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# Ariana Resources: Transforming Salinbas into Turkey's next major gold mine

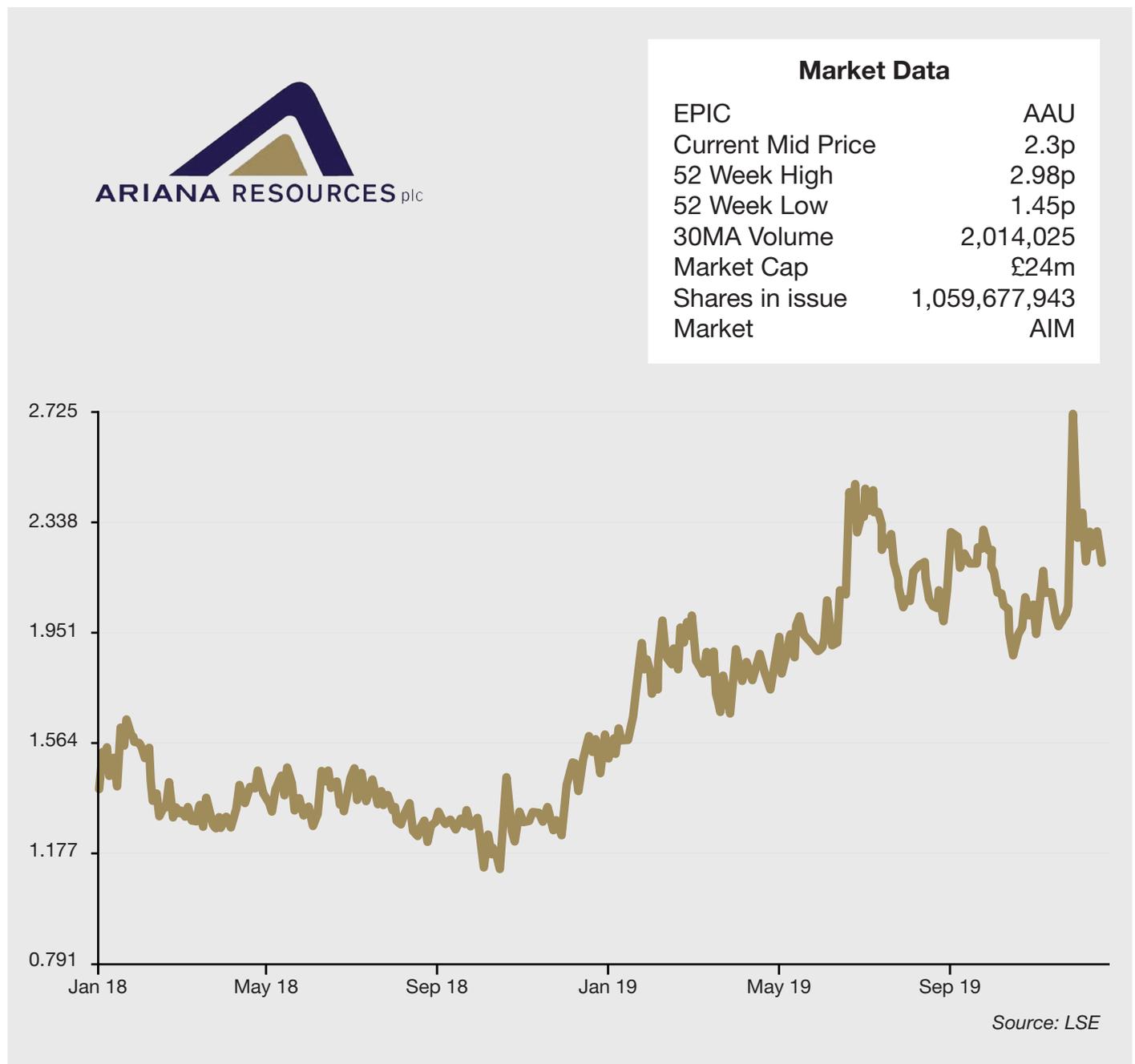


# Accelerating work at Salinbas

Ariana Resources (LSE:AAU) opened up a world of new opportunity at the Salinbas gold project in north-east Turkey when it took over full ownership of the asset towards the end of 2016. After developing a new approach, which recognises the prospectivity presented by Turkey’s world-class Hot Gold Corridor, Ariana is confident that the project’s potential extends far beyond its current JORC-resource of one million Indicated and Inferred ounces (“1Moz”) of gold equivalent.

[In November 2019](#), Ariana signed a potentially game-changing deal with a major Turkish construction and engineering firm for a joint venture on Salinbas that will accelerate the company’s vision of developing the project into a gold mine. Here, we take a deep dive into the Salinbas project, its history, and its prospectivity, and look at what this latest development could mean for Ariana’s growth potential.

## Ariana Resources one-year price chart



# Salinbas: A Hot Gold opportunity

Salinbas is located in north-east Turkey, providing a rare opportunity for UK investors to get London-listed exposure to Europe's most prolific gold producing nation. The country sits within the Tethyan Metallogenic Belt, host to some of the largest gold, copper, and silver deposits in the world. Over the last 17 years, 15 new operating gold mines have been established in the country and domestic production of gold was 27.1 tonnes in 2018 alone.

More specifically, Salinbas is situated in Turkey's Pontides Metallogenic Province, 80km southeast of the coastal town of Hopa and 20km east of the city of Artvin. The Artvin Province is host to several major copper-gold projects.

## The Salinbas project's location within Turkey



Source: Sandstorm Gold



The Salinbas Project spans three highly prospective licence areas called Salinbas, Ardala, and Hizarliyayla. The Salinbas deposit (which lies within both the Salinbas and Ardala licences) contains an Indicated and Inferred JORC resource of c.10Mt at an average grade of 2g/t gold and 10.2g/t silver for approximately 650,000oz and 3.2Moz of the metals respectively. Ardala, meanwhile, hosts a porphyry system with an

Inferred JORC resource of 16Mt. This grades 0.6g/t gold for 323,000oz of the precious metal while also containing domains with up to 0.2pc copper and 0.01pc molybdenum.

Finally, Hizarliyayla, the least advanced of the three licence areas, is an epithermal prospect with a c.3km<sup>2</sup> alteration zone prospective for both gold and base-metal mineralisation.

## The Salinbas licence areas

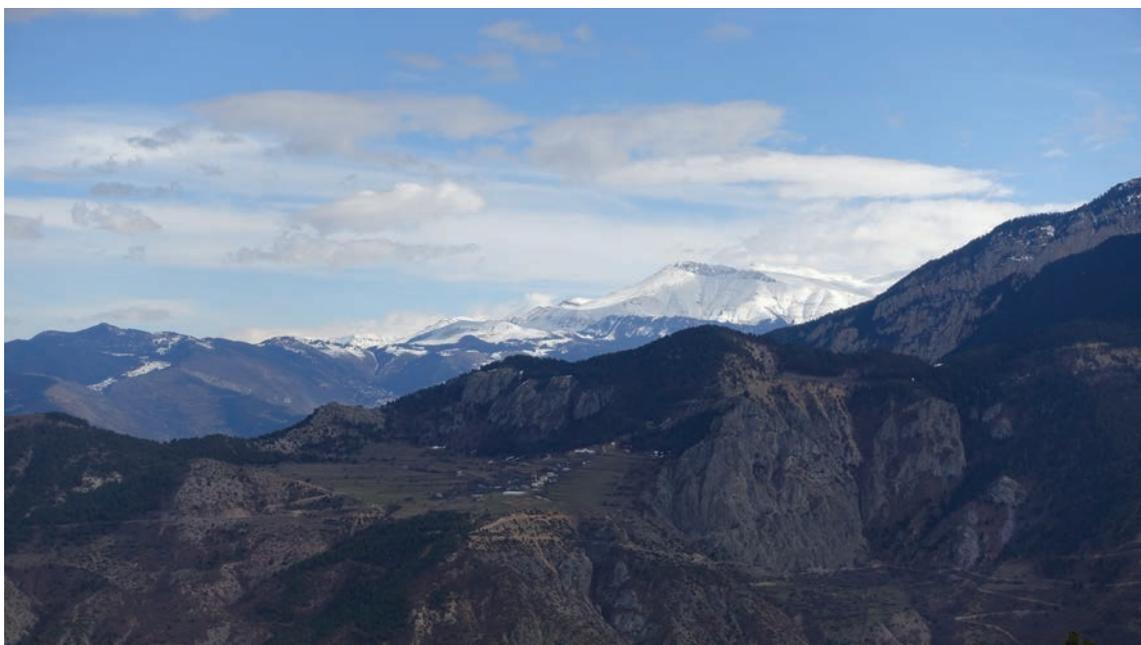


Source: Ariana Resources

The Artvin Province has an established mining culture, and Salinbas benefits from plenty of nearby infrastructure. Modern roads link the project to nearby towns, providing Ariana with a source of skilled labour. Electrical power is derived from a very modern local grid, which is supported from nearby hydro-electric facilities. Dr. Kerim Sener, Ariana's Managing Director, told us:

“ The Artvin Province is one of the most prolific copper/gold regions in Turkey bar none. We are located right amongst several highly significant projects, so it is a great place to be in terms of both geology and infrastructure. ”

### The view of Salinbas



*Source: Ariana Resources*

To extend on Sener's point, Salinbas occurs within a trend of mineralisation known as the Hot Gold Corridor that shows multi-million ounce gold potential. This area contains several significant gold-copper projects, the most notable of which is Lidya Mining's 4Moz Hot Maden copper, zinc and gold project.

Hot Maden, for which Sandstorm Gold (NYSE:SAND) paid \$175m for a 30pc position in 2017, [represented](#) the most significant new project in Turkey for over a decade upon its discovery in early 2015. More recently, in 2018, a pre-feasibility study gave the project an 11-year mine life with total production of 2.6 Mozs gold and 129,000oz copper. [This translated](#) to an impressive post-tax NPV(5pc) of \$1.1bn and an IRR of 50pc against upfront capex requirements of \$272m. Lidya and Sandstorm are now working on a full feasibility study for the project.

Encouragingly for Ariana, Hot Maden is located just 7km south of Hizarliyayla and 16km south of the Salinbas deposit. What’s more, Ariana has drawn numerous geological similarities between Salinbas and Hot Maden. For example, the pair are thought to share similar styles of mineralisation and, critically, the Hizarliyayla prospect is hosted partially within the same stratigraphic sequence as its larger neighbour.

Although Hot Maden may be the Hot Gold Corridor’s most widely-known and well-developed asset, Sener says that work on the area to date indicates a great deal of additional potential:

“ There are a series of porphyry-type and porphyry-associated gold and base metal deposits running along this north-northeast-trending corridor for many tens of kilometres, and Salinbas/ Ardala and Hizarliyayla are located centrally along this trend. All of the porphyry-related systems identified within the trend also seem to be spaced equally at intervals of around 8km, so this provides some highly encouraging upside potential for our project, in which we have already identified one porphyry. ”

### Hot Maden’s total mineral reserves

	Tonnes	AuEq (g/t)	Au (g/t)	Cu (%)	CONTAINED		
					AuEq (koz)	Au (koz)	Cu (kt)
Proven	4,289	11.6	8.6	1.4	1,600	1,191	59
Probable	4,831	12.2	9.1	1.4	1,895	1,418	70
<b>Total Proven &amp; Probable</b>	<b>9,120</b>	<b>11.9</b>	<b>8.9</b>	<b>1.4</b>	<b>3,495</b>	<b>2,609</b>	<b>129</b>

Source: Sandstorm Gold

### The Hot Maden project



Source: Mining Turkey

# Building prospectivity at Salinbas

Mining activity across north-east Turkey dates back to at least the Middle Ages, when the area was under Georgian dominion. However, the first serious work to be undertaken within the Salinbas project itself was by Russian miners in the early twentieth century. After many inactive decades, the district received a new lease of life in the early nineties, when mapping and several holes drilled by Anglo American discovered the Ardala copper-gold-molybdenum porphyry.

Ariana's entry into the Ardala project, as the asset was then known, [came in 2007](#). The firm acquired the project from a Rio Tinto-funded joint venture with YAMAS in exchange for a \$7,000-a-year royalty prepayment and a 1.5pc net smelter royalty (NSR) on any future production revenues to the original licence owner (a Turkish individual).

## The Ardala porphyry



Source: Ariana Resources

Shortly afterwards, [in 2008](#), Ariana went on to enter a joint venture (JV) focused on advancing Salinbas with a Canadian firm called European Goldfields (later acquired for \$2.5bn by Eldorado Gold in 2012). Under the terms of the JV, European Goldfields/Eldorado committed to funding all of the project's development costs until the delivery of a maiden definitive feasibility study.

## Site of the Salinbas deposit



Source: Ariana Resources

The Ardala project enjoyed a great deal of progress under the direction of the JV, which spent \$9 million on the exploration of the area and across the Pontides Metallogenic Province. The first notable milestone was the discovery of the Salinbas deposit [in late 2008](#), just 1km from the area drilled by Anglo American in the nineties. [Later on](#), Ariana would label the find a ‘*true exploration success*’.

After subsequent drilling yielded increasingly encouraging intercepts across both Salinbas and Ardala, the JV released its first independent, JORC-compliant mineral resource estimate for both properties in April 2013. The work gave the Salinbas deposit an Indicated resource of 180,000oz gold and 820,000oz silver alongside an Inferred resource of 590,000oz gold and 3.3Moz silver. Additionally, Ardala received an Inferred resource of 323,000oz gold, based on historical data, including additional copper and molybdenum.

Critically, the work underlined the potential for what would later become known as the Salinbas Project to host ‘*a deposit that is in the 1Moz range and perhaps beyond*’.

In the wake of its resource estimate, the JV’s most notable development arguably came in [April 2015](#), when it released a scoping study for the project. The work, which was based around a 650,000oz Indicated and Inferred resource at the Salinbas deposit alone, gave the project a ten-year life of mine with annual production 50,000oz of gold and 100,000oz of silver. This translated into an NPV(8pc) of \$108m, a pre-tax IRR of 28pc, and a 3.3-year payback period against estimated capital expenditure of \$53.3m.

### Scoping study results for the Salinbas project

<b>JORC Resource</b>	9.96Mt for 650Koz Au
<b>Mine Life</b>	10 years
<b>In-pit grade</b>	2.0 g/t Au; 10.2 g/t Ag
<b>C1 Cash Costs</b>	US\$770/oz
<b>Royalty</b>	State Right + 2% NSR to Eldorado Gold

Source: Ariana Resources

The scoping study demonstrated plenty of upside potential in comparison to both Ariana’s £5.6m market cap at the time and its current £24m market cap (as of December 2019). However, it is essential to note that this study – which is yet to be updated – includes neither the potential at Ardala or Hizarliyayla or the additional upside across the entire Salinbas Project that Ariana has since demonstrated.

In describing Salinbas to us, Sener noted that all of the economic assumptions in the scoping study were reached using a base case gold price of \$1,250/oz. The precious metal has sat above this price for much of 2019 and, as of writing, sits well above this figure at \$1,473/oz. Should these bullish conditions prevail, then the Salinbas project’s fundamentals could be enhanced even further.



## Going back-to-basics

Ariana's progress at Salinbas took a significant step forward in December 2016, when the business acquired 100pc ownership of the project from its JV with Eldorado Gold. Sener believes that the latter organisation's decision to relinquish the asset – over which it retains a 2pc NSR (inclusive of the original 1.5pc NSR) – stemmed from its concerns around Turkey's political and macroeconomic uncertainty at the time. Regardless, the move provided Ariana with a unique opportunity to build on its belief that the Salinbas project's potential extends well beyond its stated 1Moz gold resource.

### Historic workings at the Salinbas project



*Source: Ariana Resources*

With this prospectivity in mind, Ariana launched immediately into a comprehensive review of all of Salinbas' existing geochemical, geophysical, and geological data.

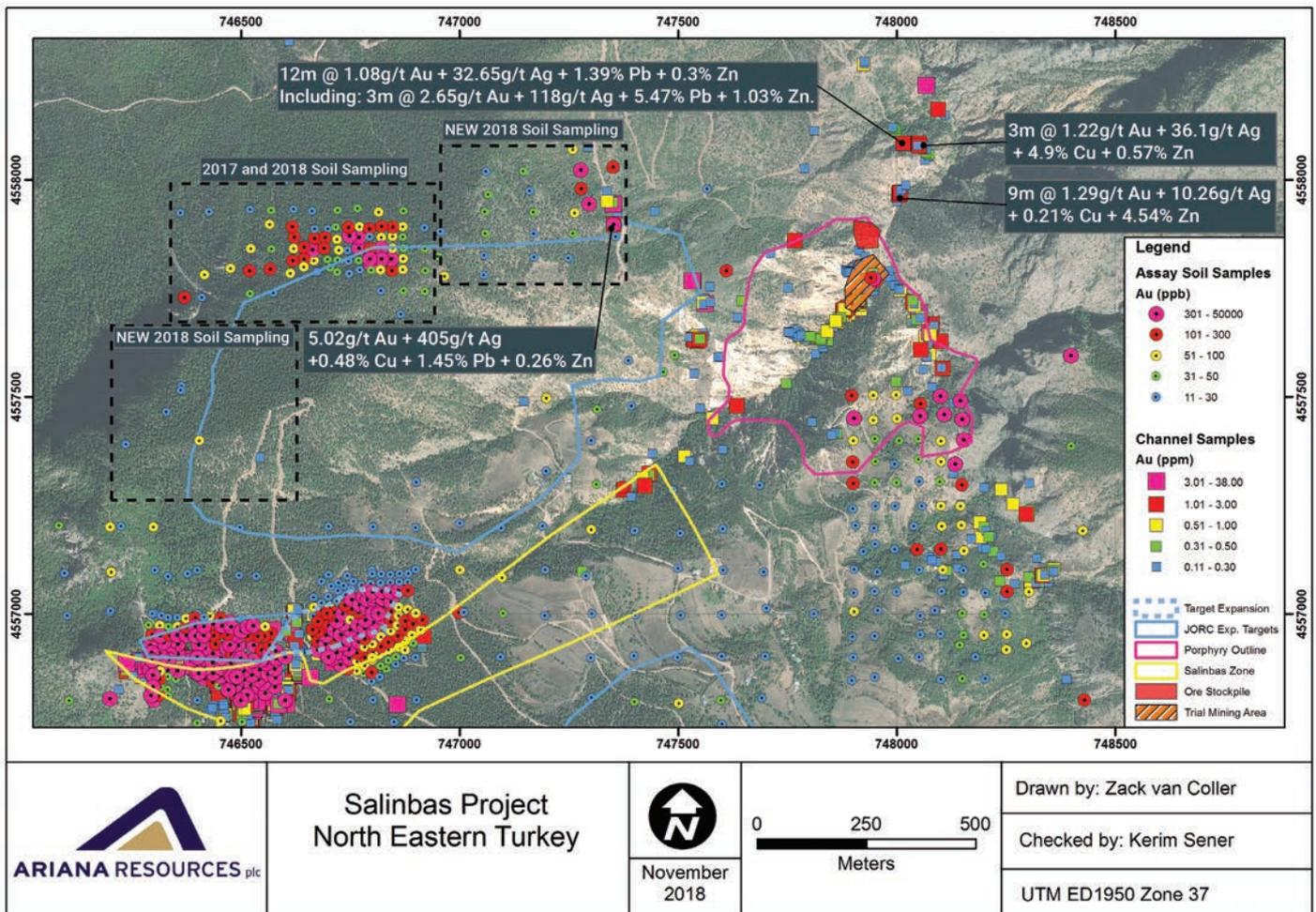
Sener says this back-to-basics approach was necessary to understand the full potential of the project:

“ We felt that we were sitting on a substantial mineralised system that showed potential for significant increases in the size of our resource. As such, we dedicated our first year of owning the project outright to consolidating our understanding of the exploration opportunity presented to us by rebuilding our understanding of the geology and understanding the parallels between our licences and the Hot Gold Corridor as a whole. The work completely changed our concept of how exploration should continue and led to an incredible period of discovery for Ariana. ”

As Sener suggests, Ariana's approach was lucrative, identifying a total of 37 target areas spanning all three Salinbas licence areas in [January 2017](#). Following this, mapping across these targets identified many new areas independent of previously-established mineralisation with *'the potential to host multi-million-ounce gold deposits and significant base-metal systems'*. Notably, these included:

- Ardala North, which hosts a 1.4km-long by 0.2km-wide anomalous zone hosting gold, silver, copper, lead, and zinc geochemistry;
- Ardala South, which is located c.700m south of Ardala North and contains a rhenium-molybdenum-enriched porphyry;
- Salinbas North, which hosts a 550m by 150m zone containing *'exceptionally anomalous'* gold, silver, copper, lead, and zinc geochemistry in the same horizon as the Salinbas orebody; and
- A new c.3km<sup>2</sup> area at Hizarliyayla containing a highly prospective multi-element anomalism.

### The Salinbas project target areas



Source: Ariana Resources

## Taking a different approach

The growing number of targets being identified around the Salinbas deposit and the Ardala porphyry ultimately led Ariana to create a new, simpler geological model for the entire project in [June 2018](#). The firm believes that mineralisation extends directly from the Ardala porphyry system to the Salinbas deposit, creating one large, mappable geological trend running across much of the two licence areas. Ariana said that this ‘Salinbas Horizon’ could potentially cover an area as large as 2km<sup>2</sup>.

Not only does this model explain the incidence of additional anomalous areas, but it also suggests that further work could reveal yet more significant mineralisation along this new stratigraphic horizon – the ‘A-S zone’. As Ariana put it at the time:

“ The scale and complexity of the mineral system identified strongly indicate the potential to host multi-million-ounce gold deposits and significant base-metal systems [...] This is demonstrated in particular by the Salinbas gold-silver deposit, which indicates that the range of mineralisation propagating from the Ardala Porphyry source exceeded 1.5km. This suggests that several other geologically favourable sites in the periphery of the porphyry must be considered highly prospective targets. ”

In recognition of this progress, Ariana [established](#) a new JORC Exploration Target for the Salinbas area of up to 2.7Moz gold and 16.1Moz silver with upside potential through further drilling. It is worth noting that this figure excludes the Salinbas deposit’s existing c.1Moz gold JORC Indicated and Inferred resource.

### Ariana’s JORC Exploration Target for the Salinbas project

Target	Tonnage (t)		Element	Grade (g/t)		Contained Metal (oz)	
	From	To		From	To	From	To
Salinbas	19,370,000	29,055,000	Au	2.0	2.5	1,246,000	2,335,000
			Ag	10.0	15.0	6,288,000	14,12,000
Salinbas South	2,535,000	5,070,000	Au	2.0	2.2	163,000	359,000
			Ag	10.0	12.0	815,000	1,956,000
Salinbas Main Extension	169,000	338,000	Au	2.0	3.0	11,000	33,000
			Ag	10.0	15.0	54,000	163,000
<b>Global Total Ounces Au</b>						<b>1,419,000</b>	<b>2,727,000</b>
<b>Global Total Ounces Ag</b>						<b>7,097,000</b>	<b>16,131,000</b>

Source: Ariana Resources

## Joining the dots at Salinbas

Since establishing its new geological model and exploration targets at Salinbas, Ariana has increased its pace of work at the project rapidly. These efforts can be separated broadly into two key areas – drilling and permitting/licencing.

On the drilling front, the business completed a c.2,200m reverse circulation drilling programme [in May 2019](#), in particular to confirm the connection between the Ardala porphyry and the Salinbas gold-silver zone. This formed the first phase of 10,000m worth of planned drilling to test areas of the newly-established Salinbas JORC Exploration Target systematically.



Source: Ariana Resources

The initial work was highly successful, with several holes drilled in the A-S zone encountering Salinbas-type mineralisation within c.120m from surface. As Ariana said in a statement at the time:

“ The two systems should, in fact, be treated as one. This was a prediction from our earlier geological modelling and is a finding that bodes exceptionally well for the discovery of further mineralisation in the vicinity, particularly in the immediate surrounds of the Ardala porphyry. ”

### Highlight intersections from the work completed in May 2019 included:

- 11m at 5.33 g/t gold and 47.1 g/t silver and 0.89pc lead and 0.35pc zinc from 111m;
- 6m at 2.38 g/t gold and 9.3 g/t silver and 0.51pc copper and 0.25pc lead from 161m; and
- 12m at 1.01 g/t gold and 10.3 g/t silver from 39m.

This drilling also intercepted more than 30m of mineralisation below the Salinbas horizon and further established the prospectivity of the Salinbas North target.

This drilling programme was concluded immediately in advance of the Ardala licence commencing its renewal process in June 2019. Following the grant of a five-year extension of this operating licence in October, Ariana is expecting to start up drilling again from Q2 2020 to establish the true extent of the mineralisation encountered in the 2019 programme.

Meanwhile, the last year has also seen Ariana take great steps forward in the Salinbas project's overall licencing status. Most notably, all three of the project's licence areas have been secured to operational status by Turkey's General Directorate of Mining and Petroleum Affairs. This gives the company rights to Salinbas and Hizarliyayla for ten years, and Ardala for five years. In the case of Ardala, Ariana also has been able to increase the size of its mining permit area substantially to cover all encountered mineralisation – i.e. the known extents at Salinbas, Salinbas North, and Ardala itself.

Beyond this, Ariana has also secured forestry permits from Turkey's Ministry of Agriculture and Forestry for its full 10,000m drilling programme. This provides it with full flexibility to drill test its identified targets within the Ardala licence. A further operational licence forestry application submission to enable future drilling in the Salinbas licence is currently under review, with Sener expecting completion in 2020.



## From exploration project to potential mine

With long-term licences in place across Salinbas and drilling successfully enhancing the scope of mineralisation, it begs the question - *where will Ariana take the project next?*

The business gave a clear answer to this question [in November 2019](#), when it entered into a non-binding memorandum of understanding for the project with a '*major Turkish construction and engineering company*'.

The agreement – which prompted a 30pc increase in Ariana's share price – proposes the sale of a 17pc stake in Salinbas to the unnamed partner for \$5m. The third-party will then inject a further \$8m of equity into the asset via an earn-in arrangement and organise the bank finance to enable it to be brought into production. This would take its total position to 53pc.

Sener tells us that, while Ariana had for some time engaged with prospective partners, it was keen to reach an '*inflection point*' where its confidence in the Salinbas project's potential had increased to a sufficient level. Now that the firm has crossed this point, he says it is looking at the asset as a potential mine rather than an exploration opportunity alone. Critically, he says Ariana has sought out a partner that shares this vision:

“ As our confidence in Salinbas increased, so did our belief in its potential value. As this continued, we realised that we wanted to reach a point where we were comfortable that our understanding of the project's value was sufficient for us to make the right decision when it came to choosing a partner. With November's announcement, we are looking at undertaking a serious JV aimed at developing this project ultimately into a mine. ”

Ariana has prioritised an extensive programme of work aimed specifically at de-risking Salinbas with a view to bringing the project in to development. As part of November's agreement, the proposed partner is expected to inject capital towards additional drilling and resource estimation and the delivery of a definitive feasibility study. It will also fund the completion of an Environmental Impact Assessment (EIA), permitting, freehold land acquisition, public relations, and new licences. It is worth noting that having a relationship with an experienced and well-funded partner enables many elements of the development process to be fast-tracked.

### Mineralisation at Ardala



Source: Ariana Resources

Preparing Salinbas for development will take time – for example, an EIA requires a full four seasons of data, and the environmental baseline study recently launched by Ariana will take at least a year. However, Sener expects the experience Ariana gleaned from bringing its fellow Turkey-based Kiziltepe project into production to serve it well as it advances Salinbas:

“ There is a lot of work to do, such as permitting, the environmental base-line, full metallurgical test work, and maintaining a dialogue with the necessary authorities. We also need to make critical decisions about the project’s future such as whether we would use heap leach or carbon-in-leach gold extraction as our processing route. However, we have been through these steps before with Kiziltepe, so we know exactly what we need to be doing. ”

Sener is also confident in Ariana’s ability to continue funding its share of any costs at Salinbas. Indeed, rather than relying on raising money through equity placings like many of its competitors, the company already benefits from a steady revenue stream in the form of its Red Rabbit JV in West Turkey. This partnership, which Ariana holds with Proccea Construction, encompasses the producing Kiziltepe mine, which generated £3m in net profit over H1 2019 alone and is also set for expansion. Should this stellar internal funding source not cover the entirety of Ariana’s work at Salinbas, then Sener tells us the firm would still be more likely to pursue convertible debt financing than reach out to investors for cash.



## What next for Salinbas and Ariana?

November's announcement of the Salinbas Joint Venture is an encouraging step forward for both the project and Ariana alike. It validates much of the work to date and establishes a current benchmark valuation for the asset of c.\$30 million. This implies Ariana's initial post-deal 83pc stake would be worth c.\$25 million.

Ariana is likely to be further diluted at Salinbas as the JV partner injects another \$8 million into its development, but the important point to note is that the project will benefit from the contribution of both its new partner as well as its existing partner, Proccea Construction Co. This is significant and provides Ariana with a clear path to realising its ambition of transitioning Salinbas from an exploration play to a potential mine.

As Sener noted in his comments, it takes time to develop a mine. However, the upside for shareholders is that this will mean there is likely going to be plenty of news flow from Salinbas over 2020 if things go to plan. If the gold price continues to build on its gains in the second half of this year, and investor appetite returns to the small-cap mining sector, the timing here could be fortunate.

Currently, the Salinbas and Ardala deposits contain a combined Indicated and Inferred JORC resource of 973,000oz of gold. This provides Ariana with a strong foundation on which to build. Following the recent, long-term license renewals across the project's three licence areas, Salinbas, Ardala and Hizarliyayla, Ariana can rely on this longevity for executing its future plans.

Extensive mapping across Salinbas identified a number of sizeable high-priority targets, and once Ariana is able to commence drilling again in Q2 2020 there is plenty of scope for significant upgrades to the current JORC estimates. After all, Ariana has already publicly stated that it believes its Salinbas Project has *'the potential to host multi-million-ounce gold deposits and significant base-metal systems'*.

With significant new capital now expected to fund further exploration drilling at Salinbas, Ariana could be on the cusp of realising its huge ambitions.



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