Bowen Basin Mining Communities Partnership Project

Social/Economic Researchers’ Workshop

Monday 12 May 2003

For Queensland Department of the Premier and Cabinet

Institute for Sustainable Futures
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Where possible, we adopt an approach to our work which is interdisciplinary and participatory. We aim to engage with our partners, funding agencies and clients in a co-operative process that emphasises strategic decision making.

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INTRODUCTION

There is a diverse range of social and economic research taking place within the Bowen Basin area of Central Queensland. This research may relate directly to mining, such as impact assessment for particular development proposals, or it may be focused on social issues or trends within mining communities. Discussions between researchers and staff within the Department of the Premier and Cabinet led to a proposal that a workshop be held to find out more about this area of research. The workshop was coordinated by the Community Engagement Division of the Department of the Premiers and Cabinet and an invitation was made to researchers involved in current and potential studies of social/economic issues affecting mining dependent or semi-dependent communities in the Bowen Basin. In response, many researchers were keen to present their research for discussion. The workshop was well attended by researchers, government personnel and representatives for the mining industry.

The workshop format was more formal in the first part of the day, with researchers providing a brief presentation, followed by questions and discussion. The second part of the day began with a panel giving reflections on the morning and then small groups worked on a number of different themes. Arising from a discussion of future directions for social and economic research in the Bowen Basin the potential for a research network to be developed was identified and agreed upon. There was a need to find ways to share results of research and collaborate on projects. The potential for funding opportunities was also discussed.

Aims of the Workshop

Provide an opportunity to exchange professional views and information on research studies affecting mining dependent or semi dependent communities in the Bowen Basin area of Central Queensland.

Identify current and prospective research into social or economic issues affecting Bowen Basin Mining Communities.

Seek collaborations, co-ordination and alignment of research efforts

Develop possible protocols for researchers in the area

Identify and minimise duplication amongst research projects where feasible.

Research presentations

A range of research was presented. The complete presentations are contained in Appendix A.

Understanding Knowledge, Justice and Change in Sustainable Development in Regional Communities by Fiona Solomon and Evie Katz, CSIRO Minerals.

The Economic and Social Impacts of the Coppabella Mine on Nebo and the Mackay Region by John Rolfe and Stewart Lockie, Centre for Social Science Research, Central Queensland University.

Study Findings – Youth Suicide Prevention & Social Capital in the Mackay Region by Helen Waite, Queensland Centre for the Prevention of Domestic and Family Violence, Central Queensland University.
Wellbeing of Women and Children in Mining Communities in the Bowen Basin by Susan Rees, Queensland Centre for the Prevention of Domestic and Family Violence, Central Queensland University.

Population Trends and Socio-economic Characteristics of Bowen Basin Communities by Ross Barker & Alison Taylor, Planning Information and Forecasting Unit, Department of Local Government and Planning.

Developing Social Indicators for Mining Associated Communities by David Brereton, Centre for Social Responsibility, The University of Queensland.

BTRE – Regional Centres Project by Kerry Laughton, Bureau of Transport and Regional Economics.

ACMER projects relevant to Sustainable Mining in the Bowen Basin by Owen Nichols, Australian Centre for Mining Environmental Research.

Priorities in the area of Social Research – ACARP in 2003 by John Merritt, Anglo Coal, ACARP Representative.

Panel and small group discussion

A Panel gave critical reflections and feedback on the presentations including impressions, potential for collaboration and co-operation and identified gaps in social and economic research. The members of the Panel were:

Mr Roger Wischusen, Manager, Australian Coal Association Research Program (ACARP)

Ms Lisa Pollard, Principal Policy Officer, Innovation Unit, Department of the Premier and Cabinet

Mr Keith Barker, Queensland Mining Council

Professor Bob Miles, Institute for Sustainable Regional Development, Central Queensland University

Ms Fiona Martin, Office of Regional Development, Department of State Development

Panel reflections

Mr Roger Wischusen, Manager, Australian Coal Association Research Program (ACARP)

It is obvious that a large amount of important research is being conducted and there is perhaps a bit of duplication.

The group seems to want to achieve a partnership and if this happens it will be a major accomplishment. However, he feels that researchers and mining companies will find it difficult to ever really work together.

Gaps in the research need to be addressed and ACARP are willing to help with that.

Ms Lisa Pollard, Principal Policy Officer, Innovation Unit, Department of the Premier and Cabinet
There are issues of how to connect and work with people.

Key themes of the workshop have been mine closure and the affects on the community.

There is a need to use information for social indicators and carefully analyse the results.

We need to look at key link areas of commonality and what everyone thinks would be fair managing expectations and clarifying what is expected.

Discussion on involving the coal industry research through case studies.

There are global industry links, what comparative research links are there?

**Mr Keith Barker**, Queensland Mining Council

Workshop a great success. There seems to be many people researching a lot of topics but there is a need for better planning. How does this region differ from others? Is the problem unique to mining or is it a part of broader problems?

Bowen Basin should be planning for the future instead of looking at the past.

A true partnership with State Government, Local Government and the community needs to be developed.

Look at other regional planning that is already in place and consider how we can use something that already exists eg WHAM 2015 & CQANM.

We need to put in the structure of where we want to go and concentrate on the future.

Facilitating change and whole of life planning and extending communities past the 40-year life of mining.

What role does the Government play, what does the mining company play or is it a social economic issue?

Must look at what funds that we have collectively and how can it best be spent.

Bowen Basin region provides royalties to Government but basic services are apparently not available. Where is the money going?

**Professor Bob Miles**, Institute for Sustainable Regional Development, Central Queensland University

Mining industry is very committed to work in health and safety and the industry is aware of internal along with the external safety.

The overall social environment is important in achieving this.

The industry is reluctant to be dictating to the workforce what they can do away from work. Possibility this is a reason why there is a reluctance to take on such research. Industry is keen to understand changes and is looking for assistance from the researchers.

The industry expects a very long future and wants to plan for the future.
Communication is very important.

Comment from the Mayor that Emerald has not really had such a hard time of it and suggests that diversity has a lot going for it and should think about how we can diversify in this area.

Ms Fiona Martin, Office of Regional Development, Department of State Development

Praised the project and identified a need to integrate this research.

Identified economic synergies from the mining industry, such as supply chains and jobs for local businesses and the need for industry partnerships, education and training.

Small group discussion
In consultation with Workshop participants, a number of thematic areas were suggested. The groups were asked to examine four key questions relevant to these themes; what they would take away? links? understandings? and next steps? The following topics were suggested as a starting point for group discussion:

- impacts assessment;
- issues of change and regional development;
- specific individual projects;
- economic diversification;
- the jigsaw of people, projects and funding;
- how to make strategic links: and
- ACARP and industry funding.

Summary and outcomes of the day
In addition to the valuable discussion and development of relationships on the day, the most significant outcome from the workshop was the establishment of a Bowen Basin Research Network. A group was formed to coordinate the network and to act on a number of suggestions made by the group. These included the establishment of a website containing details of both past and current relevant research projects and an email list. It was agreed that the network would be informal and focused on research related to the region.

It was also suggested that a second forum be held in order to build on the activity of the “Positive Futures in Mining Communities” held in Moranbah in November 2000. Another suggestion was that an annual planning meeting be held for researchers. Both the forum and future meetings could also be an opportunity for the research network to meet again and continue developing the ideas discussed at this workshop. These included:

- the need to identify and agree on research priorities;
- to reduce any overlap in research activities;
to further understanding of social and economic research;

to continue dialogue with industry;

to assist government with regional planning; and

to explore research partnerships and funding options.

A number of significant research gaps were also identified. These include:

- health issues related to an aging workforce;
- ethnographic studies of mining communities;
- links between social issues and mining community industry patterns such as work/home commuting.

**Participants Reflections:**

*In the final exercise all participants provided their reflections and feedback on the day:*

**Owen Nichols:** Companies struggle to decide what are the financial priorities of small communities and it would be appreciative if there were policies or guidelines to make these decisions.

**Lisa Pollard:** Asked to make a time to meet for the network group.

**Stewart Lockie:** Felt the work discussed today has been beneficial to make sure the research is used.

**John Merritt:** How to take it forward from today to include ACARP?

**Janet Benson:** Good connections, which will be further developed through the website. One of the main things is one cannot work in isolation and the need to connect there is a need to form partnerships.

**Stephen Schwarten:** Hopes that all participants keep the commitments made at this forum and he will continue to liaise with local government and the community in the region.

**Lynda Herbert-Cheshire:** Positive.

**Patrick Noonan:** Positive.

**Helen Waite:** Really worthwhile, new opportunities, new problems to address and let’s get started.

**Susan Rees:** Positive and has learnt a lot which will enhance her research.

**Ross Barker:** Need to work collaboratively.

**Alison Taylor:** Echo Stewart’s view. It is always good to have people appreciate what you do and the importance of it confirmed and the need for a wider audience to be given the information as well. Would like to see a repeat forum like Moranbah. I am now convinced that this research is very important.
Roger Wischusen: Emphasised the strength of this work and liked the breakdown of isolated positions and the sharing of views that occurred during the day.

John Morris: Fantastic, will be in touch with John (ACARP) and will work closer with the whole of this group and the community in this region.

Rhys Worrall: Great enthusiasm and looks forward to the network being established.

Jim Grundy: Useful exercise, from this, it can only get stronger.

Gail Kelly: Looking forward to reflecting on the similarities of the issues raised. The desire and the need to work more closely.

Fiona Solomon: Quality of the discussion has been so good. The outcomes have been excellent.

Evie Katz: Gained a lot as not a local. Relieved to see they are not duplicating and looks forward to sharing information.

Bill Higham: The region warrants this attention. The challenges are to pick up this amazing amount of work, to look at it and apply it. Progress this and continue with it. Looking for the project team to progress on behalf of everybody.

Frank Gilbert: Ownership of the network is about to be created. There is a need to show the community of mining communities good deliberation, communication and engagement. Look forward to the possibility of holding another future search style conference similar to Moranbah.
APPENDIX A — PRESENTATIONS


2. The Economic and Social Impacts of the Coppabella Mine on Nebo and the Mackay Region by John Rolfe and Stewart Lockie, Centre for Social Science Research, Central Queensland University.


4. Wellbeing of Women and Children in Mining Communities in the Bowen Basin by Susan Rees, Queensland Centre for the Prevention of Domestic and Family Violence, Central Queensland University.

5. Population Trends and Socio-economic Characteristics of Bowen Basin Communities by Ross Barker & Alison Taylor, Planning Information and Forecasting Unit, Department of Local Government and Planning.

6. Developing Social Indicators for Mining Associated Communities by David Brereton, Centre for Social Responsibility, The University of Queensland.

7. BTRE – Regional Centres Project by Kerry Laughton, Bureau of Transport and Regional Economics.

8. ACMER projects relevant to Sustainable Mining in the Bowen Basin by Owen Nichols, Australian Centre for Mining Environmental Research.

Understanding Knowledge, Justice and Change in Sustainable Development in Regional Communities

Fiona Solomon, Evie Katz, Gail Kelly, Geoff Syme, Blair Nancarrow, Russell Gorddard
Purpose today

• Here to talk about our proposal ideas and seek feedback, ideas, interest
• Keen to collaborate with existing or planned research / policy initiatives
• Could look at setting up network to facilitate knowledge sharing
Background

- CSIRO Emerging Science Areas
- ‘Social and Economic Integration’ (SEI)
  - integration of social and economic sciences with other scientific and technological R&D
  - encapsulates an intent to ensure that (scientific and technological) research is relevant and significant in human affairs
SEI ‘Vanguard’ projects

- Major new projects based on multi-divisional teams and collaboration with external SEI practitioners
- Proposals are developed and submitted to the SEI Board through three stages
  - concept plan
  - project design and business planning
  - project implementation
SEI proposal themes

- Our project seeks to:
  - Explore diverse knowledge frameworks used in sustainable development discourses
  - Develop greater understanding of change issues facing regional communities
  - Understand criteria for procedural justice in participatory decision making
Two case studies: challenges for sustainability

• Wheatbelt region in WA:
  – Dryland salinity, single-crop agriculture, population decline

• Bowen Basin region in QLD:
  – Dominant industry sector, post-closure landscapes and communities, population decline
Two cases

Why these two cases
• Similarities: dominant industry, regional change
• Differences: type of industry and its relation to sustainability; degree and nature of change

Comparative case study approach
• Regional focus as distinct from urban or site specific
• Role of science and technology in social processes
• Allows for triangulation for increased research rigour
Bowen Basin case

Why this region

• Mining a central economic activity with social and sustainability implications
• Interest in participatory processes eg CHRRUPP
• CSIRO Minerals Social Values group research area

Focus on mine closure

• Social research emphasis on development / approval stage
• Closure usually framed as technical / environmental problem
Three stages

1. **Preliminary data gathering**: on key topics pertaining to issues of mine closure, post-mining landscapes and communities.

2. **Action research**: multi-stakeholder participatory dialogue, ideally in partnership with government and industry.

3. **Analysis**: comparison with Wheatbelt case, report and recommendations.
Research outcomes

- Broad-brush picture of the interconnectedness of the social, economic, environmental aspects of mining futures in the Bowen Basin
- Stakeholder perspectives of relevant knowledge and fairness principles in the context of mine closure
- Policy implications for government, industry, international agencies
CSIRO Research groups

- Resource Futures, CSIRO Sustainable Ecosystems, Canberra
  - Gail Kelly, Russell Gorddard
- Social Values/Sustainable Development, CSIRO Minerals, Melbourne
  - Fiona Solomon, Evie Katz
- Australian Research Centre for Water in Society (ARCWIS), CSIRO Land and Water, Perth
  - Geoff Syme, Blair Nancarrow
Where to from here

- Final proposal (business plan) in development
- Will be submitted to SEI Board in June
- If supported, plan a 3 year project
Close

- Feedback/questions welcome
- Opportunities for collaborating with or alongside parallel research in the region
- Ways to continue linkages after this workshop
Assessing the economic and social impacts of Coppabella Mine on Nebo.

John Rolfe
Stewart Lockie
Maree Franettovich
Overview of problem

- Mining is major economic driver of regions
- Not always clear what impact is in local communities
- In some cases growth in mining may substitute for downturn in agriculture
- Coppabella mine does not appear to have had major impacts on Nebo
Reasons for study

- Local community wants to maximise economic and social benefits of mining
  - Shift work operations?
  - Proximity to Mackay for business services?
- Local community wants to avoid problems
  - Previous downturn has affected other towns
  - Mine has a limited life
- How to make Nebo attractive for people and businesses to locate there?
Expenditure from mine

- Total operating costs = $230 Million/year
- Expenditure in region = $192 Million
- $5.4 Million spent directly in Nebo Shire
  - Wages
  - Contract services
  - Other business expenditure
- $1.7 Million captured from miners living outside of shire
### Summary of direct spending

<table>
<thead>
<tr>
<th>Category</th>
<th>Nebo Shire ($ Mill)</th>
<th>Mackay Area ($ Mill)</th>
<th>Rest of Mackay region ($ Mill)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct wage expenditure</td>
<td>4.51</td>
<td>15.09</td>
<td>15.87</td>
</tr>
<tr>
<td>Expenditure from miners not living in area</td>
<td>1.715</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Contracted services and supplies from businesses</td>
<td>0.282</td>
<td>Not assessed</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Miscellaneous services and supplies from businesses</td>
<td>0.595</td>
<td>11.687</td>
<td>0.331</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>7.102</td>
<td>26.777(excluding contracted services)</td>
<td>16.201(excluding contracted services)</td>
</tr>
</tbody>
</table>
Secondary economic impacts

- Consumption of local goods and services
  - Discretionary spending = 5%
  - Rental spending = 10%
- Proportion of business inputs from local area (mostly labour) = 23.5%
- Income multiplier estimated at 3.66%
- Expenditure multiplier estimated at 16.6%
- Total additional turnover estimated at $1.18 Million
Input-output study for Nebo

- Assesses regional impacts of Coppabella Mine using model of regional economy
- Expenditure levels assessed at $10.7 Million
- Income levels assessed at $5.1 Million
- Input-output model may overestimate expenditure in shire (because economic activity in shire is concentrated on agriculture and mining)
### Input – output for Nebo.

<table>
<thead>
<tr>
<th></th>
<th>Output ($m 2000-01)</th>
<th>Income ($m 2000-01)</th>
<th>Employment (FTE persons)</th>
<th>Value added ($m 2000-01)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>$7.7</td>
<td>$4.5</td>
<td>36</td>
<td>$4.7</td>
</tr>
<tr>
<td>Indirect</td>
<td>$3.0</td>
<td>$0.6</td>
<td>26</td>
<td>$1.3</td>
</tr>
<tr>
<td>Total</td>
<td>$10.7</td>
<td>$5.1</td>
<td>62</td>
<td>$6.0</td>
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</tbody>
</table>
## Input-output for Mackay region

<table>
<thead>
<tr>
<th></th>
<th>Output ($m 2000-01)</th>
<th>Income ($m 2000-01)</th>
<th>Employment (FTE persons)</th>
<th>Value added ($m 2000-01)</th>
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</thead>
<tbody>
<tr>
<td>Direct</td>
<td>$209.0</td>
<td>$35.5</td>
<td>283</td>
<td>$129.3</td>
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<tr>
<td>Indirect</td>
<td>$80.6</td>
<td>$20.3</td>
<td>500</td>
<td>$39.9</td>
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<tr>
<td>Total</td>
<td>$289.6</td>
<td>$55.8</td>
<td>783</td>
<td>$169.2</td>
</tr>
</tbody>
</table>
Economic impacts

- Mining appears to be about as important as agriculture to Nebo
  - Gross value of agriculture to shire in 2001 was $27 Million - not all serviced from Nebo
- 89% of businesses in Nebo rate mining as very important to them – especially Coppabella
- Small business employment has increased by 34% over past 2 years (despite the drought affecting agriculture)
Economic opportunities

- Some missed opportunities
- Several mines in area, but not many new businesses opening to service them
- Some mine employees interested in living closer to mine (estimated 45 at Coppabella out of workforce of 340)
- Housing is scarce, not much development occurring to meet the demand
Adults sometimes hit and hurt the children/Helping a local group
Adults in my family sometimes hit and hurt the children/Most people can be trusted.
Indicators of SC not protective of suicide & self harm

- Picking up other people's rubbish
- Religious activities
- Speaking out
- Enjoying school
- Feeling safe
- Having a bright future
- Tolerance of diversity
- Family relatives in town
Possible protective factors

- Social capital  | TS | AS | SH
- Trust in others | 40% | 25% | 29%
- Volunteerism    | 26.5% | 15% | 20%
- Com’te member   | 20% | 13% | 16%
- Feeling valued  | 60% | 30% | 50%
Most people can be trusted.
Yes: M = 43%, F = 37%  N = 565M, 630F

BOYS:

GIRLS:
Trust: who would you talk to if you felt bad about yourself?

- 52% of girls & 29% of boys talk to friends
- 19.5% to Mum, 5% to Dad
- 4.5% to a professional
- 3% mentioned teachers/SGO's
- Boys are 3 times more likely than girls to talk to no-one
I have sometimes physically hurt myself on purpose.

Yes: M = 25%, F = 24.5%  N = 565M, 630F

BOYS:

GIRLS:
I have tried to end my own life.

Yes: M = 9%, F = 15%  N = 565M, 630F

**BOYS:**

**GIRLS:**
Social capital: suicide & self harm

- 15% of girls & 9% of boys have tried to end their life
- 25% of boys and 24.5% of girls sometimes hurt themselves on purpose
- Boys in a mining town and girls in a regional city are most likely to have attempted suicide
Measures of Social Capital in Young people’s study

- 4 capacity building blocks:
  - proactivity
  - feelings of trust & safety
  - tolerance of diversity
  - value of life

- 4 arenas:
  - participation in local community
  - neighbourhood connections
  - family & friends connections
  - school (work) connections
Common elements of SC in literature

- Networks of relationships
- Reciprocity
- Trust
- Social norms
- The commons
- Personal and collective efficacy
Wellness perspective

- New public health: physical, social, cultural, emotional, spiritual, economic & political wellness
- Preconditions for health: shelter, food
- Safety, education, income, work
- Stable ecosystem, sustainable resources
- Social justice, equity
Overview of Young People

- Social capital & a wellness perspective for suicide prevention policy & strategies in non metropolitan schools & communities
- Partners: Community Mental Health & CQU
- Survey & focus groups in 4 schools, 3 distinct geographic locations: main town, mining town
- Yr 10-12 students (1220) parents (500), and all teachers (214)
Well-being of women and children in mining communities in the Bowen basin

Susan Rees Ph.D.
Postdoctoral Research Fellow
Centre for Social Science Research and Queensland Centre for the Prevention of Domestic and Family Violence
Central Queensland University
S.Rees@cqu.edu.au
Phone 07 4940 7833
A recent study of male employees from an open-cut coal-mine in remote central Queensland indicated that the community variables of family isolation and kinship support have the largest total (direct and indirect) effects on life satisfaction. Job satisfaction was found to be the next most important factor (Iverson and Maguire, 1999).
The study revealed that job satisfaction and life satisfaction are mutually reinforcing and that organisations operating in isolated regions need to be aware of both work and non-work environments. The study had clear implications for mining organizations and associated community development initiatives in remote regions.
Little is known about the interrelated issue of wellbeing of women partners of male employees in mining communities, nor the wellbeing of children living in households where the male is employed in the mining industry.
This study aims to investigate the experiences of dependent female partners of male employees employed in the coal mining industry and residing in single industry resource communities in the Bowen basin.
The consequences of intimate partner violence are profound, extending beyond the health and happiness of individuals to affect the well-being of entire communities (WHO, 2002).
Environmental factors

The study will examine environmental factors including: Isolation taking into account both physical and social dimensions (i.e., lack of transport, child support, depression, alienation); and Kinship support (which relates to the coping mechanism that is provided by family and close friends).
It is pertinent to note that domestic violence occurs more often in societies in which men have economic and decision-making power in the household (Levinson, 1989). In mining communities male dominance and decision making power has been noted as the cultural norm (Collis, 1999; Sturnley, 1989).
The study would contribute to regional and local economic and social wellbeing and security through identification of implicated social factors affecting the development and maintenance of functional and resilient families, capacity for community building and engagement, and opportunities for personal change and advancement.
The methodology will be multi-method, qualitative and quantitative, with a focus on emotional dimensions within an ecological framework.
Determinants

- personal safety, autonomy and empowerment
- loneliness and isolation
- anxiety about personal development and future goals
- concerns about the well-being of children
- difficulties with work demands on partner
- mental and physical health problems and concerns
- expectations of shared leisure time
- negative and positive affectivity (satisfaction with life, disposition towards life in the community)
- feelings about relationship with partner
- the experience of being listened to and supported
Expected benefits of the study

1. Assist companies, community and health development professionals to respond accurately to identified areas of social need, including areas of family violence and dysfunction.
2. Assist in planning for future responses to prevent family violence and dysfunction affecting both women and children.
3. Be a necessary prerequisite to accurate planning for employment, vocational and training services to mining communities.
4. Assist capacity for dependent women to identify and meet personal life objectives.
Population trends and socio-economic characteristics of Bowen Basin communities

Alison Taylor & Ross Barker
Planning Information & Forecasting Unit
Qld Department of Local Government & Planning
Outline

- Population trends last 20 years
- Socio-economic characteristics of localities
- Journey to work patterns
- Proposed future research
Bowen Basin population trends

Source: ABS, Census of Population & Housing & Cat 3218.0
Towns that grew 1981-2001

Source: ABS, Census of Population & Housing
Towns that grew from nothing

Source: ABS, Census of Population & Housing
Towns that declined 1981-2001

Source: ABS, Census of Population & Housing

Blackwater, Collinsville, Dysart, Moura, Springsure, Theodore
Bowen Basin population change

Source: ABS, Cat No 3218.0
## Average annual pop change

<table>
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<tbody>
<tr>
<td>Banana(S)</td>
<td>329</td>
<td>-401</td>
<td>-223</td>
<td>113</td>
<td>-74</td>
</tr>
<tr>
<td>Bauhinia(S)</td>
<td>-30</td>
<td>-18</td>
<td>-25</td>
<td>3</td>
<td>4</td>
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<tr>
<td>Belyando (S)</td>
<td>592</td>
<td>-46</td>
<td>-108</td>
<td>-162</td>
<td>280</td>
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<tr>
<td>Bowen(S)</td>
<td>220</td>
<td>-104</td>
<td>-70</td>
<td>-147</td>
<td>109</td>
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<tr>
<td>Broadsound (S)</td>
<td>294</td>
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<td>-204</td>
<td>-214</td>
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<tr>
<td>Duaringa(S)</td>
<td>291</td>
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<tr>
<td>Peak Downs (S)</td>
<td>248</td>
<td>117</td>
<td>-119</td>
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<td>109</td>
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<tr>
<td>Total Bowen Basin LGAs</td>
<td>2,526</td>
<td>-348</td>
<td>-523</td>
<td>-652</td>
<td>531</td>
</tr>
</tbody>
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Source: ABS, Cat No 3218.0
## Mining industry workers by location on Census night

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Banana (S)</td>
<td>1,173</td>
<td>1,260</td>
<td>1,051</td>
<td>1,005</td>
<td>657</td>
</tr>
<tr>
<td>Bauhinia (S)</td>
<td>130</td>
<td>87</td>
<td>64</td>
<td>106</td>
<td>45</td>
</tr>
<tr>
<td>Belyando (S)</td>
<td>1,220</td>
<td>2091</td>
<td>2012</td>
<td>2068</td>
<td>1591</td>
</tr>
<tr>
<td>Bowen (S)</td>
<td>589</td>
<td>651</td>
<td>575</td>
<td>279</td>
<td>267</td>
</tr>
<tr>
<td>Broadsound (S)</td>
<td>1,106</td>
<td>1,722</td>
<td>1,724</td>
<td>1,652</td>
<td>1,170</td>
</tr>
<tr>
<td>Duaringa (S)</td>
<td>1,280</td>
<td>1,779</td>
<td>1,591</td>
<td>1,468</td>
<td>1,032</td>
</tr>
<tr>
<td>Emerald (S)</td>
<td>434</td>
<td>429</td>
<td>504</td>
<td>1,149</td>
<td>735</td>
</tr>
<tr>
<td>Nebo (S)</td>
<td>6</td>
<td>390</td>
<td>474</td>
<td>521</td>
<td>544</td>
</tr>
<tr>
<td>Peak Downs (S)</td>
<td>66</td>
<td>464</td>
<td>631</td>
<td>616</td>
<td>542</td>
</tr>
<tr>
<td>Bowen Basin LGAs</td>
<td>6,004</td>
<td>8,873</td>
<td>8,626</td>
<td>8,864</td>
<td>6,538</td>
</tr>
</tbody>
</table>

Source: ABS, Census of Population & Housing
Mining industry workers by location on Census night

Source: ABS, Census of Population & Housing
Changing coal industry employment, Northern & Central Districts

As at January

Source: DNRM, monthly statistics
Coal industry employment estimates

Source: DNRM, monthly statistics
## Estimated resident population change in urban centres

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Emerald</td>
<td>9,231</td>
<td>9,786</td>
<td>555</td>
<td>6.0</td>
</tr>
<tr>
<td>Moranbah</td>
<td>6,627</td>
<td>6,287</td>
<td>-340</td>
<td>-5.1</td>
</tr>
<tr>
<td>Biloela</td>
<td>5,244</td>
<td>5,716</td>
<td>472</td>
<td>9.0</td>
</tr>
<tr>
<td>Blackwater</td>
<td>5,867</td>
<td>4,850</td>
<td>-1,017</td>
<td>-17.3</td>
</tr>
<tr>
<td>Dysart</td>
<td>3,475</td>
<td>2,596</td>
<td>-879</td>
<td>-25.3</td>
</tr>
<tr>
<td>Middlemount</td>
<td>2,150</td>
<td>2,114</td>
<td>-36</td>
<td>-1.7</td>
</tr>
<tr>
<td>Collinsville</td>
<td>1,799</td>
<td>2,043</td>
<td>244</td>
<td>13.6</td>
</tr>
<tr>
<td>Clermont</td>
<td>2,378</td>
<td>1,993</td>
<td>385</td>
<td>-16.2</td>
</tr>
<tr>
<td>Moura</td>
<td>2,012</td>
<td>1,930</td>
<td>-82</td>
<td>-4.1</td>
</tr>
<tr>
<td>Tieri</td>
<td>1,569</td>
<td>1,610</td>
<td>41</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Source: ABS, Census of Population & Housing

PIFU 2003
Population change between 1996 - 2001, Bowen Basin Localities

Source: ABS, Census of Population & Housing
Marital status 2001

Bowen Basin Localities

- Never married: 29%
- Married: 58%
- Widowed: 4%
- Divorced: 6%
- Separated: 3%

Queensland

- Never married: 32%
- Married: 50%
- Widowed: 6%
- Divorced: 8%
- Separated: 4%

Source: ABS, Census of Population & Housing
Tenure type 2001

 Bowen Basin Localities

- Fully owned: 36%
- Being purchased: 16%
- Other rented: 32%
- Housing Authority: 3%

 Middlemount

- Fully owned: 2%
- Being purchased: 1%
- Other rented: 87%
- Other: 9%

Source: ABS, Census of Population & Housing  PIFU 2003
Persons in non-private dwellings 2001

Middlemount Bowen Basin Localities

- Hotel/motel: 32%
- Nurse/staff quarters: 25%
- Public/private/psych hospital: 9%
- Accommodation for retired or aged: 4%
- Other: 18%

Source: ABS, Census of Population & Housing PIFU 2003
Distribution of weekly individual income, Bowen Basin Localities, 2001

Source: ABS, Census of Population & Housing

PIFU 2003
**Graph 2: Changing age structure**

- **Females**
  - 0-4
  - 5-9
  - 10-14
  - 15-19
  - 20-24
  - 25-29
  - 30-34
  - 35-39
  - 40-44
  - 45-49
  - 50-54
  - 55-59
  - 60-64
  - 65-69
  - 70-74
  - 75-79
  - 80-84
  - 85+

- **Males**
  - 0-4
  - 5-9
  - 10-14
  - 15-19
  - 20-24
  - 25-29
  - 30-34
  - 35-39
  - 40-44
  - 45-49
  - 50-54
  - 55-59
  - 60-64
  - 65-69
  - 70-74
  - 75-79
  - 80-84
  - 85+

**Source:** ABS, Census of Population & Housing

---

**Graph 3: Changing age structure, Queensland**

- **Females**
  - 0-4
  - 5-9
  - 10-14
  - 15-19
  - 20-24
  - 25-29
  - 30-34
  - 35-39
  - 40-44
  - 45-49
  - 50-54
  - 55-59
  - 60-64
  - 65-69
  - 70-74
  - 75-79
  - 80-84
  - 85+

- **Males**
  - 0-4
  - 5-9
  - 10-14
  - 15-19
  - 20-24
  - 25-29
  - 30-34
  - 35-39
  - 40-44
  - 45-49
  - 50-54
  - 55-59
  - 60-64
  - 65-69
  - 70-74
  - 75-79
  - 80-84
  - 85+

**Source:** ABS, Census of Population & Housing

---

**Bowen Basin Localities**

**Queensland**

**Source:** ABS, Census of Population & Housing

**PIFU 2003**
Change in occupation 1996-2001, Bowen Basin Localities

Labourers & related
Elementary clerical, sales & service
Intermediate production & transport
Intermediate clerical, sales & service
Advanced clerical & service
Tradespersons & related
Associate professionals
Professionals
Managers & administrators

% Change 1996 to 2001

Source: ABS, Census of Population & Housing
Change in industry 1996-2001, Bowen Basin Localities

- Personal and other services
- Cultural and recreational services
- Health and community services
- Education
- Government administration and defence
- Property and business services
- Finance and insurance
- Communication services
- Transport and storage
- Accommodation, cafes and restaurants
- Retail trade
- Wholesale trade
- Construction
- Electricity, gas and water supply
- Manufacturing
- Mining
- Agriculture, forestry and fishing

% Change 1996 to 2001

Source: ABS, Census of Population & Housing
### Journey to work patterns, 2001

<table>
<thead>
<tr>
<th>Location</th>
<th>Total jobs</th>
<th>Employed Residents</th>
<th>Work in another LGA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Banana (S)</td>
<td>6,611</td>
<td>6,479</td>
<td>537</td>
</tr>
<tr>
<td>Bauhinia (S)</td>
<td>1,219</td>
<td>1,173</td>
<td>205</td>
</tr>
<tr>
<td>Belyando (S)</td>
<td>4,673</td>
<td>4,408</td>
<td>501</td>
</tr>
<tr>
<td>Bowen (S)</td>
<td>5,233</td>
<td>4,862</td>
<td>316</td>
</tr>
<tr>
<td>Broadsound (S)</td>
<td>3,295</td>
<td>2,982</td>
<td>547</td>
</tr>
<tr>
<td>Duaringa (S)</td>
<td>3,862</td>
<td>3,180</td>
<td>424</td>
</tr>
<tr>
<td>Emerald (S)</td>
<td>6,701</td>
<td>6,149</td>
<td>503</td>
</tr>
<tr>
<td>Nebo (S)</td>
<td>1,652</td>
<td>927</td>
<td>159</td>
</tr>
<tr>
<td>Peak Downs (S)</td>
<td>1,590</td>
<td>1,378</td>
<td>256</td>
</tr>
<tr>
<td>Bowen Basin</td>
<td>34,836</td>
<td>31,538</td>
<td></td>
</tr>
</tbody>
</table>

Source: ABS, 2001 Census, Customised matrix
Where residents work, 2001

% reflects share of residents who work outside home LGA

Source: ABS, 2001 Census, Customised matrix
### Jobs held by non-resident workers, 2001

<table>
<thead>
<tr>
<th>Location</th>
<th>Total jobs</th>
<th>Employed Residents</th>
<th>Jobs held by non-residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banana (S)</td>
<td>6,611</td>
<td>6,479</td>
<td>804 (12.2%)</td>
</tr>
<tr>
<td>Bauhinia (S)</td>
<td>1,219</td>
<td>1,173</td>
<td>268 (22.0%)</td>
</tr>
<tr>
<td>Belyando (S)</td>
<td>4,673</td>
<td>4,408</td>
<td>862 (18.4%)</td>
</tr>
<tr>
<td>Bowen (S)</td>
<td>5,233</td>
<td>4,862</td>
<td>796 (15.2%)</td>
</tr>
<tr>
<td>Broadsound (S)</td>
<td>3,295</td>
<td>2,982</td>
<td>929 (28.2%)</td>
</tr>
<tr>
<td>Duaringa (S)</td>
<td>3,862</td>
<td>3,180</td>
<td>1,202 (31.1%)</td>
</tr>
<tr>
<td>Emerald (S)</td>
<td>6,701</td>
<td>6,149</td>
<td>1,183 (17.7%)</td>
</tr>
<tr>
<td>Nebo (S)</td>
<td>1,652</td>
<td>927</td>
<td>904 (54.7%)</td>
</tr>
<tr>
<td>Peak Downs (S)</td>
<td>1,590</td>
<td>1,378</td>
<td>496 (31.2%)</td>
</tr>
<tr>
<td>Bowen Basin</td>
<td>34,836</td>
<td>31,538</td>
<td></td>
</tr>
</tbody>
</table>

Source: ABS, 2001 Census, Customised matrix
Where workers live, 2001

% reflects share of local jobs held by non residents

Source: ABS, 2001 Census, Customised matrix
Jobs in the mining industry, 2001

- 25 LGAs in Queensland had more than 100 jobs in mining
- Top 20 LGAs each had more than 200 jobs in mining
- 8 of top 20 LGAs in Bowen Basin
- Total of 17,368 jobs in mining in Queensland
- 40% of mining jobs in Bowen Basin

<table>
<thead>
<tr>
<th>LGA</th>
<th>No. of jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brisbane (C)</td>
<td>2,205</td>
</tr>
<tr>
<td>Mt Isa (C)</td>
<td>2,148</td>
</tr>
<tr>
<td>Belyando (S)</td>
<td>1,567</td>
</tr>
<tr>
<td>Broadsound (S)</td>
<td>1,213</td>
</tr>
<tr>
<td>Duaringa (S)</td>
<td>1,004</td>
</tr>
</tbody>
</table>

Source: ABS, 2001 Census, Customised matrix
Jobs in the mining industry in Bowen Basin LGAs, 2001

% reflects share of total mining industry jobs in Queensland

Source: ABS, 2001 Census, Customised matrix
Nebo (S) – journey to work patterns, 2001

- 1,652 jobs in Shire, 927 employed residents
- 17% of employed residents worked outside the Shire (159 people)
- Bowen-51, Belyando-28, Sarina-23 NFA-20, Mackay-16 – all adjoining areas
- 55% of jobs filled by non-residents (904 people)
- Mackay-417, Belyando-93, Broadsound-74, Sarina-51 – all adjoining areas
- Thuringowa-31, Townsville-12, Brisbane-24
Emerald (S) journey to work patterns, 2001

- 6,701 jobs in Shire, 6,149 employed residents
- 8% of employed residents worked outside the Shire (503 people)
- NFA-128, Peak Downs-112, Bauhinia-93, Duaringa-88, ---Brisbane-22, Mackay-13
- 18% of jobs filled by non-residents (1,183 people)
  - Duaringa-149, Thuringowa-141 (Townsville-98), Peak Downs-133, Bauhinia-80
  - Cooloola-55, Rocky-50, Livingstone-49, Brisbane-22
Nebo & Emerald – different functions

Nebo (S) imports workers from nearby Mackay (C)

Emerald (S) is a service and accommodation centre

Source: ABS, 2001 Census, Customised matrix

PIFU 2003
Nebo (S) industry structure, 2001

Source: ABS, 2001 Census, Customised matrix
Emerald (S) industry structure, 2001

Number of jobs

SOURCE: ABS, 2001 Census, Customised matrix

PIFU 2003
Further research

1. Updating ‘Population trends overview’
   Includes
   ♦ most recent population figures
   ♦ 2003 school enrolments
   ♦ 2001 Census data on mining sector employment trends

Later in 2003 – new population projections
Further research

2. Analysing characteristics of Bowen Basin communities

✦ What makes Bowen Basin communities different?
✦ What differentiates Bowen Basin communities from each other?
✦ How are these patterns changing?
Further research

3. Investigating patterns of journey to work in the Bowen Basin

- How many jobs are there and where are they located?
- Who is filling these jobs? (residents/non-residents)
- Where do the non-residents come from?
- Do they commute or stay in accommodation?
Further research

4. Population trends in rural and regional Queensland
   ✷ Analysis of population change over recent decades
   ✷ Patterns of migration
   ✷ Shift to the coast
   ✷ Regional centre growth
   ✷ Journey to work patterns
   ✷ Indicators of well-being
PLANNING INFORMATION AND FORECASTING UNIT

For specialist consultancy services in demographic analysis and forecasting, customised GIS applications and urban development monitoring.

FOR MORE INFORMATION, PLEASE CONTACT:
(07) 3235 4580 (Demography)
(07) 3237 1254 (GIS)
pifu@dlgp.qld.gov.au (e-mail)
Project Overview

What are we aiming to do?

Develop a user-friendly interactive database which can be used to monitor key socio-economic trends and patterns in selected communities
Stage 1: Prototype Design (SMI funded)

- Designing the database
- Selecting core indicators for inclusion
- Constructing a prototype for Belyando, Broadsound, Emerald and Peak Downs Shires
Project Overview cont’d

Contingent on interest and funding…

- Stage 2: Customisation for individual communities, companies and government agencies

- Stage 3: Database maintenance – updates & extensions
Potential Users

- State Government agencies
- Local governments
- Regional planning bodies
- Community organisations
- Companies
How is our application different?

- Strong user focus – targets specific needs
- Draws on multiple data sources
- Tailors indicators to communities
- System design and delivery
System Design

Seven key features:
1. On-line system (via internet)
2. State of the art internet mapping technologies
3. User-friendly interface - intuitive
4. Graphic, tabular and map outputs
5. Interactive map display with selectable layers, zoom in/out
6. Multiple types of areas (geography)
7. Time series data
This project is being undertaken jointly by the Centre for Social Responsibility in Mining and the Queensland Centre for Population Research at the University of Queensland, with funding from the Sustainable Minerals Institute.

**Aim:**
Develop a user-friendly interactive database which can be used to monitor key socio-economic trends and patterns in mining-associated communities.

**To Generate a Graph:**
Check Data Availability then move to the Query tab shown at the top of the screen and follow these steps:

1. Select a Theme
2. Select a Social Indicator
3. Select up to 5 interest Areas using the Controls Provided
4. Click the highlighted Graph button

[View Examples]
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Local Government Area</th>
<th>Urban Centre</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fertility Rate</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
</tr>
<tr>
<td>Proportion Single Parent Families</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
</tr>
<tr>
<td>Proportion lone person households</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
</tr>
<tr>
<td>Proportion ATSI Population</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
</tr>
<tr>
<td>ATSI Population number</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
</tr>
</tbody>
</table>
Proportion Employed in Mining (LGA) 1996

Proportion of employed people aged 15 years and over employed in the mining industry sector. A person’s industry of employment is classified based on responses to a range of questions in the census form asking for a description of the business, and the main goods produced, or main services provided. The name of the business, the employed person’s occupation and main tasks and duties, may also help in classifying industry of employment.
Population (UCL) 1996

Source: Queensland Centre for Population Research, Urban Centres Project 2002

Population in Urban Centres and Rural Localities (UCLs with population over 199 persons). The UCLs are determined by population density in Census Collection Districts (CCDs). The unit of measure is persons counted in the census.
Crimes against property (Police Division) 1995-2001

Source: Extraction of Unofficial Statistical data from Queensland Police Services

Number of reported crimes against property (including Unlawful Entry, Arson, Other Property Damage, Unlawful Use of Motor Vehicle, Other Theft, Fraud and Handling Stolen Goods)

Copyright CCPR 2003
Bowen Basin Communities Social/Economic Researchers’ Workshop

Bureau of Transport & Regional Economics

Kerry Laughton
02 6474 6979
Kerry.Laughton@dotars.gov.au

Research and analysis in the Commonwealth Department of Transport and Regional Services
About the BTRE

- Specialised research unit within the Department of Transport and Regional Services.
- The Bureau (under the name Bureau of Transport Economics, and other variations) has undertaken transport research, analysis and data collection for the Commonwealth Government for 31 years.
- BTRE gained the ‘R’ in its name and formalised its regional research role in June 2002.
- BTRE essentially undertakes research in-house and has a significant reputation for high quality, unbiased, publicly accessible research in the public interest.
Regional Research Programme

• Regional research programme developed annually
  – undertaking high level policy research on regional issues to enable better informed policy making on regional issues at a strategic and national level
  – approved by the Minister for Transport & Regional Services, and Deputy Prime Minister, John Anderson
  – developed with an eye to strategic policy issues, particularly with an economic focus, and areas in which additional research is needed

• Programme available at www.btre.gov.au
Recently completed projects

• ‘Regional Public Transport in Australia’ working papers
  – Trends and projections for long-distance regional public transport
  – Snapshot of Commonwealth and State/Territory government regulatory and assistance arrangements for long-distance regional public transport

• ‘Government Interventions in Pursuit of Regional Development: Learning from Experience’ working paper
  – Select review of key experiences and lessons from Australia, Canada, US and European Union

• ‘About Australia’s Regions’ regional statistics booklet
  – 40 page accessible introduction to economic, social and environmental statistics for Australia’s regions

• Regional economics 4-day course
  – Covering economic theories of growth/decline, and economic analysis tools
Current projects

• **Information sheet series**
  – skills, education and employment in regions
  – main economic bases of regions by industry
  – comparative taxable income in Australia’s regions

• **Factors influencing irrigation investment in the lower Murray-Darling Basin**
  – Examining the extent to which water property rights influence investment patterns
Regional Centres Project

- Examining factors underlying the economic growth/decline of selected regional centres and the relationship of the centres with their surrounding regions
- Focusing on regional centres of between 10,000 and 40,000 residents
- Case study approach (field research) - a likely 4 case studies one of which may be Emerald
- Centres will have a variety of economic bases and geographic circumstances
- Case studies will attempt to draw general conclusions about dynamics of economic growth and test them against regional development theories
- Timing: expect to begin second half of 2003, and finalise in early 2004
In conclusion

• Almost all BTRE analysis is published and freely available on the web
  » www.btre.gov.au

• We invite you to
  – register your details on our regional research contact list - we’ll keep you posted on our progress
  – keep us posted of your progress

Please do leave your details with me.
ACMER PROJECTS RELEVANT TO SUSTAINABLE MINING IN THE BOWEN BASIN

Dr. Owen Nichols
Research Program Manager
Australian Centre for Mining Environmental Research
Australian Centre for Mining Environmental Research (ACMER)

Vision
To be an internationally recognised centre of excellence supporting continual improvement in environmental performance in the minerals industry for the benefit of all stakeholders

Mission
To provide the scientific and technological rigour and support to enable the minerals industry to enhance its environmental performance from exploration to active mine management and closure
Australian Centre for Mining Environmental Research (ACMER)

Objectives

• To work with industry, government, researchers and the community to define key environmental issues facing the minerals industry from exploration through to mine closure.

• To focus the collective skills of researchers to produce technical solutions to key environmental issues identified by industry and relevant stakeholder groups.
Australian Centre for Mining Environmental Research (ACMER)

Objectives (cont’d)

• To ensure effective national and international transfer of research outcomes and key environmental technologies through advisory services, the conduct of short courses and workshops and the publication of research reports, workshop proceedings, manuals and handbooks.
ACMER Partners

Research Partners

- Australian Nuclear Science and Technology Organisation (ANSTO)
- CSIRO
- Curtin University of Technology
- The University of Queensland
- The University of Western Australia
ACMER Partners (cont’d)

Industry Partners and Associates

- BHP Billiton Limited
- Newmont Australia Limited
- Placer Dome Asia Pacific Limited
- Rio Tinto Limited
- WMC Resources Ltd
Other Members of the ACMER Board

• Commonwealth Department of Environment and Heritage
• Ministerial Council on Mineral and Petroleum Resources
• Queensland Government (Department of Natural Resources and Mines)
• Minerals Council of Australia
ACMER’s Current Activities

- A major focus is mine closure
- Closure is considered a whole-of-mine life process typically culminating in tenement relinquishment
- Involves environmental (and other) issues from exploration to operation and decommissioning
- Note - ACMER Board supports community consultation where relevant to environmental issues
Current Research Projects and Proposals

- Completion Criteria for Native Ecosystems
- Water Quality Monitoring for Ephemeral Streams
- Improving Efficiency of Seeding
- Qseed (in conjunction with EPA and others)
- Store-release covers for tailings and waste rock dumps
- Effects of longwall mine subsidence on plant production
- Managing waste dumps containing dispersive spoil material
- Innovative techniques for promoting fauna return
ACMER Funded Research Projects

- Two PhD projects at UCQ on ecosystem development and the evaluation of open-cut mine rehabilitation
- Two Master’s projects at UQ’s CMLR: one on sustainable grazing and the other on long-term ecosystem development
Technology Transfer

- Short course on environmental management for EPA Officers, Rockhampton Dec. 02
- Water Quality in Ephemeral Streams and Voids, Brisbane, July 03
- Mine Closure, Canberra, August
- Management and Rehabilitation of Derelict Mines, Brisbane, November
- More details are on the web site www.acmer.com.au
Relevant Research Proposal (Community Consultation):

Coal mining-dependent communities in central Queensland in the context of mine downsizing and closure: future options
Understanding and managing social aspects of mine downsizing and closure

- Mining industry and communities developing strategies to plan for, and manage social issues associated with mine downsizing and closure.
- Identifying community needs and expectations, examine current interactions and establish best forms of industry-community engagement
- Submitted to ACARP in 2002
- Decision pending outcomes of workshops in the Hunter Valley (November 2002) and Bowen Basin (tba)
Example of a relevant current project:

Development of rehabilitation completion criteria for native ecosystem establishment on coal mines in the Bowen Basin
Background

• The Queensland mining industry is increasingly moving towards establishment of native ecosystems following mining, due to a recognition of management issues associated with grazing, and a view that re-establishment of conservation values is an appropriate objective
• This raises a number of key issues...
Key issues relevant to the establishment of native ecosystems

- Development of clear, long-term objectives
- Monitoring programs to unequivocally show objectives have been met, and achieve continuous improvement
- The use of indicators
- Long-term sustainability
- Completion criteria – when is rehabilitation completed?
Why do we need completion criteria?

- To indicate whether rehabilitation has been ‘successful’
- To assist in the design of monitoring and rehabilitation programs
- To enable the company to relinquish the mining lease without incurring further liability
- For accounting purposes, to enable provisioning for closure liabilities
- To confirm that the post mining land use should be sustainable, if managed correctly - and to define post closure management requirements
- They will be increasingly required as part of the Government regulatory process
Objectives and Deliverables

- The project deliverables will be a practical set of guidelines that mining companies undertaking native ecosystem establishment can use in designing monitoring programs, and in the selection of rehabilitation completion criteria, reference or analogue sites, and key performance indicators.
- Note that criteria can be performance-based, or prescriptive.
The Process for Developing Completion Criteria Should Take Post-Mining Land Management Requirements Into Account

• All rehabilitated mined land will require management and, for a period, monitoring.
• Defining what needs to be done and who is responsible for doing it is a key component of any mine closure process.
• These issues should be considered as early as possible in the environmental assessment process.
Post-closure management may require:

- Weed control
- Refertilising
- Control of grazing intensity/stock exclusion
- Control of public access, recreation
- Feral grazers, insect pests
- Kangaroos
- Fire management
- Maintenance of safety signs
Approach

- Review the current approach of industry leaders, Government Regulators, research and other organisations. Identify processes that have worked elsewhere.
- Conduct site visits to a wide range of Bowen Basin coal mines, and detailed studies of two chosen representative mines.
- Develop a draft set of guidelines and refine these through discussion with project monitors, sponsors and mining industry site representatives.
For Bowen Basin coal mines, specific issues will need to be taken into account:

- Differences in climate, soils, land use, history, stakeholder views
- Don’t promise the unachievable
- Technical limitations (soils, landform, species propagation)
- What really is ‘best practice?’
Who’s involved?

- Funded by ACARP, Callide, Curragh and Newlands
- Managed by ACMER
- Project Leader O. Nichols
- ACARP Monitor J. Merritt
- Steering committee of sponsors
- Literature review CMLR
- Expert input from Randal Hinz, James Elsol and Bevan Emmerton
- Liaison with all interested coal mining companies
We will also take into account views of other stakeholders, including regulators and neighbours.
Time Lines

• Commenced on 1 March
• Meeting in July following site visits
• Meeting in October to present draft final report
• Proposed completion date mid-November
Feedback Welcome

Dr. Owen Nichols
ACMER Research Program Manager
Tel. (07) 3327 4753    Mob. 0417 188 321
acmer.research@uq.edu.au
Mining and the Community

- Improved methods to quantify and ameliorate the effects of mining on neighbouring communities

- Improved quantification of the socio-economic benefits of mining to help understand the consequences, both positive and negative, of developing a new mine, or the closure of an existing mine or mines

- A determination of the factors necessary to improve the understanding of the role of the coal mining industry in the community.
Effective Closure and Lease Relinquishment

- Determine the key parameters for establishing sustainable post mining land uses such as grazing, native eco-systems and forestry.
- Development of robust key performance indicators for rehabilitation and guidelines for pre and post closure monitoring of rehabilitated land.
- Evaluate the options for minimising the value of residual mining voids, ensuring their safety and stability, and maximising their utility in the community.
Future

> Strong competition for funding

> Ethereal results a concern

> Growing recognition of value and need

> Sustainability is more than a fashionable word
Examples

> C10031 Safety: What Works Best?

> C10006 Scoping Study Fitness for Duty

> C10032 Development of a Risk Management Tool for Shiftwork

> C11052 GAP Workshop
Responding to Sustainability Drivers

> Investing in Greenhouse Gas Mitigation

> Producing a safer work environment

> Realising the Imperative of positive community relationships
Size

> 160 current projects

> All aspects of coal production and marketing

> Mine site Focus
> Established to develop technologies that lead to the safe sustainable production and use of coal

> Funded by a 5¢ per tonne levy

> Managed by Australian coal producers

> Spending $10 million p.a.
APPENDIX B — CONTACT DETAILS
## Participants’ contact details

<table>
<thead>
<tr>
<th>Title</th>
<th>Name</th>
<th>Surname</th>
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<th>Association</th>
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<tr>
<td>Assoc Prof.</td>
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Bowen Basin Workshop
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APPENDIX C — FINDINGS OF THEMATIC GROUPS
**NETWORK**
- local
- manageable scope
- website - government
- update every quarter
- content
- name of project researcher
- summary
- link to other website
- social research
- similar areas and comparative studies not included

**UNDERSTANDINGS**
Structural change in the area creating friction and opportunities opportunity to make inter-sectoral links especially because of the special relationship with coal industry.

**STEPS**
One website with a small project team:
- David
- Arthur Hunt
- Stewart
- Lisa Pollard
- Mining Industry
- CSIRO

**LINKAGES**
- email list
- website
- ISRD as an organiser?

**TARGET**
- mine site
- people at this workshop

**ACTION**
Approach Bob Miles to set up web pages under ISRD?

**FORUM**
- a repeat of Moranbah forum in 2003 not covering old ground
- involvement of groups in Moranbah? as a way of building network
- repeat planning session each year

**WARNING**
Don’t expect the group to do too much – informal network a dedicated group.

**GAPS IN RESEARCH**
- involvement of local government no regional organisation
- mining companies
- development groups
- planning groups

**GAPS IN RESEARCH**
- ageing workforce, health issues
- ethnography studies of communities
- links between social issues and mining community patterns (eg live on the course, worker productivity.

**OUTCOMES WANTED**
- identifying and agreeing on what are priority issues
- ensuring that there is not overlapping activities ignorant of each other

**FUTURE DIRECTIONS**
- uniqueness of mining communities regional/other resource dependence communities
- who is the audience for the research
- importance of applied research
- need for a more integration(partnership) approach:
  - Government (three tiers): industry, community, researchers
  - eg: ARC Linkage.
- importance of Clearing House
- collating previous/current research, literature review/library
- need for closer dialogue with industry

**ISSUES IN FORMING PARTNERSHIPS**
who owns it? who controls it? what will the outcomes be?
APPENDIX D — RELEVANT WEBSITES
# Websites relevant to Bowen Basin

<table>
<thead>
<tr>
<th>Research Organisations</th>
<th>URL</th>
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<tr>
<td>CSIRO Sustainable Ecosystems</td>
<td><a href="http://www.cse.csiro.au/">http://www.cse.csiro.au/</a></td>
</tr>
<tr>
<td>UQ - Centre for Mined Land Rehabilitation (CMLR)</td>
<td><a href="http://www.cmlr.uq.edu.au/">http://www.cmlr.uq.edu.au/</a></td>
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<td>UQ - Centre for Social Responsibility in Mining (CSRM)</td>
<td><a href="http://www.csrm.uq.edu.au/">http://www.csrm.uq.edu.au/</a></td>
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### Mining Organisations

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<td>Construction, Forestry, Mining and Energy Union (CFMEU)</td>
<td><a href="http://www.cfmeu.asn.au/">http://www.cfmeu.asn.au/</a></td>
</tr>
<tr>
<td>International Institute for Environment and Development (IIED) - Mining, Minerals and Sustainable Development Project (MMSD)</td>
<td><a href="http://www.iied.org/mmsd/">http://www.iied.org/mmsd/</a></td>
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<tr>
<td>World Coal Institute</td>
<td><a href="http://www.wci-coal.com/web/bl_content.php?menu_id=0.0">http://www.wci-coal.com/web/bl_content.php?menu_id=0.0</a></td>
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### Companies

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<tbody>
<tr>
<td>Anglo Coal (Moranbah North, German Creek, Callide)</td>
<td><a href="http://www2.recruitmanager.net/anglocoal/publicjobs/index.cfm">http://www2.recruitmanager.net/anglocoal/publicjobs/index.cfm</a></td>
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<tr>
<td>Apollo Resources (Ebenezer)</td>
<td><a href="http://www.apollo.com.au/">http://www.apollo.com.au/</a></td>
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<tr>
<td>BHP Billiton Mitsubishi Alliance (Goonyella/Riverside, Saraji, Peak Downs, South Walker Creek, Blackwater, South Blackwater/Kemare, Norwich Park, Gregory/Crinum)</td>
<td><a href="http://bmacoal.com/bccom/export/index.html">http://bmacoal.com/bccom/export/index.html</a></td>
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<td>Burton Coal (RAG Coal/Thiess JV - Glenden)</td>
<td><a href="http://www.mining-technology.com/projects/burton/">http://www.mining-technology.com/projects/burton/</a></td>
</tr>
<tr>
<td>Company Name</td>
<td>Website Link</td>
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<td>Foxleigh (Foxleigh)</td>
<td><a href="http://www.ame.com.au/mines/co/Foxleigh.htm">http://www.ame.com.au/mines/co/Foxleigh.htm</a></td>
</tr>
<tr>
<td>Moura Coal Mining (Anglo Coal/Mitsui JV - Moura)</td>
<td><a href="http://www.mining-technology.com/projects/moura/">http://www.mining-technology.com/projects/moura/</a></td>
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<tr>
<td>New Hope Corporation (Jeebropilly, New Oakleigh)</td>
<td><a href="http://www.newhopecoal.com/">http://www.newhopecoal.com/</a></td>
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<tr>
<td>Pacific Coal (Blair Athol, Meandu, Kestrel)</td>
<td><a href="http://www.pacificcoal.com.au/">http://www.pacificcoal.com.au/</a></td>
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<tr>
<td>RAG Australia Coal (North Goonyella)</td>
<td><a href="http://www.rag-coalinter.de/profil/eprofil101b.htm">http://www.rag-coalinter.de/profil/eprofil101b.htm</a></td>
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<td>Xstrata plc</td>
<td><a href="http://www.xstrata.com/">http://www.xstrata.com/</a></td>
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**Qld Government Departments**

<table>
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<tr>
<th>Department</th>
<th>Website Link</th>
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<tr>
<td>Natural Resources and Mines - Simtars</td>
<td><a href="http://www.nrm.qld.gov.au/simtars/">http://www.nrm.qld.gov.au/simtars/</a></td>
</tr>
<tr>
<td>Department of the Premier and Cabinet</td>
<td><a href="http://www.premiers.qld.gov.au/">http://www.premiers.qld.gov.au/</a></td>
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**Regional Organisations**

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<tr>
<td>Dawson Valley Development Association</td>
<td><a href="http://www.dawsonvalley.org/">http://www.dawsonvalley.org/</a></td>
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**Local Government**

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<tr>
<td>Bauhinia Shire Council</td>
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<tr>
<td>Bowen Shire Council</td>
<td><a href="http://www.bowen.qld.gov.au">http://www.bowen.qld.gov.au</a></td>
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<tr>
<td>Broadsound Shire Council</td>
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<td>Duaringa Shire Council</td>
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<tr>
<td>Mackay City Council</td>
<td><a href="http://www.mackay.qld.gov.au/">http://www.mackay.qld.gov.au/</a></td>
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**Individuals**

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<tr>
<td>Dr Martin Bell</td>
<td><a href="http://www.geosp.uq.edu.au/qcpr/Homepage/staff.htm">http://www.geosp.uq.edu.au/qcpr/Homepage/staff.htm</a></td>
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<tr>
<td>Professor David Brereton</td>
<td><a href="http://www.csrn.uq.edu.au/index.html?id=5266&amp;pid=5263">http://www.csrn.uq.edu.au/index.html?id=5266&amp;pid=5263</a></td>
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<tr>
<td>Ms Helen Cheney</td>
<td><a href="http://www.isf.uts.edu.au/whoweare/helen.html">http://www.isf.uts.edu.au/whoweare/helen.html</a></td>
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<tr>
<td>Dr Lee Di Milia</td>
<td><a href="http://www.bus.cqu.edu.au/Faculty/STAFF/dimiliav/">http://www.bus.cqu.edu.au/Faculty/STAFF/dimiliav/</a></td>
</tr>
<tr>
<td>Dr Evie Katz</td>
<td><a href="http://www.minerals.csiro.au/sl/Body_People.htm">http://www.minerals.csiro.au/sl/Body_People.htm</a></td>
</tr>
<tr>
<td>Dr Stewart Lockie</td>
<td><a href="http://www.ahs.cqu.edu.au/ahsfaculty/psychsoc/staff/stewart_lockie2.htm">http://www.ahs.cqu.edu.au/ahsfaculty/psychsoc/staff/stewart_lockie2.htm</a></td>
</tr>
<tr>
<td>Professor Bob Miles</td>
<td><a href="http://www.isrd.cqu.edu.au/isrd/staff/Bob.htm">http://www.isrd.cqu.edu.au/isrd/staff/Bob.htm</a></td>
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<tr>
<td>Mr Neil Paulsen</td>
<td><a href="http://www.business.uq.edu.au/staff/academics/paulsen.phtml">http://www.business.uq.edu.au/staff/academics/paulsen.phtml</a></td>
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<tr>
<td>Dr John Rolfe</td>
<td><a href="http://www.bus.cqu.edu.au/Faculty/STAFF/rolfej/">http://www.bus.cqu.edu.au/Faculty/STAFF/rolfej/</a></td>
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<tr>
<td>Dr Fiona Solomon</td>
<td><a href="http://www.minerals.csiro.au/sd/Body_People.htm">http://www.minerals.csiro.au/sd/Body_People.htm</a></td>
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<tr>
<td>Associate Professor Helen Waite</td>
<td><a href="http://www.ahs.cqu.edu.au/ahsfaculty/psychsoc/staff?helen_waite2.htm">http://www.ahs.cqu.edu.au/ahsfaculty/psychsoc/staff?helen_waite2.htm</a></td>
</tr>
<tr>
<td>Mr Rhys Worrall</td>
<td><a href="http://www.em.csiro.au/sustainable_mining/aboutus/people/rhysworrall/">http://www.em.csiro.au/sustainable_mining/aboutus/people/rhysworrall/</a></td>
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**Publications**

- Colin Huntly (1996/97?) Social and Cultural Life in Mining Communities Curtin University