Shared Mining Infrastructure: Too Good to Be True?

Land, Water, and Ecosystems

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About ATPS

Our mission, unchanged since 1994, is building Africa’s STI capabilities for sustainable development.
AFRICA-AUSTRALIA RESEARCH FORUM

1:00 pm – 5:00 pm, August 30, 2011, Novotel Perth Langley

The recently tabled report by the Parliamentary Inquiry into Australia's Relations with the Countries of Africa identified a strong tradition of collaborative research activities between Australia and Africa across a broad array of scientific and social areas. This forum seeks to build upon this foundation and contribute to the ongoing dialog by bringing together academics, government agencies and the private sector to discuss a number of contemporary issues and opportunities in the mining sector.

The interface between resources and agriculture in rural Africa

Murdoch University Discussion Paper
Developed with partners: Australia’s AID program, the Australian Centre for International Agricultural Research (ACIAR), the Australia-Africa Mining Industry Group (AAMIG), International Mining for Development Centre (IM4DC) Curtin University, James Cook University The University of Queensland, the Crawford Fund, the University of the Witwatersrand, the African Technology Policy Studies Network (ATPS), the Beira Agricultural Growth Corridor in Mozambique (BAGC) and the Coalition for Dialogue on Africa CoDA.
"Putting the pedal to the metal"

- How the extractives sector can contribute to accelerating sustainable regional economic development in the countries of Africa
The 5 Australian Development Research Awards Scheme (ADRAS) Extractive-based projects:

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<thead>
<tr>
<th>Title</th>
<th>Summary</th>
<th>Organisation</th>
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<tr>
<td>How can mining and agriculture work together to provide equitable economic opportunities?</td>
<td>Harnessing natural resources for mining and agriculture is a key driver of global economic growth, transforming economies and societies in many countries...</td>
<td>Murdoch University</td>
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<td>Using mining infrastructure for broader economic development</td>
<td>This project aims to develop an economically, legally and operationally rational framework to enable shared use of mining-related infrastructure (rail, ports, power, water, internet and telecommunications) ...</td>
<td>Columbia University</td>
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<td>Using Mozambique’s natural resource wealth to improve access to water and sanitation</td>
<td>This collaborative research project ...seeks to amplify evidence-based advocacy at national and provincial levels by analysing current efforts to increase access to water and sanitation...</td>
<td>Murdoch University</td>
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<td>Developing policies to better manage mines, mine closures and mine abandonments</td>
<td>The project focus is to ensure the ability to manage environmental and social impacts of a mine from the outset and ensure capacity ... to undertake obligations of rehabilitation in affected environs to solve existing abandoned mine legacy issues...</td>
<td>Murdoch University</td>
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<td>Human rights and the environmental impact of mining in Africa</td>
<td>This project examines the human rights and environmental impact of extractive industries in Africa taking into account the African Charter on Human and Peoples’ Rights and the African Mining Vision ...</td>
<td>University of Pretoria</td>
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New Machavie gold mine, S. Africa: Abandoned in 1940's
Kalgoorlie Superpit (gold mine), Western Australia

The Superpit (3.5km x 1.5km, 570m deep) has engulfed much of former city of Boulder. Mining expected to end in 2016 – >50 million ounces of gold produced

What will be the social and environmental legacy?
Alcoa (bauxite) mining, W. Australia

Rehabilitation of mined areas to restore ‘Jarrah’ forest - ongoing mining operations in a public-owned forest resource.

Sustaining Success
Alcoa Australia successfully re-establishes a self-sustaining jarrah forest on rehabilitated mine areas, such as this former mining area at the Huntly Mine. Alcoa Australia has created the richness of plant species equal to the surrounding forests - a strong example of Alcoa’s commitment to sustainable development.
Mining Rehabilitation Fund Act 2012, WA:

- Replaces former mining bond system – miners pay 1% of rehabilitation value into fund each year
- Any amount in fund can be utilised to rehabilitate a (newly) abandoned mine
- Interest earned on fund is used for clean-up of (old) abandoned sites

Can a similar policy approach be adopted in an African context?

What other creative research and technology can be applied in this context?

New Machavie gold mine, S. Africa: Abandoned in 1940's - Waste dumps eroding/washing into the river.
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Driving policy innovation in mine closure and abandonment management, environmental risk mitigation, and rehabilitation of abandoned mine sites as a pro-development strategy, Principal Investigator, Assoc. Prof. Angus Morrison-Saunders

*Can mine closure policy innovation in Western Australia enhance practice in an African context?*

**Focus**: Ghana; Kenya; Mozambique; Nigeria; S. Africa; Tanzania; Zambia

**Collaborators**:  
Dr. Hudson Mtegha,  
University of the Witwatersrand, S. Africa  
Dr. Phil Gorey,  
Dept. of Mines and Petroleum, W. Australia,  
Adjunct Assoc. Prof. Murdoch University
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Agriculture in Africa – Just add water

Biophysical crop suitability—yield
Maize: irrigated

Biophysical crop suitability—yield
Maize: rainfed-high inputs

Yield potential

0
0.3
0.6
0.8
1.2
2.0
3.0
4.0
6.0
8.0
10.0
12.0
> 12.0
no growing season

Source: You et al. 2007.
Copper removal from effluents by various separation techniques

Acid mine drainage remediation options: a review

MONO/DI-AMMONIUM PHOSPHATE FERTILISERS AS DRAW SOLUTION FOR FORWARD OSMOSIS DESALINATION

Authors: Sherub Phuntsho, Ho Kyong Shon, Seungkwan Hong and Sangyop Lee

Editor: Ho Kyong Shon
Lecturer – University of Technology Sydney (UTS) – Australia

Heavy metals (Cd, Pb, Cu, Zn) in mudfish and sediments from three hard-water dams of the Mooi River catchment, South Africa
Land, Water and Ecosystems
Perth to Adelaide
GOVERNMENT CONDENSERS, COOLGARDIE.
(Coolgardie Goldfield.)
JOHNNIE’S LITTLE TOY

Johnnie wanted something to play with,
Something to hang on the wall,
Something that he might be proud of,
And so he has ruined us all.
Grain harvest in 2013: 15.1 million tonnes – a record
"Getting agriculture and mining (to) work together in that part of the country that I'm coming from is difficult, I've never seen it happen,"

Sierra Leone's Deputy Minister for Agriculture and Food Security, Marie Jalloh.

Coal and gas mining protests

COMMUNITY groups kicked off a National Week of Action against coal and gas mining on the weekend, with events held in Victoria, Perth and NSW.

Events commenced on Saturday with a rally and forum in Perth.
Elements for Discussion

- Leadership for long term visioning
- Policy coordination for better systems of innovation in the extractive, agricultural, water and environmental sectors
- Capability enhancement: implementation; value adding, Regulation, M&E?
- Appropriate methods to engage local stakeholders?
- Extractive corridors: roles for government and private sector?
- Technology and innovation cooperation: what are the possible options that will benefit multiple stakeholders?
The missing link in Africa’s industrial development effort is not resources but lack of technological capacity to innovate and add value to products.