This note is to highlight interesting stocks which come across our desk.

The Prospector

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Stocks Mentioned	Market Cap
Vector Resources VEC.ASX	A$34m
Resolute Mining* RSG.ASX	A$881m
Loncor Resources LN.TSX	C$13m
Orca Gold ORG.TSX	C$99m
Kilo Gold Mines KGL.TSX	C$3.4m
AngloGold Ashanti ANG.JSE	R75,932m
Barrick ABX.TSX	C$30,984m

*Full research available

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Vector Resources Limited VEC

Brief History

Vector Resources (VEC) started exploring in the Democratic Republic of Congo (DRC) in 2016. The initial focus was a resource at Maniema and the joint ventures with Fimosa and SOKIMO over areas of past and present gold mining. The most advanced is the Adidi-Kanga gold project, which has already been the subject of feasibility and environmental impact studies by AngloGold Ashanti.

The acquisition of Adidi-Kanga was why we covered Vector Resources in an edition of *The Prospector* in July 2018, as it appeared to be one of those rare opportunities for a junior to rapidly advance development with the benefit of another company having done the hard work and spent the capital on feasibility studies and plant & equipment.

What looks interesting?

The completion of the transaction took longer than we or the company expected but, based on recent announcements, making sure all the agreements were in place was worth it. The company's geologists and consultants have reviewed AngloGold Ashanti's data during the period that the acquisition was being bedded down and have come up with some significant Exploration Targets.

VEC now has 60% of Adidi-Kanga (which has a historical resource of 3.2Moz), Exploration Targets in the same tenements of a further 12.5-25.2Moz (which from our preliminary review seem quite realistic) and ~70% of the plant & equipment required to get a process plant into production. The political environment in the DRC also appears to have stabilised, with the new President in place for three months and relations with mining companies now on a more even keel.

Using the same methodology as our July 2018 Prospector, which considered Resolute Mining (ASX: RSG) equity investments in explorers operating in the DRC and Sudan and the Exploration Targets recently generated, we can imply a value for the Adidi Kanga project area of A$38m-A$700m (2cps -33cps) if VEC was used as an investment and development vehicle for a larger company. Using the same method on other resources in VEC's portfolio would add another 1-3cps (combined 3-36cps).

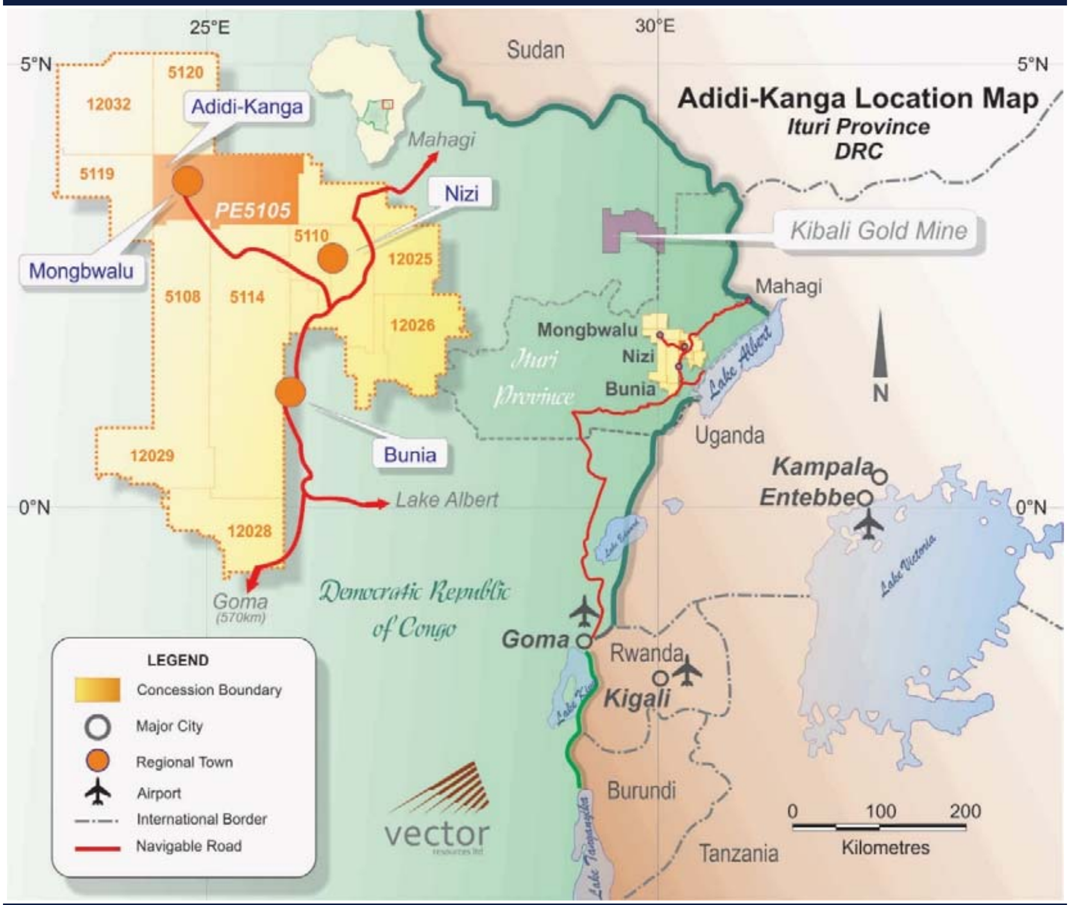
We have also updated our preliminary cash flows and NPVs for the Adidi Kanga project, taking into account the previous work by AngloGold Ashanti, the Exploration Targets derived by VEC and the latest NI 43-101 for Barrick/AngloGold's Kibali property. Using a US$1300/oz gold price, we calculated the NPV for VEC's equity ranging from negative US$3m for a small gravity project on the known resource to US$411m for a CIL plant treating underground ore and transitioning to a larger open pit operation and incorporating ~75% of the Exploration Target tonnage. We feel that the latter option is realistic and equivalent to 26cps.

What are the assets?

Adidi–Kanga

Adidi-Kanga was the subject of a feasibility study by AngloGold Ashanti (ANG) which explored the tenements between 2005 and 2013. ANG spent US$520m on exploration and development activities, including 173,000 metres of drilling and the commencement of initial mine construction. VEC estimate that 70% of the equipment required for the project was purchased and delivered to site, including parts of the plant such as crushers, ball mills, pumps and screens (but no underground equipment).

Figure 1: Location of Adidi-Kanga



Source: VEC

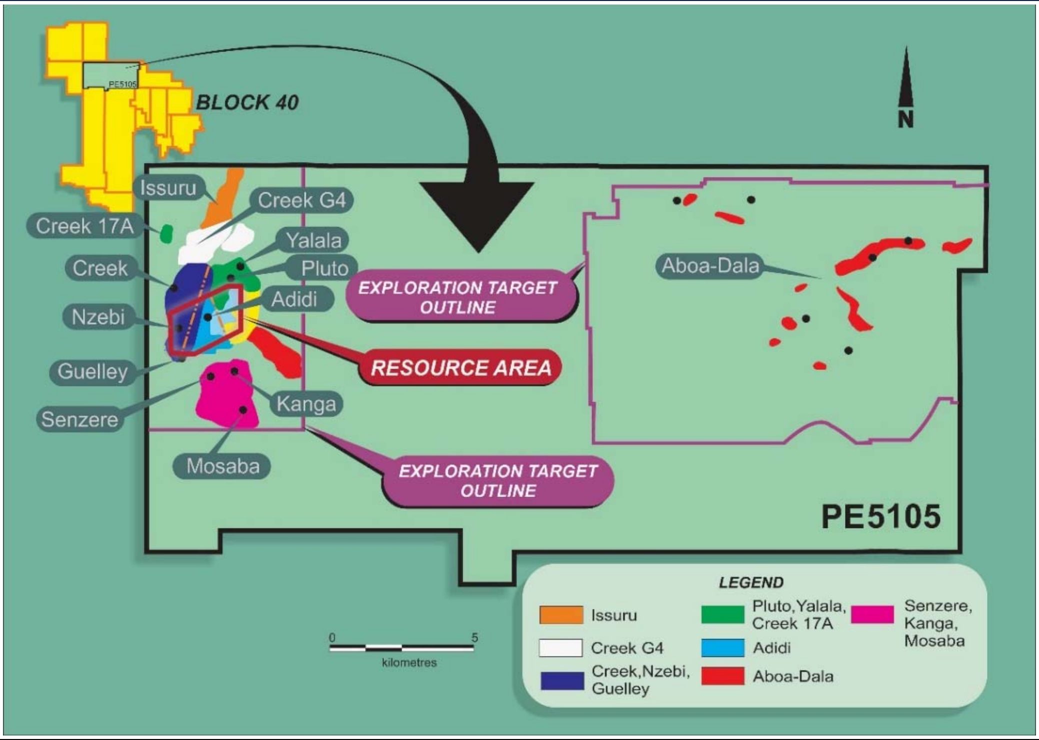
VEC announced an Indicated and Inferred Resource (JORC 2012) in February 2018 and this now stands at 15Mt at 6.6g/t, or 3.2Moz, and comprises an open pit resource of 4.9mt at 5.55g/t (0.889Moz) down to 100 metres and an underground resource of 10.0Mt at 7.19g/t (2.327Moz).

Exploration Targets of 12.5Moz to 25.2Moz in addition to existing resource of 3.2Moz

Historical drilling outside the resource intercepted mineralisation extending over 4km along strike and in widths of 400-600 metres. This is within a 14km zone of outcropping mineralised mylonite additional to that included in the Exploration Target. New zones of gold mineralisation identified by Vector's geologists following evaluation of historical geological data compiled by AngloGold Ashanti has generated 13 Exploration Targets. These targets have a size range from 102Mt @ 3.8g/t Au for 12.5Moz to 117Mt @ 6.7g/t Au for a combined 25.2Moz ("Exploration Target"). The Exploration Targets add to the existing Adidi-Kanga Mineral Resource of 15.0 Mt @ 6.6g/t gold for 3.2Moz.

Several mineralised zones & old mining operations to be followed up

Figure 2: Exploration Targets



Source: VEC

Figure 3: Exploration Targets at Adidi-Kanga Tenement

Exploration Targets	Target Size					
	Lower limit of Target Range			Upper Limit of Target Range		
	Million Tonnes	Grade g/t Au	Million Ounces	Million Tonnes	Grade g/t Au	Million Ounces
Issuru	5.4	2.6	0.45	6.2	7.7	1.54
Creek G4	8.7	3.7	1.03	10	5.9	1.9
Creek D7	20	3.4	2.19	23	6.8	5.03
Adidi Kanga D7- Central	7.4	2.7	0.64	8.5	6.3	1.71
Pluto-Adidi North	6.3	1.5	0.3	7.2	5.9	1.37
MYX East - Tchangaboli	9.7	2.1	0.65	11.1	6.6	2.35
Tchangaboli SE ext.	4.8	2.1	0.32	5.5	6.6	1.16
Senzere, Maranga, Mosaba, Massifs B;C;D	25.9	5.8	4.83	29.8	6.3	6.04
Nzebi West - Guelley	3.6	7.5	0.87	4.1	12.3	1.64
Yalala	2.7	0.5	0.04	3	0.8	0.08
Aboa/Dala	2.7	1	0.09	3.1	3.5	0.35
Creek 17A	0.3	3.4	0.03	0.3	6.8	0.07
Nzebi SW	4.2	7.5	1.01	4.8	12.3	1.91
	Lower Target Range			*Upper Target Range*		
	Million Tonnes	*Grade g/t Au*	*Million Ounces*	*Million Tonnes*	*Grade g/t Au*	*Million Ounces*
	102	*3.8*	*12.5*	*117*	*6.7*	*25.2*

Source: VEC

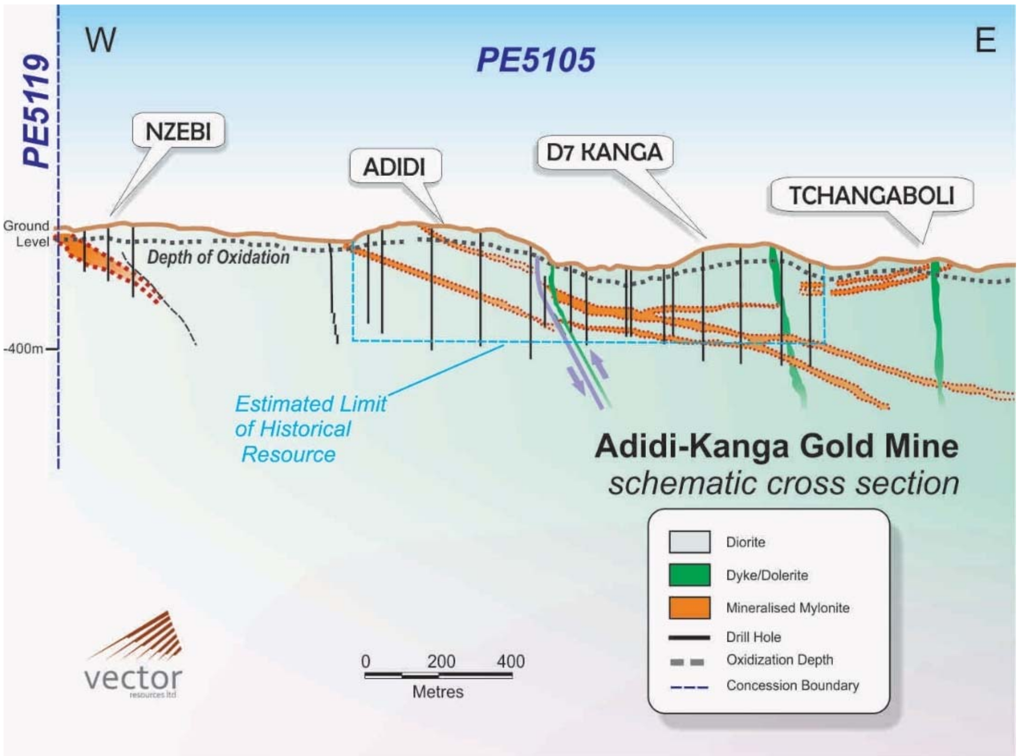
Potential to optimise cash flow and NPV through grade management in early years

We don't think it is a big stretch for VEC to generate a resource at the bottom end of the exploration target range.

> *"The PE 5105 Exploration Targets have been generated with the use of a substantial geology data archive containing reports, mapping, gold production figures and information relating to historically executed exploration programs. The exploration records date from the early commercial exploitation of the Kilo Moto district by the Belgian colonial government mining entity SOKIMO, through to modern exploration programs conducted by groups such as Kimin, BRGM, Gutierrez Andrade, and finally ANG during the period 2005 to 2013."* - VEC (12 March 2019)

Typically, exploration targets derived by explorers the size of VEC would be an arm waving exercise with minimal geological detail to back them up. Those outlined seem very consistent with past mining and the resources left behind.

Figure 4: Adidi Kanga Mine cross section and targets



Source: VEC

Implied value using project cash flow estimates

ANG's initial plan called for development of the underground operation, followed by the expansion of the project, which is to be funded by internal cash flow. Under the initial plan, up front capital investment was estimated at US$345m, with annual gold production at an average of 130,000oz in the first three years of full production at an estimated total cash cost of US$760/oz (nominal – range in costs from US$615/oz to US$859/oz). The feasibility study envisaged two phases of development: Phase 1 based on 500ktpa in years one to five; and Phase 2 on 1Mtpa.

As discussed in our last note on VEC, we have utilised some of the data from the AngloGold feasibility study and discussed options with VEC management to build four simple project cash flow models. The first three are unchanged from previous work: 1) based on a gravity circuit alone; 2) a gravity circuit for the first two years followed by the construction of a CIL circuit; 3) CIL and gravity circuit from the outset; and 4) which attempts to take into account the reserve, exploration target and what we think would be a reasonable development option (i.e. an underground mine to start operations at 1Mtpa followed by an open pit operation at 5Mtpa). Operating costs and capital expenditure are broadly based on Barrick/AngloGold Ashanti's Kibali operation, which is 3.6Mtpa open pit and 3.6Mtpa underground and had a capital cost budget of US$371m. Our capex assumptions appear to be relatively conservative and operating costs have been increased to reflect the current level of certainty.

Figure 5: Production options and valuation estimates

	Option 1 Gravity	Option 2 Transition	Option 3 CIL	Option 4 CIL UG->OC
LoM average milling rate (ktpa)	460	795	1,000	3,868
Gold Grade (g/t)	6.6	6.6	6.6	4.2
Recovery (%)	68%	88%	90%	85%
LoM average production (koz pa)	66	148	191	445
LoM average VEC equity production (kozpa)	40	89	114	267
Site operating costs (US$/oz)	900	717	700	716
Additonal Capex (US$m)	90	200	200	300
Ave op. cash flow pre-tax (US$mpa)	22	91	96	253
Project NPV @ 10% pre tax (US$m)	62	327	387	1,460
VEC Equity (US$m)	37	196	232	875
BVI Equity after tax (US$m)	13	128	170	736
VEC equity after tax & royalties (US$m)	-4	79	85	411
VEC equity A$m at AUD 73c	-6	109	117	564
VEC value A$ps	0.00	0.05	0.05	0.26

Source: VEC, Anglogold Ashanti, Baillieu

We feel that Option 4 is the most realistic as it starts with an 8g/t underground operation for five years at an operating cost of US$600+/oz and a capital cost of US$200m, which would generate more than enough cash flow to fund a 5Mtpa open pit operation mining 4g/t mineralisation at <US$800/oz.

These estimates are very broad in nature and it will not be until VEC completes a DFS (potentially Q4 2019) that we can firm them up. The DFS would entail infill drilling, mine planning and engineering (including determining suitability of all the plant & equipment on site).

Implied value using RSG's African investment multiples

As we did in our last note, we have used Resolute Mining's (RSG) investments in three exploration companies which are active in the DRC and the Sudan. Rather than directly exploring the greenstone belts in the Sudan and DRC, RSG has invested in three TSX listed companies, Loncor (LN), Orca Gold (ORG) and Kilo Gold Mines (KL) – all of which have had various degrees of success and are actively trying to convert exploration results into resources. RSG has paid between A$17/oz and A$58/oz for the resources which are currently delineated or between A$3/oz and A$40/oz on a mark to market basis. Upon aggregating the total cost and total market value as well as the equity share of resources, we arrive at a weighted acquisition cost of A$41/oz or an equity market value of A$20/oz.

Figure 6: Implied value of VEC's exploration target and resources using RSG's investments

		Acqn cost A$/oz	Mkt value A$/oz
		41	20
		Implied value of ounces	
	Moz	A$m	A$m
Current resource (100%)	3.2	131	64
Lower Expln Target (100%)	12.5	512	251
Combined (100%)	15.6	643	315
Current resource (100%)	3.2	131	64
Upper Expln Target (100%)	25.2	1035	507
Combined (100%)	28.4	1166	571
VEC Equity		A$ps	A$ps
Resources A$ps	1.9	0.04	0.02
Resources & Lower tgt A$ps	9.4	0.18	0.09
Resources & Upper tgt A$ps	17.0	0.33	0.16

Source: Baillieu, VEC

Utilising RSG's investments as a proxy for what might be paid for VEC, on a resource (only) basis, the implied valuation for VEC would be between A$0.04 and A$0.09 per share. However, if VEC is successful in turning its exploration targets into resources the implied valuation increases significantly to a range of A$0.09 to A$0.33ps.

Our view is that, barring any changes in sovereign risk or civil unrest, the Adidi-Kanga project (including nearby targets) is worth 20-30cps and potentially significantly more as exploration results flow in and VEC can demonstrate the ability to construct a plant and mine. VEC has added to the technical team over recent months which will assist greatly in project delivery.

Other exploration properties

SOKIMO Joint Venture

VEC has an option to enter a JV with Societe Miniere de Kilo Moto (SOKIMO) over the Kibali South Gold Project and the Nizi Gold Project. A payment of US$350,000 was made to SOKIMO for an option to enter a JV and allow VEC to carry out due diligence and negotiate the terms of the JV along with the agreed scope of works. VEC will effectively earn 60-70% equity in the projects through funding exploration via a decision to develop.

A good option but the focus has been on the Adidi-Kanga transaction.

VEC has not released any news on the terms of the earn-in or when it will come into effect and it appears to have had negotiations delayed as the government beds down the new mining regulations while positions in the government departments are settled following the Presidential election. We have therefore just assumed terms broadly outlined in December 2017.

Nizi

This tenement includes an old Belgian mine and a series of en echelon veins that have alluvial, oxide and sulphide gold mineralisation. The King Leopold Mine, which was mined between 1908 and 1960, was one of three mines to produce around 1.5Mt of tailings. The other sources being Linga and Saint-Eloi Mines.

Mineralisation at King Leopold has not been closed off at depth and appears to extend along strike

Vector's in-house 3D modelling of the King Leopold underground workings, based on level/stoping grades, stoping sections and level plans collected during due diligence, estimate that around 375,000oz (684,880t @ 17g/t) was extracted from the King Leopold mine between 1908 and 1960. It's Vector's intention to explore options of restarting underground production or mining the Nizi Veins 1-3 via an open pit. The steeply dipping Nizi veins 1, 2 & 3 outcrop under the Baluma oxide identified an exploration target of between 8-10Mt at 0.8-3.1g/t for 206,000 to 1,047,000 ounces. The expectation is that this potential oxide resource will be drill tested with a view to establishing an open cut operation, followed by an underground extraction of the down dip extension of the King Leopold Mine.

Drill testing of down-dip extensions of ore zones appears to be a straight forward way of increasing the resource base.

South Kibali

The current South Kibali inferred resource is 28Mt at 1.63g/t for 1.47Moz, which the bulk of sits inside an open pit shell. Exploitation of the resource could involve building a plant or toll treating through the Kibali pit. As the terms of the JV have yet to be finalised, we have assumed that VEC effectively pays SOKIMO US$7.50/oz for the resource upon decision to mine.

Maniema Gold project

VEC acquired a 70% interest in the Maniema gold project in December 2016 from a local company at cost of $4.85m, paid through a mixture of cash and shares, with a further A$600,000 due on the decision to develop the project.

Focus will be on finding the high grade source of alluvial gold.

The Kabotshome prospect is the most advanced with 421,000oz of gold in resources. The JORC 2012 inferred resource of 6.7Mt at 1.9g/t is open along strike and at depth. It appears that the focus is on finding high-grade primary sources of gold which have been eroded to form the alluvial resources being mined in the tenements. VEC is assessing opportunities to start a small-scale mining operation (i.e. a gravity plant treating the colluvium which has been abandoned by the artisanal miners). The current exploration strategy is to expand the resource down dip and along strike at Kabotshome to 1Moz.

Figure 7: Implied value of VEC's exploration target and resources using RSG's investments

		Acqn cost A$/oz	Mkt value A$/oz
		41	20
VEC Equity		Implied value of ounces	
	Moz	A$m	A$m
Nizi	0.376	15	8
Sth Kib	0.882	36	18
Maniema	0.295	12	6
	1.553		
Resources A$ps		0.03	0.01

Source: Baillieu, VEC

Our view: VEC's main area of focus has been the Adidi-Kanga tenement package rather than the other exploration prospects in the DRC. We like the development potential of the SOKIMO JV and the King Leopold mine. The South Kibali zone may be prospective but would benefit from more grade.

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