



PROJECT STATUS REPORT FORM

Project Number: ATF-06-03	Task Force: Aluminium
Title of Project: Management of Bauxite Residue	
Lead Partner Country: Australia	
Participating Partner Countries and Organizations:	
<ul style="list-style-type: none"> • China – China Non-ferrous Metals Industry Association (CNIA) • India – Jawaharlal Nehru Aluminium Research Development and Design Centre (JNARDDC) 	
Project Location (Country, State/Province, City):	
Australia – Western Australia, Perth China – Beijing India – Nagpur	
Project Manager Information	
<i>Australia</i>	
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<i>India</i>	
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Project Start Date: 16 April 2008	Date of Project Status Update: September 2009
Actions Since Last Update:	
<i>Australia</i>	
<ul style="list-style-type: none"> • Three detailed literature reviews completed on: <ul style="list-style-type: none"> ○ Current bauxite residue management, disposal & storage: practices, engineering and science. ○ Bauxite residue reuse options. ○ Residue alkalinity and associated chemistry. • Priority research areas list developed on the basis of the knowledge gaps identified in the literature reviews and those areas of residue utilization that appear to show the most promise. • BRaDD database launched on-line for initial testing and feedback. • Commencement of titration investigations into residue alkalinity. 	



- Instigation of application reviews or casebook studies into actual/proposed residue utilization

India

- A work plan has been formulated for the promotion of R&D activities on bulk utilization of red mud which results economically viable and useful products generation.
- The R&D activities carried out by other premier research organizations in India has been reviewed for avoiding duplication and ensure their expertise and association, if needed in the research work.
- Detailed literature evaluation has been carried out on the red mud utilization and products generation on areas such as (i) *Development of stabilized blocks / Fired blocks* (ii) *Bench scale studies for Development of Glass Ceramics* (iii) *Development of light weight aggregates- Foam Products* and (iv), *Use of red mud as soil amendmets. All the raw materials required for the R&D has been collected and characterized.*

Status

1. R&D on fired bricks has been completed by local industrial units by the support of NALCO and the product quality evaluation is in progress by NALCO and JNARDDC for commercialization. Also lab scale studies are in progress in preparation of bricks to be used as construction material in rural areas.
2. Setting up of bench scale studies of glass ceramics has initiated
3. Light weight blocks have been made with different composition of red mud and other filling materials. The mechanical strength and bulk density envisaged for products generation has achieved. Studies on physical properties such as crushing and compressive strength as well as chemical properties of laboratory made light weight bricks are initiated.
4. A comprehensive literature survey on the subject has been done. pH optimization studies on red mud for the suitability of soil amendment using gypsum has been studied. A Laboratory scale trial on vegetation of certain crop species is under progress.

Deliverables Since Last Update:

Australia

- Literature reviews on current general storage practices, engineering and science; re-use options; and residue alkalinity and associated chemistry.

Date Completed: August 2009

Milestones Reached:

Australia

- Detailed literature reviews of current general storage practices, engineering and science; and re-use options and alkalinity and associated chemistry.
- General literature review of current technology, practices, re-use options and associated residue chemistry.
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Next Steps:

Australia

- Commence research on promising re-use options, and knowledge gaps in residue alkalinity.
- Undertake a workshop in India, December 2009.
- Undertake assessment of industrial by-product re-use regulations within APP and other countries.



- Complete reviews and surveys for environmental rehabilitation re-use options; civil construction options; and industrial feedstock options.

India

- Joint JNARDDC/CSIRO workshop to be held December 2009 in Nagpur, India.

Proposed Project End Date: 31 April 2011

Project Already Complete: Yes No

Other Information:

Australia

The BRADD database (Bauxite Residue and Disposal Database) was unplanned at the outset of the work but was found to be necessary in order to be able to collate and compare the diverse data sets in the various formats that the project had started to uncover. The need to construct BRADD has delayed the submission of the literature reviews but in itself is a valuable outcome. The development of BRADD has been funded by CSIRO and although it will be available for the ATF Bauxite Residue projects it will remain under CSIRO control.

India

The JNARDDC (India), in collaboration with Nalco, has commenced a research program that complements the CSIRO project which will focus on 1) development of stabilised blocks; 2) bench scale studies for development of glass ceramics; 3) development of lightweight aggregates-foam products; and 4) use of red mud as soil amendments.. It is expected that these sub-projects will take between three and four years to complete.

Please attach any supplemental project information to this form.