



27th April 2016

ASX Announcement

Predictive Discovery Limited is a gold exploration company with strong technical capabilities focused on its advanced gold exploration projects in West Africa.

ASX: PDI

Issued Capital: 1.33B
shares

Share Price: 0.5 cents

Market Capitalisation:
\$6.6M

Directors

Phillip Jackson
Non-Exec Chairman

Paul Roberts
Managing Director

David Kelly
Non-Executive Director

Exploration Update – Cote D’Ivoire

Predictive Discovery Limited (ASX: PDI) is pleased to report on substantial progress on four of its Cote D’Ivoire exploration permits:

□ Toro Gold (Toro) Joint Venture:

- **Kokoumbo** diamond drilling program:
 - Tested three prospects, including Kokoumbo Hill where earlier chip-channel sampling recorded **44m at 3.8g/t Au** (ASX release 10/11/15).
 - **Drilling now finished** - 1,610m and 15 holes.
 - First batch of samples now at laboratory and **first results expected in early May**.
- **Boundiali** RC drilling
 - Testing **southern 2km of 6km long, strong gold-in-soil anomaly** in NE part of Boundiali permit (see ASX release 23/2/16 for latest soil geochemical results).
 - Panning of soils over the anomaly has identified visible gold.
 - **Minimum 3,000m contracted**, drill rig on site and **drilling will start shortly**.
- **Ferkessedougou** infill soil geochemistry results **to be released shortly**.
- Joint Venture earn-in
 - Toro has advised PDI that it has spent US\$1 million and thereby earned 51%. Ministerial approval of that equity transfer is currently being sought.
 - PDI has opted not to contribute 49% of the **next US\$2.5 million tranche of expenditure**, which will therefore be **solely funded by Toro**. On completion of this expenditure, PDI will hold 35% equity and plans to contribute that percentage to the ongoing exploration expenditure.

□ Bobosso Project (XMI Agreement):

- Work program has commenced following grant of Wendene permit in December, 2015:
 - Re-logging of historical core - indicates **potential for mineralised continuity** on east-west orientated mineralised zones, near parallel to drill section lines.
 - **Soil anomaly covering 7km² and averaging 0.4g/t Au** at Bobosso (ASX release dated 28/10/15) suggests potential for a **significant alluvial/colluvial gold deposit** – initial pitting program is in progress to test that potential. Gravity metallurgical work in Australia is planned for June.

Mr Paul Roberts, Predictive’s Managing Director said: *“We are very pleased at the large scale and pace of work on Predictive’s exploration permits in Cote D’Ivoire while our own exploration costs remain modest and controlled. We have four highly interesting projects, any one of which could generate a major gold discovery, and all of which will be generating new results to report to the ASX from now through to July this year.”*

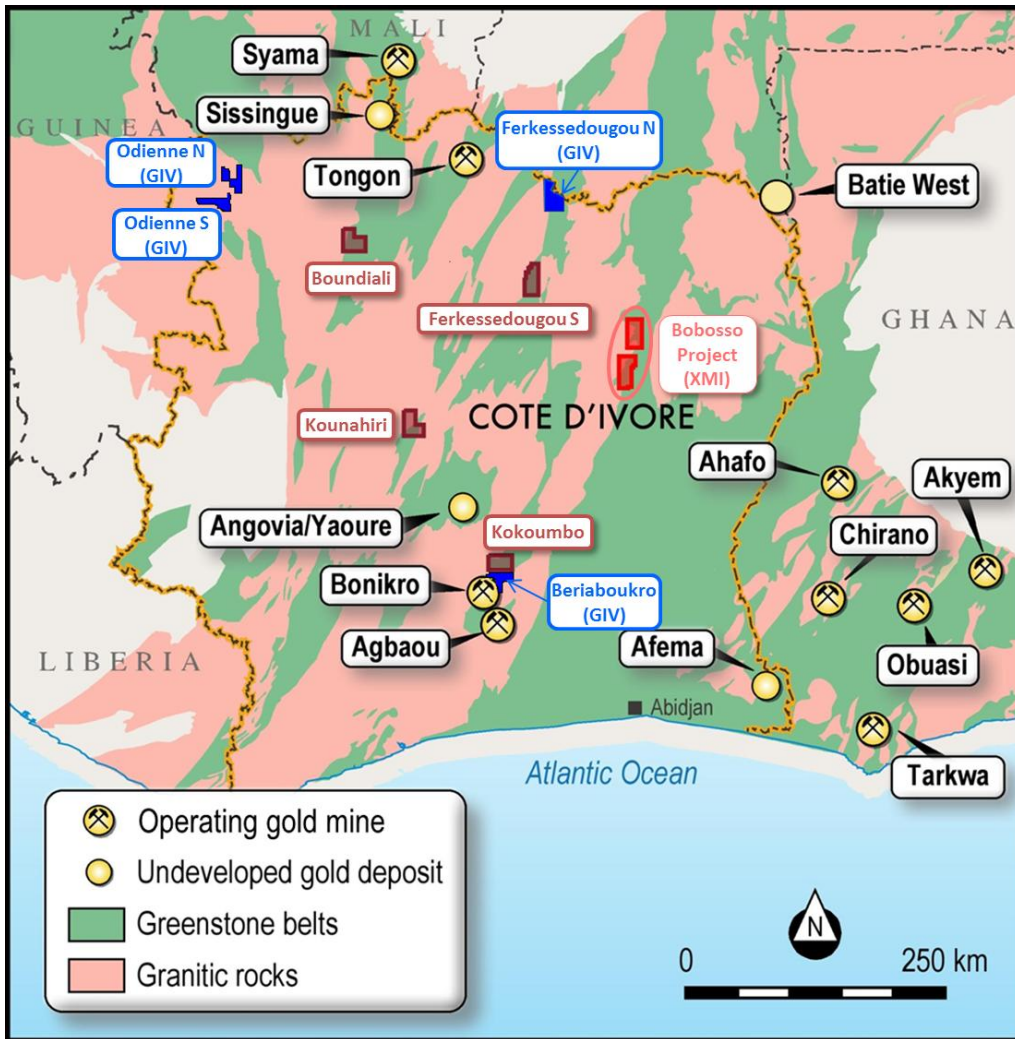


Figure 1: Locality map showing the initial Toro Joint Venture permits (brown), location of the recently acquired GIV Joint Venture permits and permit applications (blue – ASX release dated 29th March 2016), and the permits covered by PDI’s agreement with XMI SARL over the Bobosso Project (red).

COTE D’IVOIRE BACKGROUND

Predictive has been increasingly focused on Cote D’Ivoire in recent years. The country covers over a third of the highly prospective Birimian gold belt, more than any other country in West Africa. Cote D’Ivoire is highly underexplored for gold because the exploration investment boom in the last decade largely bypassed the country because of political instability. Since the accession of President Alassane Ouattara in 2011 and his comfortable re-election last year, and with investment certainty provided by an updated Mining Act and a forward-looking Mines Administration, Cote D’Ivoire has become a highly attractive exploration investment destination.

Predictive is in joint venture with Toro Gold Limited (**Toro**), a UK-based company, on eight permits in Cote D’Ivoire and with XMI SARL, an Ivoirian company, on two additional permits covering the Bobosso Project (Figure 1). The Toro Joint Venture operates through Predictive Discovery Limited’s subsidiary, Predictive Cote D’Ivoire SARL (**Predictive CI**). Predictive now has interests in exploration ground covering nearly 4,000 km².

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TORO GOLD JV

Kokoumbo Diamond Drilling Program

15 diamond drill holes totalling 1,610m have been drilled in the last two months. The diamond drilling program tested three prospects: Kokoumbo Hill, a new zone of mineralisation identified in chip-channel sampling in late 2015, Sereme and Blonzwe (Figure 2).

The Kokoumbo chip-channel sampling included significant results from three of the four channel sampled zones (ASX release 10/11/15):

- Kokoumbo KOCH001: **44m at 3.77g/t Au, including 2m at 25.7g/t Au;**
- Kokoumbo KOCH003: **26m at 2.86g/t Au;**
- Kokoumbo KOCH004: 16m at 0.75g/t Au

Toro's geological interpretation is that the target zones dip shallowly to the east, so drill holes were drilled towards the west.

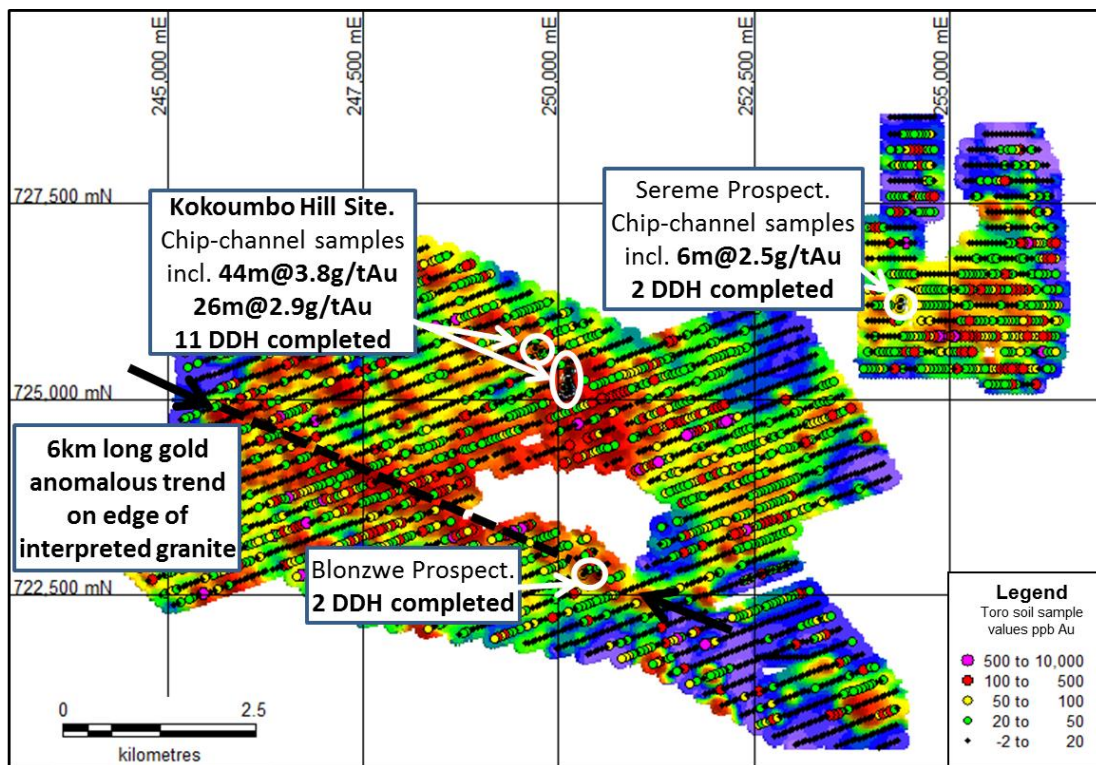


Figure 2: Location of Kokoumbo diamond drill locations, superimposed on a colour gridded image of gold in soil geochemistry (ASX release dated 15/9/15). The Kokoumbo Hill sites are in the centre of a large area of gold in soil anomalies and substantial historical and recent artisanal mine workings.

The drill core was cut at Toro's camp in Yamoussoukro prior to submission to ALS for sample preparation. Toro has advised Predictive that there was some delay in getting the assay samples processed in Cote D'Ivoire so they were shipped to Senegal to prepare the pulps for assay instead.

The first of three batches has now been submitted for assay at the ALS laboratory at Loughrea in Ireland and first results are now expected in early May.



Figure 3: Portable diamond drill rig being set up on first drill site at Kokoumbo.

Boundiali Reverse Circulation (RC) Drilling Program

The Boundiali permit is located within a very well mineralised greenstone belt which contains the large operating Tongon and Syama gold mines in Cote D'Ivoire and Mali respectively. The southern part of this belt has had little exploration to date and represents a first class opportunity to make new large gold discoveries. Infill sampling reported on 23/2/16 showed that the southern 2km of the largest (6km long) anomaly is of particular interest with very clear line-to-line continuity (Figure 4) and peak values of **2.1g/t Au**, **1.3g/t Au** and **1.0g/t Au**. Ground follow-up of the anomalous zones has revealed:

- Visible gold has been panned out of many soil samples where elevated gold-in-soil values have also been obtained, and
- Mappable zones of quartz vein float have been found coincident with some of the anomalies, suggesting that gold associated is with strong quartz veining.

A track mounted rig has arrived in the area and is expected to start drilling shortly. At least 3,000m will be drilled on reconnaissance drill lines 320m apart.

First assay results are expected in June.

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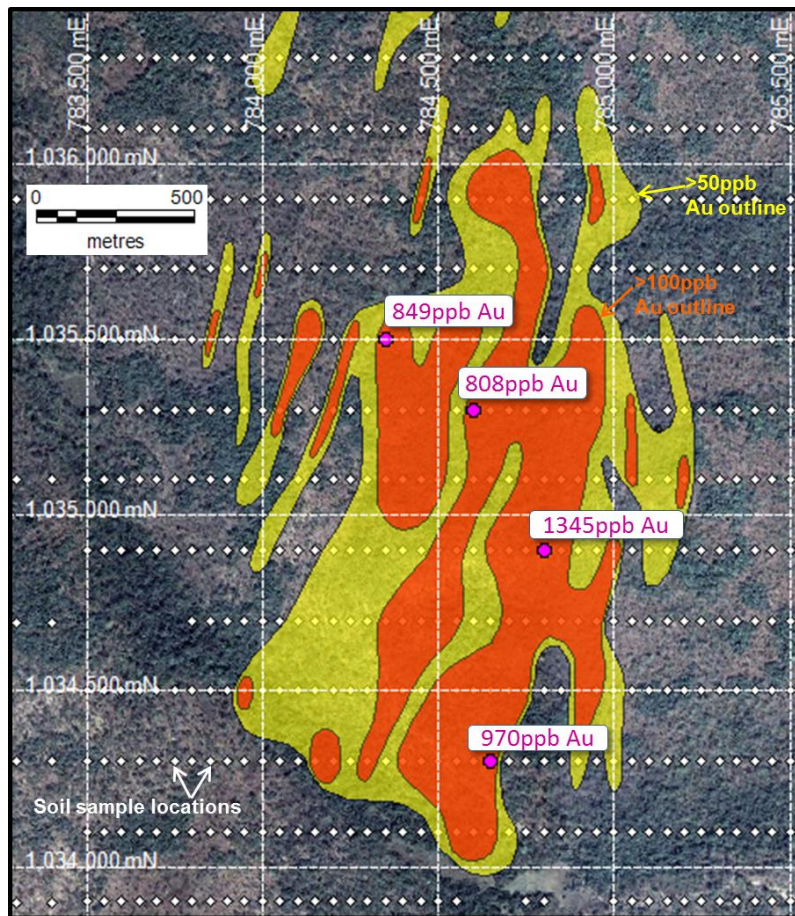


Figure 4: Gold-in-soil geochemical contour image of the southern 2km of the Boundiali permit's 6km long anomaly on satellite imagery, highlighting the consistency of >100ppb gold anomaly (in orange).

Ferkessedougou Soil Infill Results

Results of infill sampling from the Ferkessedougou permit are currently being compiled and will be released shortly.

Toro JV – 51% Earn-In

Under the terms of the Toro Joint Venture agreement:

- Toro earns a 51% interest in Predictive CI by spending US\$1 million in exploration costs and option payments.
- Once Toro achieves its 51% interest, PDI then has the option to contribute to 49% of expenditure from then on or dilute to 35%.
- In the event of a dilution decision by PDI, Toro then earns a further 14% in Predictive CI by spending an additional US\$2.5 million on exploration costs and option payments.

Toro has now advised Predictive that it has achieved the US\$1 million expenditure. Predictive has in turn advised Toro in writing that it will dilute to a 35% interest once Toro completes spending

of the next US\$2.5 million tranche. Predictive plans to contribute at the 35% level thereafter as long as Toro's drill results are sufficiently encouraging to warrant that investment.

Under Ivoirian law, Toro's acquisition of a 51% stake in Predictive CI is subject to the approval of the Minister of Mines. Formal application for that approval has now been made and is currently being processed within the Mines Ministry.

PDI's Board decided not to contribute at the 49% equity level because that would have required a highly dilutive capital raising totalling approximately \$1.7 million. In accordance with the Company's stated strategy following the \$1.3 million Rights Issue late last year, the Company is limiting its expenditure rate while relying on project-level funding to ensure that large exploration programs can be carried out on the Company's ground holdings. This situation will change, however, if Toro achieves highly encouraging drill results from its aggressive drill programs on Predictive CI's large ground holdings. In that event, Predictive will raise the necessary funds so that it can maintain its 35% equity in Predictive CI from then on.

BOBOSSO PROJECT (XMI AGREEMENT)

Introduction

The Bobosso Project consists of two granted exploration permits, Bassawa and Wendene in northern Cote D'Ivoire (Figure 1), which are held by an Ivoirian company, XMI SARI (XMI). Bassawa and Wendene are located in the southern extension of the well mineralised Hounde Belt in Burkina Faso, which includes Semafo's Mana Mine (5 Moz in ore resources and reserves¹).

Historical soil sampling by Equigold (ASX release 28/10/15) obtained many anomalous results over the Bassawa permit and Wendene permit applications. Of particular note is a **7km² area** in Wendene in which most of the values are above 100ppb Au (Figure 5). This area contains 729 soil samples with an average arithmetic value of **394ppb Au (0.39g/t Au)** and peak values of **39.8g/t Au, 20.2g/t Au** and **6.89g/t Au**. There are numerous plus 100ppb Au anomalous values outside of this area, many of which are untested by any drilling.

The size and average value of the 7km² anomaly suggests the presence of a substantial alluvial/colluvial gold deposit. Nonetheless, soil samples are typically taken at a 0.5m depth and are not appropriate for an estimation of the real average grade of the material. In addition, there has been artisanal mining in this area. Therefore, at this stage, the potential economic value of the near-surface material is not known.

569 RC holes and 11 diamond drill holes were completed in the area of the 7km² anomaly (Figure 5). Of these, 221 holes contained at least one 2gxm intercept² at a cut-off grade of 0.5 g/t Au. Most of these intercepts were at shallow depths. The average (vertical) depth tested by drilling

¹ See <http://www.semafo.com/English/operations-and-exploration/reserves-and-resources/default.aspx>

² e.g. 1m at 2g/t Au or 4m at 0.5g/t Au

was approximately 80m. High-grade and/or wide mineralised intercepts recorded in the database include the following (ASX release dated 28/10/15):

- BRC047: **32m at 1.93g/t Au** from 12m
- BRC053: **2m at 29.70g/t Au** from 0m
- BRC083: **5m at 20.60g/t Au** from 48m
- BRC097: **7m at 5.36g/t Au** from 17m
- BRC262: **35m at 1.56g/t Au** from 65m
- BRC278: **7m at 9.52g/t Au** from 26m

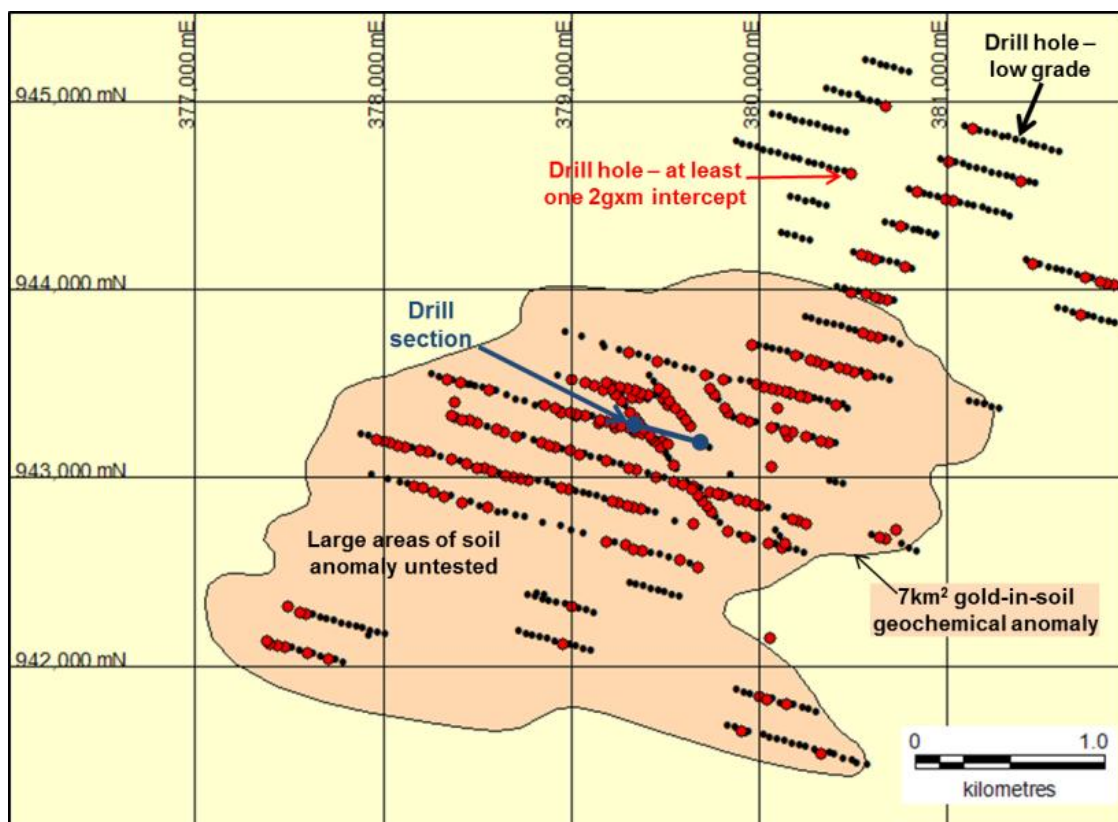


Figure 5: Bobosso gold in soil geochemical anomaly showing location of all historical RC holes, highlighting all holes with gold intercepts of at least 2 g x m (red dots) and showing cross section location (Figure 6).

PDI is excited about the opportunity that the Bobosso Project represents because of the large gold mineralised system that is evidently present at Bobosso itself (Figure 5) and because of the extensive regional potential along strike from the well drilled prospect.

XMI Agreement

Predictive has entered into an agreement with XMI on the Wendene and Bassawa permits whereby it can provide funding or arrange for third parties to invest in the Bobosso Project. Details of the agreement were released to the ASX on 28/10/15.

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At present, PDI is investing its own funds into a series of relatively low cost work programs (see next section) through which it will obtain an equity of approximately 35% into XMI's parent company (Exploration and Mining Investments Limited of the UK) over the next few months. The purpose of these programs is to add value to the project as a whole prior to seeking external investment. Under its agreement with XMI, PDI has the option to seek such investment via Predictive itself or at the project level from a third party. The Company's current plan is to seek capital for Bobosso after the current work program is completed, commencing in July 2016.

Current Bobosso Work Program

The current work program commenced in February 2016 and aims to:

- provide an initial assessment both of the near surface alluvial/colluvial potential at Bobosso,
- clarify the geological interpretation of some key sections through the Bobosso gold mineralisation,
- undertake a regional targeting exercise to identify gold mineralisation potential along strike from the Bobosso prospect both in the Wendene and Bassawa exploration permits.

Alluvial/Colluvial Gold Assessment

Figure 6 shows a cross section through a small part of the gold mineralised system showing a series of significant gold intercepts in the immediate subsurface. The Company is currently undertaking a 30 hole pitting program in the vicinity of this cross section to determine average grades relative to down-hole values and to obtain material for gravity metallurgical testwork. The sampling will be finished in several days and the gravity metallurgical testwork will be carried out in Australia commencing in June.

In the event that a high percentage of the gold in the shallow material can be recovered by simple gravity treatment (e.g. via Knelson or Falcon concentrators), the Company will consider a much larger pitting program with the aim of identifying a shallow resource that could profitably support an alluvial/colluvial gold mining operation producing at least 10,000oz per annum for some years. This could possibly represent the first stage in a larger mining operation which would also mine the underlying primary gold mineralisation.

Re-Logging Of Drill Holes

Predictive has gained access to much of the drill core and RC chips from this project. Re-logging of some key mineralised intercepts was carried out in March and early April.

Initial indications are that there is good hole-to-hole continuity of gold anomalous alteration, at least in the holes which have been re-logged, an important requirement for making JORC-compliant resource estimates. Re-processing of magnetic and radiometric data, however, suggests that the overall trend of mineralisation may be near parallel to the historical drill section lines. If this is proved correct, it is quite possible that the historical drilling has cut very obliquely

through gold mineralised horizons or structures, opening up the possibility of discovering long strike lengths of gold mineralisation between the drilled cross-sections in the planned 2016 drill program.

Compilation of the new drill data together with new geological mapping will enable Predictive to plan a well-directed RC or diamond drill program to test the new geological model of the mineralised system later in 2016.

Regional Assessment

This work commenced with re-processing of existing aeromagnetic data in January 2016, followed by reconnaissance geological mapping the following month. Detailed geological mapping which is currently underway at the Bobosso Project will also support this assessment.

All of the new and historical data is currently being compiled to generate a series of regional targets, successful drill testing of which could result in gold discoveries to support a future gold mining operation at Bobosso.

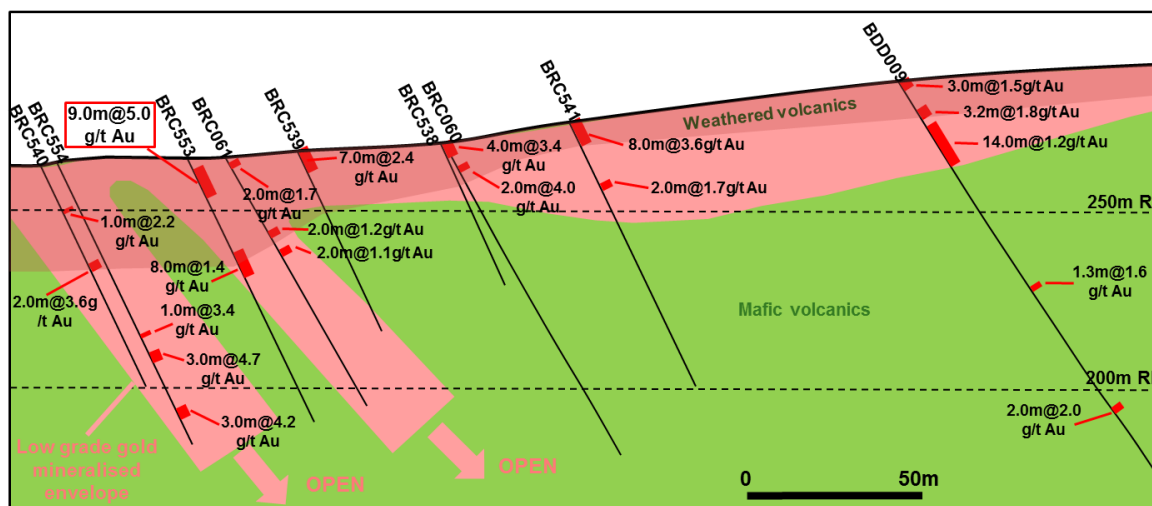


Figure 6: Drill cross section showing near surface alluvial/colluvial gold zone (first reported to the ASX on 28/10/15). Note also the flat zone of gold anomalous material (pale pink) lying directly beneath this zone. Re-logging of hole BCD009 (at right) has demonstrated that this apparently flat-lying gold-bearing zone consists of primary alteration (i.e. it is not a shallow supergene enrichment zone). This recognition of the variability in the dip of the primary alteration is a key component of PDI's developing re-interpretation of the Bobosso gold mineralised system.

Predictive Discovery Limited (PDI) was established in late 2007 and listed on the ASX in December 2010. The Company is focused on exploration for gold in West Africa. The Company operates in Burkina Faso, West Africa where it has assembled a substantial regional ground position covering 1,500km² and is exploring for large, open-pitiable gold deposits. Exploration in eastern Burkina Faso has yielded a large portfolio of exciting gold prospects, including the high grade Bongou gold deposit on which a resource estimate was calculated in September 2014. PDI also has substantial interests in a large portfolio of tenements in Côte D'Ivoire covering a total area of 3,937 km².

Competent Persons Statement

The exploration results and the Exploration Target reported herein, insofar as they relate to mineralisation are based on information compiled by Mr Paul Roberts (Fellow of the Australian Institute of Geoscientists). Mr Roberts is a full time employee of the company and has sufficient experience relevant to the style of mineralisation and type of deposits being considered to qualify as a Competent Person as defined by the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Roberts consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

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