

# QUARTERLY ACTIVITIES REVIEW FOR THE PERIOD ENDING 30 JUNE 2016

## Talga Resources Ltd

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## Corporate Information

ASX Code **TLG**

Shares on issue **181.9m**

Options (listed) **44.9m**

Options (unlisted) **24.8m**

## Company Directors

**Keith Coughlan**

Non-Executive Chairman

**Mark Thompson**

Managing Director

**Grant Mooney**

Non-Executive Director

**Stephen Lowe**

Non-Executive Director

## OVERVIEW

Australian advanced materials company, Talga Resources Ltd (**ASX: TLG**) (“**Talga**” or “**the Company**”) is pleased to report its activities for the quarter ending 30 June 2016.

Highlights included:

### Commercial and Corporate

#### ***Funding and graphene technical expertise secured***

- ~\$10 million placement concluded and 1:4 underwritten rights issue of options initiated to raise a combined ~\$10.9 million;
- Capital raising delivers European based strategic investment partners and funds to support Talga’s business plan;
- Growth of technical capabilities with appointment of senior graphene manufacturing and applied products experts to team; and
- Samples delivered to various industry partners across key target markets accelerating product and process development.

### Project Development

#### ***Pilot Testwork Processing Facility Expands in Germany***

- Commissioning of larger scale (Phase 2) cells, classification and beneficiation equipment;
- Installation and commissioning of 5 additional modified (Phase 1) cells;
- Sample supply agreement reached with a Lithium-ion battery development corporation in the USA; and
- Commencement of next stage Lithium-ion battery testwork in Germany and UK.

### Exploration / Mining

#### ***Vittangi Graphite Resource Upgrade***

- Update of Vittangi Project JORC 2004 graphite resources to JORC 2012 status resulting in a 29% increase in total tonnes and increase in grade from 24.4% graphite to 25.3% graphite;
- Geophysical studies and other surveys completed ahead of a proposed exploration program and resource definition drilling; and
- Preparations advanced for the 2016 trial mining campaign at the Vittangi graphite project in Sweden.



## COMMERCIAL & CORPORATE

### *Funding and strategic investors secured*

Talga's commercial and corporate activities during the quarter included, amongst other things, a significant capital raising to support the implementation of the Company's strategic direction.

### **~\$10M Strategic Placement to European based Investors**

During the quarter Talga announced a funding initiative to raise gross proceeds of approximately \$10.87 million. This capital raising comprised:

- A) a placement of 35,571,015 ordinary fully paid shares ("Placement Shares") at an issue price of \$0.28 per share, together with one (1) free attaching unquoted option to acquire one (1) share for every four (4) Placement Shares subscribed ("Placement Options"), ("Placement"). The Placement Options are exercisable at \$0.45 each on or before 31 December 2018 and are subject to shareholder approval. The Placement will raise approximately \$9.96 million and was made to a small group of European investors led by Scandinavian group, the Smedvig Family Office ("Smedvig"); and
- B) an entitlement issue ("Rights Issue") of 44,920,582 quoted options at an issue price of \$0.02 per option ("Rights Options"), on the basis of one (1) Rights Option for every four (4) ordinary fully paid shares held on the record date. The Rights Issue was conditionally underwritten by the Placement Subscribers and the Rights Options are exercisable at \$0.45 each on or before 31 December 2018.

The placement was corner-stoned by Norwegian family office the Smedvig Group who, apart from having a significant Scandinavian presence, have co-investor relationships with groups including Pallinghurst, Posco, AMCI Capital, Temasek, Energy and Minerals Group amongst others.

Proceeds from the capital raising will be applied towards Talga's technical, commercial and mineral development programs in Germany and Sweden, as well as for general working capital.

### **Graphene Product Capability Expanded**

During the quarter Talga made two senior technical appointments. Dr Siva Böhm was appointed as the Company's Chief Technology Officer (see Fig 1). Dr Böhm is a recognised global expert in the fields of industrial graphene applications and graphene product synthesis. Dr Böhm has relocated to the site of Talga's pilot test facility in Rudolstadt, Germany. His responsibilities include development and execution of Talga's graphene and graphite processing technology, products and applications.

The second appointment was Dr Sai Shivareddy as Research and Development Manager. Dr Shivareddy will be responsible for Talga's product development strategy with a strong focus on applied materials and commercial development.

Dr Shivareddy is a former founder and CTO of CoolNergy, a printed energy storage technology startup in San Francisco and he previously supported the research and development efforts of advanced technology companies including Dyson and Intel.

Most recently Dr Shivareddy led the collaborative research activities of Tata Steel at Cambridge University with a focus on advanced graphene coatings in battery applications. Dr Shivareddy holds a PhD from St John's College, Cambridge University on the applications of carbon nanomaterials for energy storage and conversion, and is based in Cambridge UK.

Both of these appointments provide Talga with significant in-house graphene processing and applied products expertise.

**Figure 1.** Dr Siva Böhm at Talga's Rudolstadt pilot test facility



## Graphene Testwork

Talga established its German pilot test work facility to:

- provide a test bed to scale up and optimise its processing flow sheet/s with full-scale engineering outcomes in mind; and
- generate materials for industry testing to narrow down the best products and formats.

During the quarter, Talga continued to make commercial in-roads with existing partners and increasingly align process development towards products having the most effective, near term opportunities for commercialisation. Subsequent to the period a defined graphene business products strategy was announced based on progress to date including product specific feedback from customers and industrial partners.

## Investor and Commercial Relations Activities

During the quarter, Talga's senior management presented at numerous industry and investor events, including the European Union Graphene Flagship Week in Warsaw, 121 Mining Investment Conference in London and the Benchmark Mineral Intelligence Tour in London and Dresden. Patersons Securities Limited also released research notes on the Company.

## PROJECT DEVELOPMENT

### *Pilot Processing Facility Expands in Germany*

During the quarter activities in Germany progressed towards meeting Talga's goals with expansion of facilities and production capacity as well as with the appointment of key senior technical personnel.

### **Commissioning of larger scale Phase 2 processing equipment commenced**

Wet commissioning of Talga's Phase 2 pilot scale test facility in Germany commenced during the period. Phase 2 is an expansion of and improvement on Talga's Phase 1 equipment and involves processing shaped raw graphite ore from Talga's Swedish deposits in slabs up to 50kg in weight each (up from 10kg previously). Additional modified Phase 1 cells were also installed to increase total capacity of the facility to 365kgs ore feed at a time.

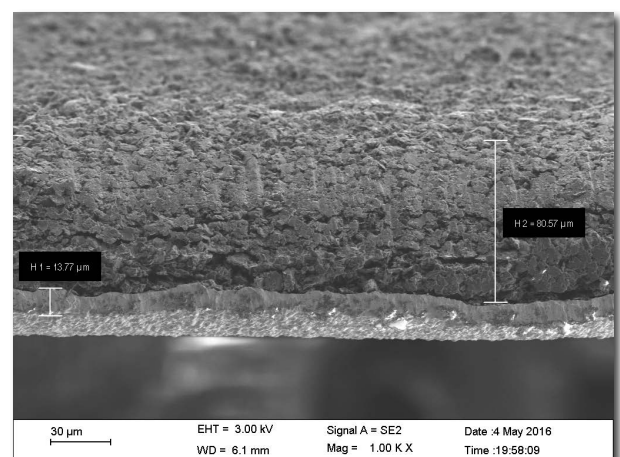
The Phase 2 expansion represents an important operational milestone as increased capacity provides Talga with the means to generate larger and/or multiple samples for different applications and end user requirements. The implementation of Phase 2 also supports Talga's efforts to continually optimise processing parameters, scale up the engineering and design larger pilot and ultimately full-scale production capability. Commissioning of the beneficiation/recovery stages of Phase 2 are underway and expected to be complete in the next quarter.

### **Lithium-ion Battery Test-work**

Having generated positive test results from preliminary lithium-ion battery anode testwork (see ASX:TLG 17 Feb 2016), together with follow-up interest from industry participants, Talga is undertaking further test-work to more closely investigate commercialisation opportunities within the energy market.

Follow up testing of Talga materials in lithium-ion batteries commenced at the Centre for Advanced Electronics Dresden, Germany ("CAED") and the Energy Innovation Centre - University of Warwick, United Kingdom ("EIC"). At EIC, lithium-ion "coin cell" batteries using Talga's material have been produced by methods that can be scaled up for future continuous roll to roll anode preparation (see Fig 2).

**Figure 2.** SEM micrograph of Talga lithium-ion test battery anode cross section.



Initial coin cell testwork targeted long charge and discharge cycles to understand the underlying chemistry and compatibility with other anode chemistries. Going forward the outcomes of this work is intended to be applied towards the production of pouch cells (cell without a metal enclosure for packaging efficiency) that can be cycled 1000 times or more. Pouch cell tests will likely be conducted using lithium-iron-phosphate (LFP) chemistry due to its good electrochemical performance with low resistance and outlook for this chemistry in key global markets.

In addition, Talga entered into a sample supply agreement during the quarter with a USA based lithium-ion battery developer under which Talga will provide graphite for performance testing in the recipients emerging lithium-ion battery technology. Testing is expected to commence next quarter and results will be shared between the parties.

## EXPLORATION AND RESOURCES

### ***Vittangi Graphite Resource Upgrade***

During the quarter Talga announced an updated mineral resource of its Nunasvaara graphite deposit, within the Vittangi project (“Vittangi”) in Sweden.

As part of permitting underway for future production from the project, Talga updated the status of its 2004 Vittangi Mineral Resource to comply with the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (“JORC”) 2012.

The updated JORC 2012 compliant Indicated and Inferred mineral resource estimate for Vittangi now totals 9.8 million tonnes (“Mt”) at 25.3% graphitic carbon (“Cg”) based on a 10% Cg lower cut-off. A summary of the estimation is provided in Table 1 below and further details and parameters relevant to the estimate are in the ASX:TLG release 30 May 2016 and Appendix 1.

The update to the previous resource from JORC 2004 status to JORC 2012 was completed by geological consultants CoxsRocks Pty Ltd and utilises new data from drilling in 2014 and trial mining undertaken in 2015. Significantly, the update results in a 29% increase in total resource tonnes and increase in the average graphite grade from 24.4% Cg to 25.3% Cg.

**Table 1 - Nunasvaara JORC 2012 Mineral Resource (10% Cg low cut-off, May 2016).**

| Resource Category<br>JORC 2012 | Tonnes           | Graphite Grade  |
|--------------------------------|------------------|-----------------|
| Indicated                      | 6,900,000        | 24.2 %Cg        |
| Inferred                       | 2,900,000        | 28.1 %Cg        |
| <b>Total</b>                   | <b>9,800,000</b> | <b>25.3 %Cg</b> |

### **Other Exploration**

Exploration has been focussed on critical path activities required for future graphite mining in north Sweden and to maintain projects in Sweden and Australia.

In Sweden studies were completed across selected graphite targets of the Vittangi, Jalkunen and Piteå projects in preparation for upcoming drill testing in the next period. The prime studies involved digital elevation topographic datasets and modelling of ground and airborne geophysical data to better define priority targets and drill sites. Untested electromagnetic anomalies will be tested at Jalkunen and Piteå. Vittangi drilling will focus on infill drilling of the northern Nunasvaara resource with a view to upgrading resource status to Indicated level for future development planning.

At the 100% owned Bullfinch gold project in the Yilgarn area of Western Australia geochemical sampling was completed as part of maintenance and promotion. Mobile metal-ion (MMI) sampling returned a low order gold anomaly near the Bottom gold prospect that will be field checked next quarter. The Company notes the discovery of significant Lithium mineralisation by Kidman Resources in the Southern Cross greenstone belt, approximately 125km south of the Bullfinch project. This increase in the prospectivity of the belt for Lithium minerals may support efforts to joint venture or sell the project and minor work will be conducted to review Lithium potential at Bullfinch.

The option agreement with Beatons Creek Gold Pty Ltd (“Beatons”) over Talga’s three Pilbara gold projects (see ASX:TLG 12 August 2015) continues positively and Beatons have been undertaking a range of general exploration activities as part of their due diligence and to keep the tenements in good standing.

### **Trial Mining**

During the quarter, preparations advanced for the 2016 trial mining campaign at the Vittangi graphite project in Sweden (see Fig 3). Site preparations and stakeholder engagement were well advanced at 30 June and subsequent to the quarter trial mining commenced (ASX:TLG 25 July 2016).

### **TENEMENT INTERESTS**

As required by ASX listing rule 5.3.3, refer to Table 2 for details of Talga’s interests in mining tenements held by the Company. No new joint ventures or farm-in/farm-out activity occurred during the quarter.

**Figure 3.** Dual blade diamond saw to commence trial graphite ore block cutting.



For further information, visit [www.talgaresources.com](http://www.talgaresources.com) or contact:

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### **Competent Person’s Statement**

The information in this report that relates to Exploration Results and Exploration Targets is based on information compiled and reviewed by Mr Simon Coxhell, a consultant to the Company and a member of the Australian Institute of Mining and Metallurgy and Mr Mark Thompson, who is an employee of the Company and a member of the Australian Institute of Geoscientists. Mr Thompson and Mr Coxhell have sufficient experience which is relevant to the activity which is being undertaken to qualify as a “Competent Person” as defined in the 2012 Edition of the “Australasian Code for Reporting of Exploration Results, mineral Resources and Ore Reserves” (“JORC Code”). Mr Thompson and Mr Coxhell consent to the inclusion in the report of the matters based on this information in the form and context in which it appears.

The information in this report that relates to Resource Estimation is based on information compiled and reviewed by Mr Simon Coxhell. Mr Coxhell is a consultant to the Company and a member of the Australian Institute of Mining and Metallurgy. Mr Coxhell has sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this document and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves” (“JORC Code”). Mr Coxhell consents to the inclusion in this report of the Matters based on this information in the form and context in which it appears.

**TABLE 2****Tenement Holdings**

| Project/Location                                       | Tenements                                                                                                                                                                                                           | Interest at end of quarter                                                                   | Acquired during quarter | Disposed during quarter |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------|-------------------------|
| <b>Jalkunen Project</b><br>Norrbotten County, Sweden   | Jalkunen nr 1<br>Jalkunen nr 2<br>Jalkunen nr 3<br>Kursuvaara<br>Lautakoski nr 1<br>Lautakoski nr 2<br>Lautakoski nr 3<br>Nybrännan nr 1<br>Nybrännan nr 2<br>Suinavaara nr 1<br>Suinavaara nr 2<br>Tiankijoki nr 1 | 100%<br>100%<br>100%<br>100%<br>100%<br>100%<br>100%<br>100%<br>100%<br>100%<br>100%<br>100% |                         |                         |
| <b>Kiskama Project</b><br>Norrbotten County, Sweden    | Kiskama nr 1                                                                                                                                                                                                        | 100%                                                                                         |                         |                         |
| <b>Masugnsbyn Project</b><br>Norrbotten County, Sweden | Masugnsbyn nr 1<br>Masugnsbyn nr 2                                                                                                                                                                                  | 100%<br>100%                                                                                 |                         |                         |
| <b>Pajala Project</b><br>Norrbotten County, Sweden     | Lehtosölkä nr 3<br>Liviövaara nr 2                                                                                                                                                                                  | 100%<br>100%                                                                                 |                         |                         |
| <b>Piteå Project</b><br>Norrbotten County, Sweden      | Gråtiden nr 2<br>Önusträsket nr 2                                                                                                                                                                                   | 100%<br>100%                                                                                 |                         |                         |
| <b>Raitajärvi Project</b><br>Norrbotten County, Sweden | Raitajärvi nr 5<br>Raitajärvi nr 6                                                                                                                                                                                  | 100%<br>100%                                                                                 |                         |                         |
| <b>Vittangi Project</b><br>Norrbotten County, Sweden   | Maltosrova nr 2<br>Maltosrova nr 3<br>Mörttjärn nr 1<br>Nunasvaara nr 2<br>Vathanvaara nr 1<br>Vittangi nr 2<br>Vittangi nr 3<br>Vittangi nr 4                                                                      | 100%<br>100%<br>100%<br>100%<br>100%<br>100%<br>100%<br>100%                                 |                         |                         |
| <b>Bullfinch Project</b><br>Western Australia          | E77/2139<br>E77/2221<br>E77/2222<br>E77/2251<br>P77/4106                                                                                                                                                            | 100%<br>100%<br>100%<br>100%<br>100%                                                         |                         |                         |
| <b>Mosquito Creek Project</b><br>Western Australia     | P46/1634<br>P46/1636<br>P46/1638<br>P46/1666<br>P46/1667<br>P46/1668<br>P46/1800<br>E46/1035                                                                                                                        | 100%<br>100%<br>100%<br>100%<br>100%<br>100%<br>100%<br>100%                                 |                         |                         |

**TABLE 2 (continued)**  
**Tenement Holdings**

| Project/Location                                | Tenements | Interest at end of quarter | Acquired during quarter | Disposed during quarter |
|-------------------------------------------------|-----------|----------------------------|-------------------------|-------------------------|
| <b>Talga Talga Project</b><br>Western Australia | M45/618   | 100%                       |                         |                         |
|                                                 | P45/2689  | 100%                       |                         |                         |
|                                                 | P45/2690  | 100%                       |                         |                         |
|                                                 | P45/2691  | 100%                       |                         |                         |
|                                                 | P45/2746  | 100%                       |                         |                         |
|                                                 | P45/2747  | 100%                       |                         |                         |
| <b>Warrawoona Project</b><br>Western Australia  | P45/2774  | 100%                       |                         |                         |
|                                                 | E45/3381  | 100%                       |                         |                         |
|                                                 | P45/2661  | 100%                       |                         |                         |
|                                                 | P45/2662  | 100%                       |                         |                         |
|                                                 | P45/2781  | 100%                       |                         |                         |

## APPENDIX 1

### Graphite Resources

#### Nunasvaara Mineral Resource (10% Cg lower cut-off)

| JORC 2012 Classification | Tonnes           | Grade %graphite |
|--------------------------|------------------|-----------------|
| Indicated                | 6,900,000        | 24.2            |
| Inferred                 | 2,900,000        | 28.1            |
| <b>Total</b>             | <b>9,800,000</b> | <b>25.3</b>     |

#### Raitajärvi Mineral Resource<sup>1</sup> (5% Cg lower cut-off)

| JORC 2004 Classification | Tonnes           | Grade %graphite |
|--------------------------|------------------|-----------------|
| Indicated                | 3,400,000        | 7.3             |
| Inferred                 | 900,000          | 6.4             |
| <b>Total</b>             | <b>4,300,000</b> | <b>7.1</b>      |

#### Jalkunen Mineral Resource (10% Cg lower cut-off)

| JORC 2012 Classification | Tonnes     | Grade %graphite |
|--------------------------|------------|-----------------|
| Inferred                 | 31,500,000 | 14.9            |

## APPENDIX 2

### Iron Resources<sup>1</sup>

| Deposit           | Tonnes             | Grade %Fe   | JORC 2004 Classification |
|-------------------|--------------------|-------------|--------------------------|
| Vathanvaara       | 51,200,000         | 36.0        | Inferred Resource        |
| Kuusi Nunasvaara  | 46,100,000         | 28.7        | Inferred Resource        |
| Mänty Vathanvaara | 16,300,000         | 31.0        | Inferred Resource        |
| Sorvivuoma        | 5,500,000          | 38.3        | Inferred Resource        |
| Jänkkä            | 4,500,000          | 33.0        | Inferred Resource        |
| Masugnsbyn        | 87,000,000         | 28.3        | Indicated Resource       |
| Masugnsbyn        | 25,000,000         | 29.5        | Inferred Resource        |
| <b>Total</b>      | <b>235,600,000</b> | <b>30.7</b> |                          |

<sup>1</sup> Note: This information was prepared and first disclosed under the JORC code 2004. It has not been updated since to comply with the JORC code 2012 on the basis that the information has not materially changed since it was last reported. The Company is not aware of any new information or data that materially affects the information included in the previous announcement and that all of the previous assumptions and technical parameters underpinning the estimates in the previous announcement have not materially changed.