

## ASX ANNOUNCEMENT

4 February 2013

### BOLGATANGA PROJECT GEOCHEMICAL RESULTS

**Cardinal Resources Limited (ASX:CDV)** ("Cardinal" or "the Company"), a gold focussed exploration company with four tenements in Ghana, West Africa, is pleased to announce to shareholders the results of the geochemical programme carried out during 2012 on the Ndongo tenement.

#### HIGHLIGHTS

- **Two continuous anomalous zones delineated;**
- **One of approximately 1.3km length along the Eastern Sheared Contact Zone, striking roughly N-S; and,**
- **One of approximately 3.0km length within the Central Folded Zone, striking roughly N-S.**

#### GHANA PROJECTS

Cardinal, through its wholly owned subsidiary, Cardinal Resources Ghana Limited, holds four tenements prospective for gold mineralisation in Ghana in two NE-SW trending granite-greenstone belts, namely the **Bolgatanga Project** (Nangodi and Bole-Bolgatanga Greenstone Belts) in NE Ghana and the **Subranum Project** (Sefwi Greenstone Belt) in SW Ghana.

#### BOLGATANGA PROJECT

The Bolgatanga Project has known gold mineralisation occurring in a variety of styles with identified historic gold resources, artisanal workings and producing mines. The three granted tenements in the Bolgatanga Project area include Ndongo, Bongo and Kungongo (see Figure 1), collectively covering an area of over 735 km<sup>2</sup>. Ndongo straddles the Nangodi Greenstone Belt, while Bongo and Kungongo cover part of the NE extensions of the Bole-Bolgatanga Greenstone Belt.

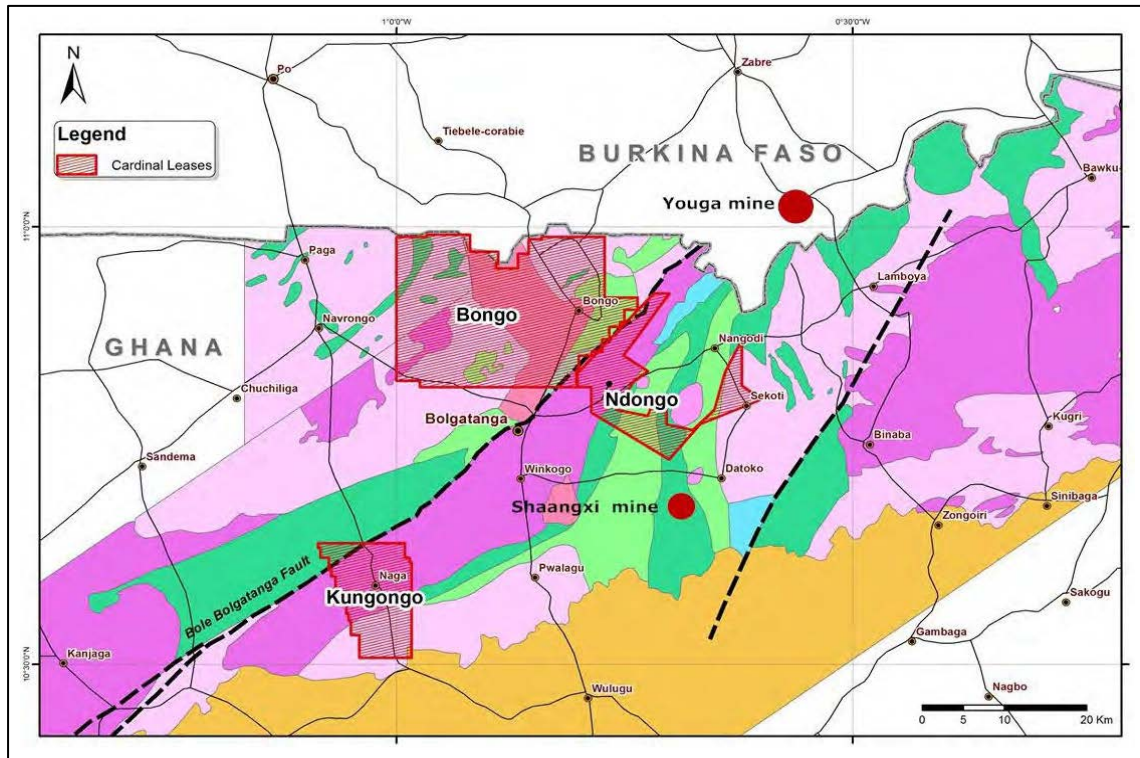
The Nangodi Greenstone Belt is highly folded with at least two phases of deformation being noted (D<sub>1</sub>, D<sub>2</sub>) and as such, is regarded as a series of refolded folds. This belt hosts:

- The producing Youga gold mine in Burkina Faso (1.56 million oz Au; MEG database);
- The historic Nangodi gold mine, located 10 km NE of Ndongo, which produced some 18,620 oz Au from 23,600 tonnes, approximately 25 g/t Au during the 1930's (Ghana Department of Mines records 1938);
- The currently producing Shaanxi gold mine, located on the same metavolcanic-metasediment contact as the Nangodi mine and approximately 7-8 km SSE of Ndongo; and,
- Numerous small scale and artisanal miners are producing gold from workings located along this same contact to the south of the Shaanxi mine and from sub-parallel shears developed east of the Shaanxi Mine.

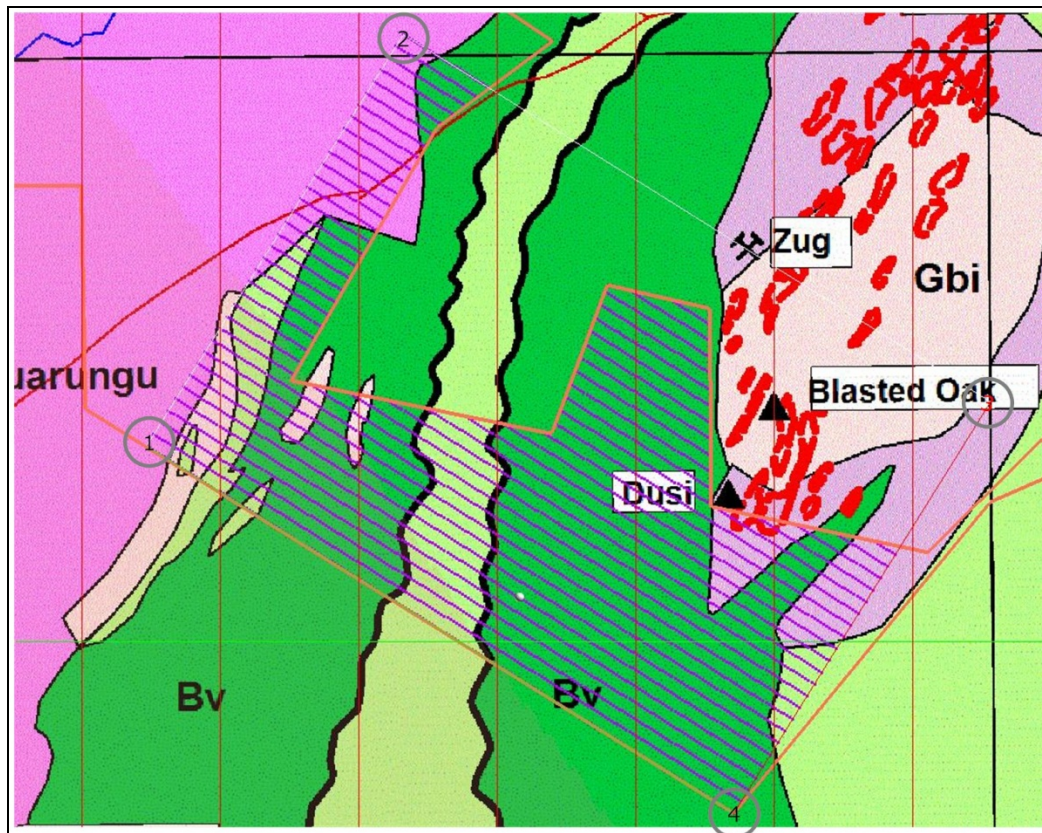
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**Figure 1: Geology map showing the location of the Bongo, Ndongo and Kungongo tenements and the producing Youga and Shaanxi gold mines**



**Figure 2: Ndongo Permit with geochemical soil grid superimposed**

(Bv = metabasalts; light green = metasediments; Gbi = granodiorite pluton; light mauve = granodiorite to granite; dark pink = granodiorite to quartz diorite granitoids) Red lines = artisanal surface workings



## NDONGO TENEMENT

The Ndongo tenement is located some 10km NE of Bolgatanga and centered around the village of Nangodi. The granted Prospecting Licence covers an area of some 106 km<sup>2</sup>.

### Ndongo Geochemical Programme

Grid lines covering the tenement are 200m apart, with sample stations at 50m along grid lines (see Figure 2). This coarse grid allows a larger area to be initially covered by soil sampling, with subsequent infill lines at 100m spacings in anomalous areas. Soil sampling used a specifically designed, compact soil drill rig to hammer hollow window sample tubes into the ground to collect undisturbed soil profiles from each selected grid point.

Samples were taken of the saprolite horizons below both the transported soils and cobbles, as well as below the disturbed soil profiles due to farming activities. Samples weighing up to 3kgs were transported to and analysed by SGS Laboratory, Ougadougou, Burkina Faso, using BLEG bottle roll techniques with residence times of 24 hours and reported as ppb Au.



**Figure 3: Soil sample from hole ND1959 (Line 4) - sample tray is 1m long**

1. 0.00-0.40m: Reddish brown sand with angular assorted cobbles & gravel
2. 0.40-1.50m: Reddish brown silty clay + scattered black Fe nodules
3. 1.50-2.60m: Dark brown clay with orange & red mottles
4. 2.60-4.00m: Saprolite: Light brown to orange pieces & fragments (sampled)

### Ndongo Geochemical Results

Structures interpreted from the Bolgatanga government airborne data are shown in Figure 5. Several major NE-SW trending structures strike through the Ndongo tenement and have formed a focus for exploration. The magnetics image has aided the interpretation of the anomalous geochemical results; it being apparent that the two anomalous zones delineated on the Ndongo tenement (see Figure 4) are adjacent to the interpreted shear structures (see Figure 5).

### Eastern Sheared Contact Zone

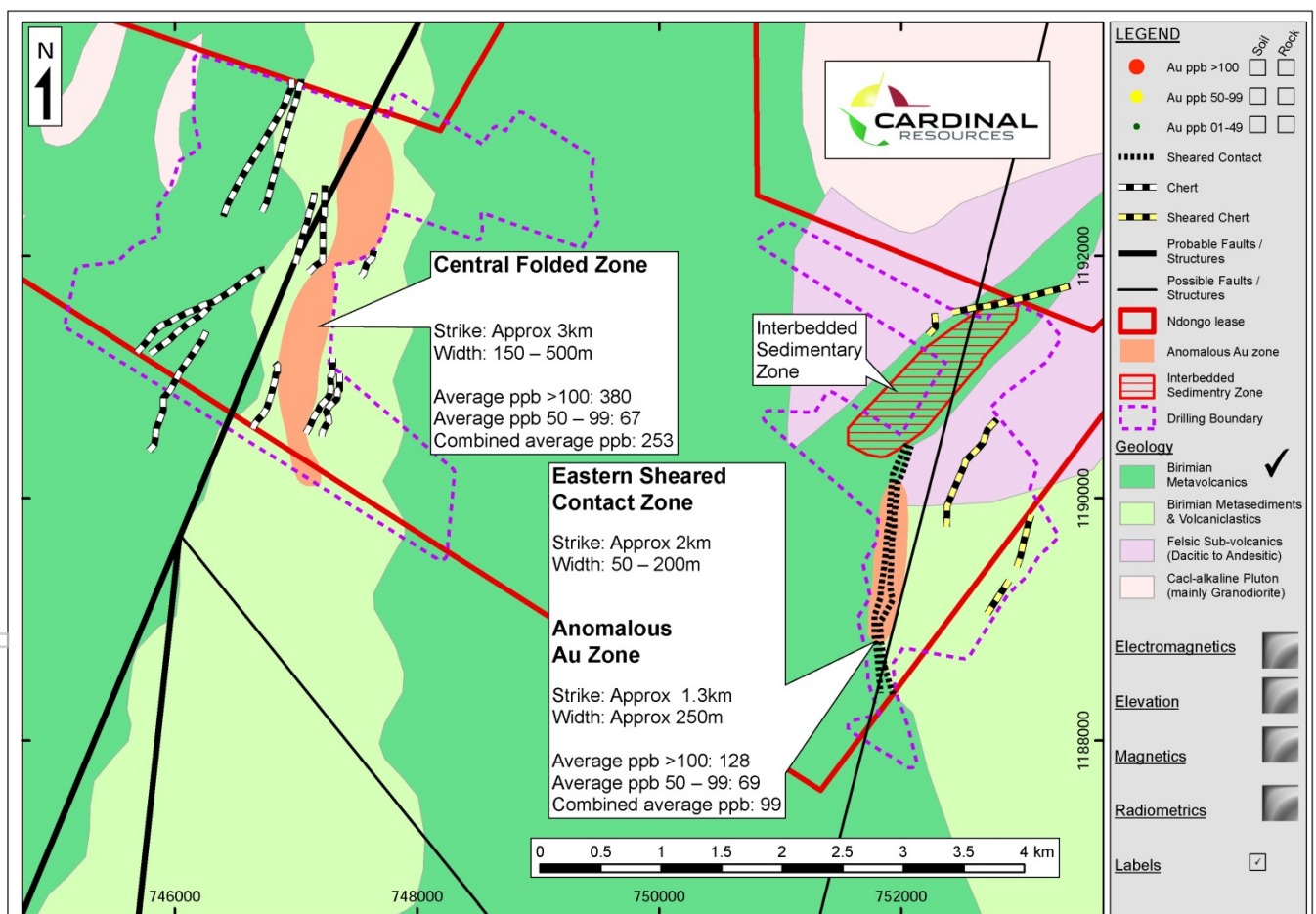
The anomalous zone is located on the sheared contact between metavolcanics and metasediments, this contact being a continuation of the contact zone containing the Nangodi and Shaanxi gold mines (see Figure 1).

This anomalous zone is also adjacent to a well-defined, NE-SW striking interpreted geophysical shear structure located on the magnetics map (see Figure 5). **This anomaly has a strike length of 1.3km, a width of about 250m and average values of 128 ppb Au.**

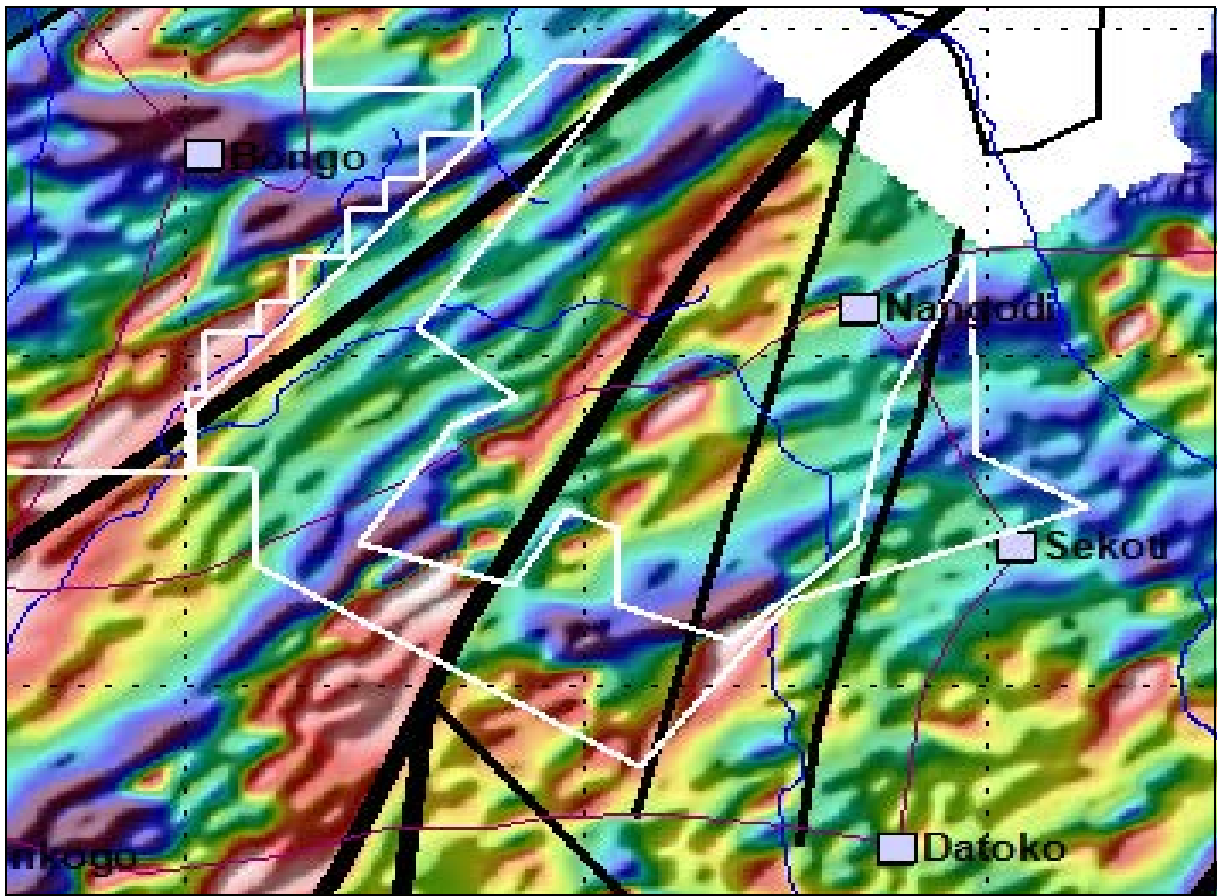
### Central Folded Zone

The anomalous zone is located along the trace of an anticlinal axis within metasediments and is bounded by cherty sediments and massive quartz vein outcrops. Refolded cherty sediments are adjacent to this anomaly on its western side with the refolding likely to have formed traps for gold mineralising fluids.

This zone is also adjacent to a well-defined, major NE-SW striking interpreted geophysical shear structure located on the magnetics map (see Figure 5). **The geochemical anomaly has a strike length of approximately 3km, a width ranging between 150-500m and average values of 380 ppb Au.**



**Figure 4: Ndongo East & Central Areas with continuous soil anomalies (>100 ppb Au)**  
Black lines indicate interpreted shear structures from magnetics map (see Figure 5)



**Figure 5: Ndongo Tenement Magnetics with Interpreted Shear Structures (black lines)**

#### **NDONGO PLANNED EXPLORATION PROGRAM**

- Soil sampling program will continue to cover the remainder of the Ndongo tenement, especially the remainder of the Central Folded Zone (CFZ) area which was not sampled during the 2012 field season;
- Anomalous results will be plotted and assessed for possible additional drill targets;
- Infill grid lines at 100m spacing will be sampled to further delineate the CFZ anomaly;
- An RC and diamond drilling programme will be planned to test the Eastern Sheared Contact Zone (ESCZ) and CFZ geochemical anomalies initially at shallow depths, then progressively deeper, depending on results;
- As the ESCZ occurs along a range of hills, drill pads will be established on the hillsides and tracks cleared for access to the drill sites;
- The CFZ is accessible to both drill rig and vehicles; and,
- Geological mapping of outcrops will continue.

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### **Competent Persons Statement**

Information in this report that relates to the Bolgatanga Project is based on information compiled by Paul Abbott a full time employee of Cardinal Resources Limited, who is a Fellow of the Australasian Institute of Mining and Metallurgy and a Member of the Geological Society of South Africa. Paul Abbott has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Paul Abbott consents to the inclusion in this report of the statements based on his information in the form and context in which it appears.