\$m)					
					US\$40/lb	US\$50/lb	US\$60/lb	US\$70/lb	US\$80/lb	
					Recovery: 75.0%	-127	-35	42	113	184
					80.0%	-101	-8	70	146	221
					88.0%	-61	32	116	199	282
					90.0%	-52	42	127	212	297
					92.0%	-43	51	138	225	312

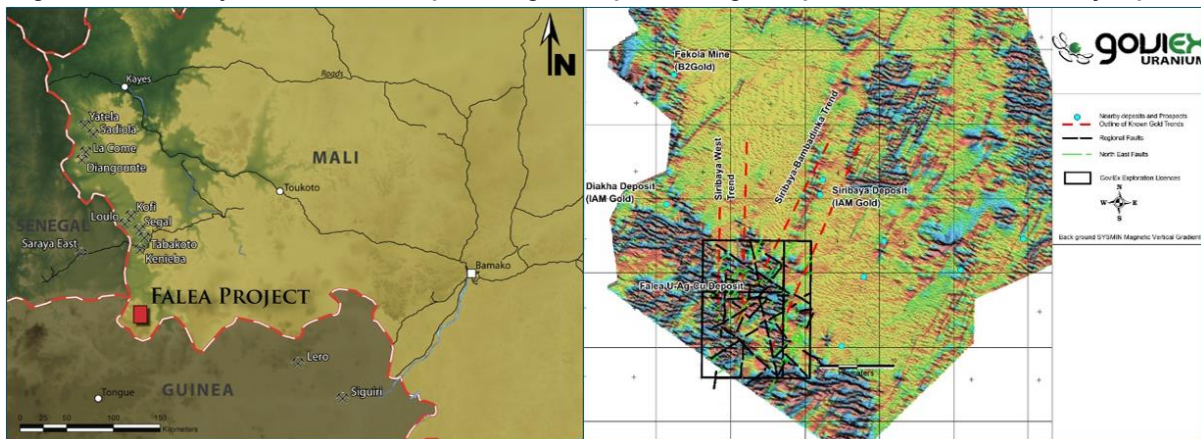
Source: GoviEx - November 2017 Mutanga PEA; SCPe; NPVs at build start vs NAV sensitivities at present



## Falea (100% GXU): Uranium, gold and copper exploration project

Falea, located in Mali near the border with Senegal and Mali has a big licence (267km<sup>2</sup>) and is near other notable projects for both gold (13km from IAMGOLD's Diakha-Siribaya, 1.9Moz at 1.5g/t in 2019 MRE) and uranium (80km from Orano's Saraya East property). Moreover, it already hosts a material resource at 31Mlbs U<sub>3</sub>O<sub>8</sub> at ~890ppm with 63Mlbs Cu and 21Moz Ag adding another ~30% to in-situ value and grade (totalling ~1.4Moz AuEq at 2.8g/t or 44Mlbs at 1,273ppm U<sub>3</sub>O<sub>8</sub>Eq). Drilling is planned for 2022, testing both gold, copper, and uranium targets. Uranium exploration on the property is more advanced but gold in soil anomalies are also present and given its proximity to other gold projects, the gold potential here may be untapped and high upside.

Figure 23: Falea Project location and map showing outcrops, aeromag, interpreted structures and nearby deposits



Source: GoviEx

**Geology and Resource:** Defined uranium resources for four zones, with average depths of 90-350m below surface. Uranium mineralization occurs primarily as pitchblende and coffinite hosted in the Kania sandstones and underlying argillites overlying older Birimian volcanics. Copper mineralization occurs as chalcopyrite and is not oxidized and occurs in the sandstone. The deposition model was originally thought to be a combination of a roll front and SEDEX deposit but the current interpretation is that mineralization is unconformity related.

Figure 24: 2015 NI 43-101-compliant mineral resource estimate

	Tonnes (Mit)	U3O8 (ppm)	Copper (%)	Ag (g/t)	U3O8 (Mlb)	Copper (Mlb)	Ag (Moz)	In-situ Value (\$m)	In-situ (U) (\$/t)	In-situ (U) (\$m)	In-situ (U) (%)	AuEq Moz	AuEq g/t
Indicated	6.88	1,150	0.16%	72.8	17.4	24.4	16.1	1,540	224	1,044	68%	0.8	3.8
Inferred	8.78	690	0.20%	17.3	13.4	38.7	4.9	1,096	125	804	73%	0.6	2.1
<b>Total</b>	<b>15.66</b>	<b>892</b>	<b>0.18%</b>	<b>41.7</b>	<b>30.8</b>	<b>63.1</b>	<b>21.0</b>	<b>2,636</b>	<b>168</b>	<b>1,848</b>	<b>70%</b>	<b>1.4</b>	<b>2.8</b>

Source: GoviEx 2015 MRE technical report; In-situ value calculated at US\$60/lb U3O8, US\$4.50/lb Cu and US\$24/oz Ag; cut-off at 300ppm U3O8 at US\$75/lb, AuEq at US\$1850/oz

**Our view – value to be unlocked here, we assign US\$66m in-situ valuation:** Falea is in for free in the market cap and its location, near several prolific gold assets, gives it significant standalone value. At this stage we do not model Falea as a standalone uranium mine but instead value it at US\$1.50/lb U<sub>3</sub>O<sub>8</sub>Eq for (~\$46/oz AuEq) for US\$66m. The asset could see significant value re-rating following 2022's gold-copper exploration at which point the gold-copper assets may be separated into a gold-copper primary vehicle.

## Risks

Price: While every uranium miner is sensitive to the uranium price, GoviEx's has higher sensitivity than peers due to its large resource endowment with grades relatively near cut-offs for mining and processing methods. We think GoviEx offers more upside to rising uranium prices but NAV is also more sensitive to lower prices.

Inflation: Capex inflation is currently high in the sector and may result in higher mine build costs than in studies. Operating costs at Madaouela are less exposed in our view as the recent closure of COMINAK would likely result in more operators being available.

Geopolitical stability: While government/political instability at the national level have not had major disruptive impact on mine productivity in West Africa, there has been elevated political instability in neighbouring countries in 2021/2022. This may result in sanctions, temporary changes to flight availability and short term supply chain disruption with tail risk for lower probability more severe outcomes.

Security: Orano's operations in Niger have been subject to two incidents over the past decade. These have materially affected production volumes and we think Orano may attract more attention due to its links to the French State. With that said, security is a major consideration for operating in the Sahel and Sahara regions.

Supply Chain: The supply routes from ports in Togo and overland into Niger have been established by Orano. With that said, Niger is a landlocked country and the logistics to port cover a large distance. Mutanga should be relatively simple by comparison as Zambia is a developed mining jurisdiction and the project is well located in country.

Operations: At Madaouela the open pit portion of the mine plan appears relatively low risk. The main risks to the underground in our view are productivity using the room and pillar method to sustain a 1Mtpa operation, the use of a conveyor may take time to ramp up and / or using vehicle haulage would require additional ventilation in the mine plan. At Mutanga the operation is relatively straightforward. We view the main operational challenge to be water management during the wet season.

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**NEUTRAL:** The stock's total returns are expected to be in line with the overall market

**SELL:** The stocks total returns are expected to be materially lower than the overall market

**TENDER:** The analyst recommends tendering shares to a formal tender offering

**UNDER REVIEW:** The stock will be placed under review when there is a significant material event with further information pending; and/or when the research analyst determines it is necessary to await adequate information that could potentially lead to a re-evaluation of the rating, target price or forecast; and/or when coverage of a particular security is transferred from one analyst to another to give the new analyst time to reconfirm the rating, target price or forecast.

**NOT RATED ((N/R):** The stock is not currently rated

Research Disclosure		Response
1	SCP and its affiliates collectively beneficially owns 1% or more of any class of the issuer's equity securities <sup>1</sup>	NO
2	The analyst or any associate of the analyst responsible for the report or recommendation or any individual directly involved in the preparation of the report holds or is short any of the issuer's securities directly or through derivatives	YES
3	An SCP partner, director, officer or analyst involved in the preparation of a report on the issuer, has during the preceding 12 months provided services to the issuer for remuneration other than normal course investment advisory or trading execution services	NO
4	SCP has provided investment banking services for the issuer during the 12 months preceding the date of issuance of the research report or recommendation	NO
5	Name of any director, officer, employee or agent of SCP who is an officer, director or employee of the issuer, or who serves in an advisory capacity to the issuer	NO
6	SCP is making a market in an equity or equity related security of the issuer	NO
7	The analyst preparing this report received compensation based upon SCP's investment banking revenue for the issuer	NO
8	The analyst has conducted a site visit and has viewed a major facility or operation of the issuer	NO
9	The analyst has been reimbursed for travel expenses for a site visit by the issuer	NO

Sprott Capital Partners Equity Research Ratings:

Summary of Recommendations as of February 2022	
BUY:	51
HOLD:	1
SELL:	0
UNDER REVIEW:	0
TENDER:	1
NOT RATED:	0
TOTAL	53

<sup>1</sup> As at the end of the month immediately preceding the date of issuance of the research report or the end of the second most recent month if the issue date is less than 10 calendar days after the end of the most recent month