The Move Towards Sustainability by the Western Australian Minerals Sector and the Role of State Government in the Process

A Background Paper prepared for the State Sustainability Strategy

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Overview

On 19 July 2001 Premier Gallop opened the Australian Minerals and Energy Environment Foundation (AMEEF) conference entitled 'Mining Minerals and Sustainable Development – Making the Transition' (MMSD), with a speech announcing the Government's intention to investigate the possibility of creating a State Sustainability Strategy (SSS) for Western Australia.[1] The choice of venue for this announcement indicated both the importance of the minerals industry to the State economy, and the parallel nature of the Government's sustainability agenda with the global and Australian MMSD initiatives.[2] This discussion paper will outline the major issues outlined in the MMSD process with a focus on their relevance to the SSS and Western Australia.

The Brundtland Commission's landmark 1987 document (paraphrased) defined sustainable development to be development that does not jeopardize future generations access to the resources necessary to achieve the same living standard as the current generation. The first section of this paper will examine what this implies for the minerals industry with regard to the governance, social, economic, and environmental components of sustainability. The MMSD process has outlined an industry consensus on the meaning of these components in global and Australian terms. Through taking a closer look at the State's mining industry, this section will extrapolate a Western Australian understanding of these concepts

[1] The Honorable Dr. Geoff Gallop MLA, Premier of Western Australia Address to the Australian Minerals and Energy Environment Foundation Conference – 'Mining and Sustainable Development – Making the Transition' (19 July 2001).
[2] 'Creating a Future' is Argyle Diamonds' term for their sustainability process.

Title – Overview – Sustainability and the Mining Industry –Global MMSD
Australia MMSD – Regional Issues – Economic Sustainability – Environmental Sustainability
Social Sustainability – Governance and Sustainability – Conclusions
Glossary of Terms - References

The second section will examine the Global Mining Initiative (GMI) and the MMSD processes. The conclusions, and future implications described in the final MMSD report for the global and Australian minerals industry are intimately intertwined with the future of the Western Australian minerals industry. As a major element of both the Western Australian and National economies, as well as a technology and volume leader in the global mining industry, the Western Australian minerals industry's approach to its future is very important. It must proactively address the conclusions of these reports if it intends to continue playing a leading role in the future direction of the industry.

The next four sections of the report will examine these questions as they apply respectively to the social, environmental, economic and governance sectors of sustainability in a mining context. The area of greatest change for both the past decade and the coming one will be within the social arena. However, a common mandate and improved collaboration between the various departments that are responsible for managing these issues across industry and government will be the most critical element to the future of the mining industry if rapid progress towards sustainability is to be realized.

The last of these four sections will look at the role of government as a facilitator and regulator of the mining industry. The vast geographical spread of Western Australia and the evolving maturity of the regions have made the argument more compelling for enhanced regional governing powers to more effectively service the region's needs. This section will examine the evidence for and against regionalism, and suggest that the divestment of powers to the more mature regions must be accelerated.

The final section will summarize the conclusions drawn throughout the report. The benefit of the coincidental timing between the SSS and the MMSD processes put the Government in a fortunate position, as the largest State industrial sector has made a political and financial investment in the process. Given these circumstances, and the present state of common purpose between the industry and government, the State will benefit most by defining its role as a facilitator and capacity builder ahead of it's role as a regulator.

Sustainability and the Mining Industry

The minerals sector in Western Australia and around the world has evolved dramatically over the past century and a half from its beginnings as a dangerous and much romanticized gamble for riches against harsh environmental odds. Today it is a rapidly consolidating, highly mechanized industry characterized by

intense competition to find the most incremental gains in efficiency that will yield an advantage. Over the past thirty years rapid development of resources caused the industry's largest operations to focus ruthlessly on efficiency and steadily increasing production to the point where Australian operations are among the most sophisticated in the world. In the case of most minerals the result has been both a rapid expansion of markets for Australian minerals and downward pressure on global prices.

The global community's concerns have also shifted dramatically over the same period. As the negative consequences of environmental mismanagement were accepted, and increasingly stringent regulations and penalties were applied, the industry was forced to adjust feasibility studies to include total project costs including cleanup and rehabilitation. The mineral sector's increasingly lean nature and scientific focus has meant that it has led the way among Australian industries in solving environmental problems. Social considerations, though in practice twenty years behind ecological programs in terms of sophistication and effectiveness, have also started to be factored in to the life cycle costs of new and existing projects. The complexities inherent in solving social problems make social sustainability the area where the most difficult challenges lie. Through the World Business Council on Sustainable Development (WBCSD), Global Mining Initiative (GMI), and MMSD Australia the industry has taken the first comprehensive steps towards defining best practice social standards. Assessing concerted macroscopic efforts like these in light of existing practical successes, such as Hammersley Iron's Aboriginal Training and Liaison Group's (ATAL) many programs (see case studies section), indicate that this is a trend within the global mining industry that will continue to transform business practices and reporting procedures.

The benefit to Western Australia is an excellent opportunity to play a leading role developing industry standards as long as the State Government effectively facilitates the process. The innovations that inevitably arise out of a process like this one can be marketed globally, particularly within the same industry. The past responsiveness of the WA industry to changing standards is a good indication that the technical competence, facilities and inventiveness are already in good supply locally to allow the economy to benefit from the possibilities inherent in such a transition. It will, however, require an ongoing commitment from government to continue the process of dialogue, collaboration and implementation. [3]

[3] This section and subsections informed by the MMSD Australia and Global reports as well as MMSD conferences attended and industry documents.

The Global Mining Initiative and MMSD Process

The redefinition of priorities to reflect a sustainability focus is not unique to the minerals sector. From early beginnings as quite radical ideas, first environmental and then social critiques of the globally dominant Western market economy have evolved to the point where, beginning with the Brundtland Commission's report in 1987, the concepts were combined into an internationally accepted concept called ecologically sustainable development.[4] Once accepted by the international community as a necessary change of strategy, changes began to be incorporated into the fabric of industry and society to the point where today the question is no longer if, but how to proceed along this line of reasoning.

Within the minerals sector these issues have gained significant traction in the past decade. In response to this change, ten of the largest corporations in cooperation with the World Business Council on Sustainable Development established the Global Mining Initiative in 1999.

The Global Mining Initiative (GMI)

> *Meeting the development needs of the world's growing population without depriving future generations of the means to meet their own needs is a daunting challenge. Responsible mining has an important contribution to make.*[5]

The World Business Council on Sustainable Development (WBCSD) Mining and Minerals Working Group (MMWG) launched the GMI to investigate the implications of the above statement on the future of the global mining and minerals industry.

The areas of focus were:

1) Exploration;
2) Project development and secondary development impacts;
3) Governance of mining projects, their place in social and economic development, and issues of capacity building;
4) Rent capture and distribution;
5) Mining operations;
6) Stewardship of resources such as water and bio-diversity;
7) Energy use;
8) Management of waste;
9) Social and environmental aspects of mine.

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[4] Today this term has been shortened to sustainability in common usage, however the Brundtland definition remains the global standard.

[5] Global Mining initiative website as of 4 August 2002, http://www.globalmining.com/home/gm_frame.asp.

The initiative was concluded in May of 2002. Continuing the work begun by the GMI will be the responsibility of the International Council on Mining and Metals (ICMM).

Mining Minerals and Sustainable Development

The Global Perspective

Overarching Methodology

Work was divided into five processes: [6]

- Regional Partnerships in North America, Australia, South America and Southern Africa;
- National Projects in 20 countries;
- Global Workshops – 23 in all with over 700 attendees;
- Commissioned Research – 175 separate projects;
- Presentations, Communications, and Bulletins including conferences, reports posted to the web and feedback mechanisms (a heavy reliance on the Internet was crucial to success in the abbreviated time frame);

Seven regions were created initially. The International Institute of Environment and Development (IIED) subcontracted management responsibilities out for each region in an effort to ensure objective results. In the end, four of the regions received full treatment, while for various reasons the other three were given only a partial review.

Rigorous (though severely time constricted) and independent 'top down' and 'bottom up' review processes were organized for Southern Africa, South America, North America, and Australia.

The remaining three regional assessments employed less comprehensive top-down methodologies:

- In *Europe* the research focused on areas where a perceived lack of information was indicated. The topics investigated were broadly defined as: The 6th EU Environmental Action Programme; recycling policy; risk assessment methodology; the EU chemicals policy; the main drivers behind European developments; the

[6] This section was informed by the MMSD Global Report "Breaking New Ground" with explanatory notes and editorial comments where relevant to tie the document to Western Australia or Australia as a nation.

dynamics of regulatory initiatives; governmental, scientific, and environmental groups; the role of public opinion, existing models of dialogue and other initiatives, existing government, industry and nongovernmental organizations.

- The Former Soviet Union (FSU) region was defined as the Russian Federation, Kazakhstan, and Kyrgyzstan. Here industry, local and national government, NGOs and other civil society organizations, and academic institutes were consulted in a similar manner to that employed during scoping in Europe. This led to studies on the Russian Federation, the Republic of Khakassia, and Kyrgyzstan - drawing on existing research and on stakeholder consultation and review.
- Southeast Asia and the Pacific Islands proved to be the most difficult task politically, logistically, and geographically. Southeast Asia was ultimately left out of the process and a decision was made to review three of the largest Pacific Island nations independently. The nations reviewed were the Philippines, Indonesia, and Papua New Guinea. [7]

Multi-stakeholder Processes

The MMSD process included extensive stakeholder consultation in each of the four major regional partnerships and some national partnerships. This was an important new step for the global mining industry to take in concert. The lessons learned were listed as follows: [8]

- Broad based, inclusive initiation process is crucial to success;
- Time frame must consider varying capacities of stakeholders to participate;
- Ownership of the process should be as democratic as possible;
- Guidance must be the responsibility of a group trusted by all parties;
- Local issues must not be overlooked. Therefore, decentralization is essential;
- Scope must be universally agreed upon and open for revision along the way;
- If one stakeholder attempt to gain control of the process, it will not succeed;

[7] http://www.iied.org/mmsd/aroundworld.html

[8] This section was informed by the MMSD Global Report "Breaking New Ground" with explanatory notes and editorial comments where relevant to tie the document to Western Australia or Australia as a nation.

- Standard of rigor, honesty, and transparency must be agreed upon and maintained;
- Financial resources must be given to support the process as a whole, not an agenda within the process.[9]

Sustainable Development Principles

From the process, some sustainable development principles were agreed upon. This agreement is essential with a concept such as sustainability, which is susceptible to a wide range of interpretations. They are as follows: [10]

Economy
- Maximize human well being;
- Ensure efficient use of all resources by maximizing rents;
- Identify and internalise environmental and social costs;
- Maintain and enhance the conditions for a viable enterprise.

Social
- Ensure a fair distribution of the costs and benefits of development for all;
- Respect and reinforced fundamental human rights (civil, political, cultural, social, economic, and personal);
- Seek to sustain improvements over time (natural resource depletion must be compensated for with other forms of capital).

Environmental
- Responsible stewardship of natural resources and the environment, including remediation of past damage;
- Minimize waste and environmental damage along supply chain;
- Adopt precautionary principle;
- Accept and operate within ecological limits and protect natural capital.

Governance
- Support democracy and participatory decision making;
- Encourage free enterprise based on clear and fair rules;
- Avoid excessive concentration of power through appropriate checks and balances;
- Ensure transparency of process and information;
- Ensure accountability for decisions and actions;

[9] Ibid 7.
[10] This section was informed by the MMSD Global Report "Breaking New Ground" with explanatory notes and editorial comments where relevant to tie the document to Western Australia or Australia as a nation.

- Encourage cooperation and build trust and common goals / values;
- Ensure decisions are made at the appropriate level (as local as possible).

This framework is clearly very general, but nevertheless an important step for the industry. Sustainability is built upon a base of common understanding much like the legal system is upon a constitution. It will be the responsibility of each locality to then refine and customize these guidelines to their own needs. For example, as will be referred to later, the last principle of governance is particularly meaningful in Western Australia, as an argument for regionalism.

Key Challenges

Nine key challenges were identified as most critical to the future of the industry if it is to operate within a sustainability paradigm: [11]

1. Viability of the industry must be ensured;
2. The control and management of land must be resolved;
3. Mining must be managed so as to contribute to local economic development;
4. Local communities must be compensated in terms of employment, social services, and a viable long term economic plan for after mine closure;
5. The environment must be protected and restored in accordance with the latest environmental practices;
6. Efficiencies must be found through integrating the use of minerals at all stages of use, ranging from production through to recycling, in order to minimize waste;
7. Information at all stages of the process of mining, from proposal to production, is essential to meeting sustainability goals and ensuring effective stakeholder participation. A lack of shared information can sabotage the process, and will be costly in human and economic terms. Best practice must be communicated in a similar manner.
8. Artisanal and small scale mining must be more effectively managed to ensure that sustainable practices are both economically possible and socially acceptable, as they often represent the only way for local communities to earn a living in developing nations. (There is leverage for change here in the interest of large mining companies' desire to clean up this sector to improve their image and stabilise the communities where they operate from the point of view of each sustainability criterion.);

[11] This section was informed by the MMSD Global Report "Breaking New Ground" with explanatory notes and editorial comments where relevant to tie the document to Western Australia or Australia as a nation.

9. Sectoral governance at the global level will aid sovereign nations in implementing local sustainability standards, particularly in developing nations, by levelling the playing field.

With the exception, for the most part, of the section on small-scale mining, this gives Australian government's a clear framework for National and State policy-making. Increasing pressure by global financial institutions, such as the World Bank, that companies demonstrate a track record of compliance with these principles implies that local Australian mining practices will affect the competitiveness of Australian companies when bidding for access to leases in other countries.

Further Work

The "Breaking New Ground" final report of the global MMSD process outlines four steps that have been identified as essential to the creation of a sustainable minerals sector: [12]

- Understanding sustainable development – in essence, an ongoing commitment to an MMSD-like explorative process, where stakeholders continue to be informed/consulted and standards become uniform.
- Creating organizational policies and management systems to implement sustainable development within government, labour, commercial, and non-government organizations.
- Collaborate with others to take joint steps towards creating sustainable development protocols through forming associations, improving networks, clarifying objectives, and the adoption of a 'Global Declaration on Sustainable Mining Practices.'
    - This has been outlined as a task for ICMM on behalf of the industry in order to carry the process forward post-GMI in three phases:
        - A unilateral process of stakeholder consultation independent of corporate commercial mining entities to produce a 'Declaration' for companies to sign;
        - A third party verified 'Project Protocol' for individual mining projects in keeping with the principles of the 'Declaration';
        - A third party verified 'Company Protocol' for company-wide application
    - It is proposed that the following be developed in parallel:

[12] This section was informed by the MMSD Global Report "Breaking New Ground" with explanatory notes and editorial comments where relevant to tie the document to Western Australia or Australia as a nation.

        - National and regional ‘Industry Codes of Conduct’;
        - ‘Regional Statements of Principle’ by government associations (APEC, ASEAN, OECD etc.);
        - ‘Non-governmental Organizations Statement of Principle’ with respect to mining and sustainability.
    - Developing a global emergency prevention and response capacity for signatory members.
- Building capacity for action and responsibility at all levels through shared responsibilities across commercial corporate, government, and civil society. The key elements listed are:
    - Community Level
        - Life of project community engagement;
        - Integrated social and environmental impact assessment;
        - Community sustainable development plans (LA21) outlining the role of a prospective mining corporation;
        - Integrated social, economic and environmental planning for mine closure;
        - Dispute resolution mechanisms;
        - Cooperation between large companies and artisanal and small-scale miners.
    - National Level
        - Review and development of legal policy frameworks, including:
            - Legal guidelines for access to information;
            - Legally enforced public participation;
            - Land rights regimes and compensations systems, such as Native Title and a code for access to lands;
            - Defining traditional indigenous territories and defining ‘informed consent’;
            - Maximizing the benefits of mineral development through maximizing rents and redistributing the proceeds;
            - Artisanal and small-scale mining regulations and management frameworks;
            - Frameworks for community development such as impact assessment, CSDP’s, and integrated closure planning mechanisms and delineation of responsibilities;
            - Mining-induced displacement and resettlement frameworks governing behaviour and access

during the negotiation, production, and closure phases.

- § Other actions, including:
  - An international register of payments to combat corruption modelled on the Organisation for Economic Co-operation and Development's (OECD) anti-corruption convention, and using the services of organisations, such as Transparency International to guide national efforts;
  - Audits, guidelines, and standards for environmental management (particularly avoiding riverine disposal of wastes);
  - Capacity building through collaboration between governments and the United Nations (UN) / World Bank to identify necessary elements;
  - Labour-company agreements;
  - National multi-stakeholder processes discussing mining issues, and organised in part by governments.

- o Global Level
  - § A neutral complaints and dispute resolution mechanism drawing upon existing efforts conducted by the Mining Ombudsman Project operated by Community Aid Abroad Australia. The establishment of a multi-stakeholder board and industry funding mechanism would be necessary;
  - § A 'Product Stewardship Initiative' to integrate views across finance, industry and government building on work already done by the Non-Ferrous Metals Consultative Forum on Sustainable Development (NFCFSD). The initiative would lead to improved understanding of: energy, water, land use, recycling, and re-use issues; life cycle analysis; appropriate recycling technology transfers to developing countries; and possible product certification schemes;
  - § A 'Sustainable Development Support Facility' to coordinate existing efforts to ensure effective use of resources, and to support national and global efforts as is necessary. Prospectively the 'Facility' could be administered by the World Bank and supported by

donor agencies. Criteria for receiving assistance would be similar to World Bank standards, but with sustainable development being the focus.

- Generic International Reporting mineral sector sustainability guidelines developed in concert with the Global Reporting Initiative (GRI), International Standards Organisation (ISO), and the Minerals and Energy Research Network (MERN).
- The stewardship of protected areas must be standardised according to international guidelines to handle issues such as access, mining practices, threat determination, and transparency of decision-making. The World Conservation Union (IUCN) will play a major role in this process.
- The establishment of a 'Minerals Legacies Initiative' to rehabilitate abandoned and orphaned mines with a priority focus on developing countries and those projects that would benefit the most people.
- Work with the World Bank to establish an international system of financial surety to cover existing and future projects in the event of a financial, social or economic disaster.
- A 'Global Labour-Management Agreement' to be negotiated between labour federations and international industry organizations to develop a sustainable relationship.
- Future follow-up work on a permanent or initiative basis to continue the work started by the MMSD process. The data accumulated must be managed and archived for future access, thus requiring a degree of continuity. However, of primary importance is the existence of a forum to discuss the above issues.

The MMSD represented the opening of a Pandora's box of unresolved issues. However, the issues were not going to disappear, and thus the process was a critical first step towards closing the loopholes and establishing international continuity within the global minerals sector. Many of the problems faced at the local, state and national levels will not be possible to resolve without international agreements on sustainability.

The competitive nature of the industry and widely disparate national regulations and standards of conduct create difficult circumstances for sovereign governments interested in promoting the welfare of their citizens. The Australian and Western Australian governments are particularly affected by these circumstances as they concern the minerals sector due to the large segment of the economy it represents. Therefore, any effort to improve local conditions must be done with an eye towards developing international events. The MMSD final report has greatly simplified this task by highlighting desired outcomes and areas of conflicting opinion within the minerals sector. It will, therefore, be important for the State and Federal Governments to play a leading role in lobbying for and supporting the continuation of these efforts.

Australia

The current state of sustainability in Australia at the Federal level is similar to that of Western Australia. It is under development, but isolated successes with regard to certain sustainability criteria are rapidly multiplying. Arguably, the process is further advanced in WA than in Canberra where the Government has only recently resurrected it as an agenda item in recognition of the growing acceptance of sustainability across industry and government. Generally, both State and Federal governments are lagging behind industry to the detriment of the process, though industry efforts have not yet resulted in anything approaching a universal code of sustainable best practice. An exciting opportunity therefore exists to accelerate the rate of innovation and policy development within government and industry sustainability by taking advantage of the confluence of interests that the above global processes have created.

Some of the international pressures, such as World Bank development funding requirements, only indirectly affect Australian operations. Mining executives have, nevertheless, taken notice of the trend. Companies are in a race to find practicable solutions to guarantee their future within the coming operating paradigm, when demonstrated sustainability successes will amount to a competitive advantage. The indirect benefit from reputable Australian operation comes with respect to getting infrastructure development loans to access developing country's resources. The GMI is a response to pressures such as these, as well as the certainty that State, Commonwealth and international organizations with sustainability programs is certain to increase exponentially in both number and impact over the coming years.

Regional Issues, Local Initiatives and Structural Complications

In Western Australia isolated examples in the Pilbara (see Pilbara Iron Industry case study), Kimberley (see Argyle Diamonds case study) and Goldfields (see Granny Smith and Sons of Gwalia case studies) demonstrate a promising

capacity for mining concerns to find innovative and highly effective solutions that are bridging the current gap in government services in rural areas. While the age-old struggle continues for funding of the regions that more fairly reflects their needs and economic contribution to State / Federal coffers, the mining industry has in certain cases taken over. Fire fighting, indigenous training programs and business development, and general business support of the local community are all ways that mining concerns can and do contribute to their communities.

While mining companies have succeeded in various areas, the benefits don't compare to what would be possible if proper regional funding and government were in place to facilitate the process. The contained nature of a mining operation, the sensitivity of the industry to bad publicity, the realization of the mutual benefits inherent in better community relations and development programs, and vast resources have meant that the industry can research, evaluate and develop sustainability protocols and programs at an astonishing rate. Government by nature is much more constrained in each respect, but the opportunity and political will to advance and entrench new programs is currently present. The State Sustainability Strategy is an opportunity for politics to catch up. The key will be an initial focus on simple, inexpensive, non-intrusive, and facilitative measures, as a means of coordinating the knowledge and experiences already developed.

Economic Sustainability

Sustainability as it applies to the economy is a multifaceted concern. On the one hand it strictly refers to the amount of ore in the ground and the length of time required to extract it. On the other it must consider the economic potential of future generations to ensure that the current quality of life can be maintained. This dilemma pits capitalism against itself in a struggle where the only possibility for resolution lies in industry's ability to increase efficiencies in the production phase. Estimates vary on the world's future needs as population estimates continue to drop and technology improves the quality and quantity of recycled goods, however the precautionary principle suggests that it is best to plan conservatively.

Another dilemma facing the industry is whether to adopt mineral by mineral standards for assessment of future resources or to adopt a macroscopic perspective that would view the needs of future generations across the mineral stockpile as a whole. These are known as narrow and broad approaches respectively. Currently, the broad standard has been accepted as the basis of the Australian National Strategy for Ecologically Sustainable Development written

for the Council of Australian Governments (COAG) in 1992.[13] Thus, future known resources are not required to guarantee similar quantities will be left of each ore relative to today. Rather, if in total the supply of known ore deposits will be adequate for future generations to maintain the current quality of life then current extraction rates are considered acceptably economically sustainable. This issue is likely to remain a contentious one in the future and will be one area where government or NGO research and guidance will continue to be of paramount importance.

Whether this broad definition or a narrower one prevails in the future, the role of Government in promoting sustainability will be most greatly complicated by the economic implications for the industry in the future. It will have to regulate selectively, so as not to shift new business offshore, while concentrating most of its efforts on finding areas where there is room to move closer towards sustainability.

For example, the legislation of triple bottom line reporting as a means of better understanding the state of the industry would facilitate more accurate planning by both industry and government while simultaneously allowing companies to know their status with respect to the competition.
Another unobtrusive vehicle appropriate to the role of government would be the development of an online sustainability database of relevant documents with a regularly updated summary document summarizing the current methods of best practice.

The State Government must lobby at the national and international levels for the imposition and enforcement of standards that will allow the industry to operate on a level playing field as it progresses in this direction. Ultimately international standards represent the largest area of potential sustainability gain, but it is only in the early stages of development at present. An example of a present opportunity in this regard could be the development of multinational trading arrangements with agreed upon standards for the industry. There is clearly role here for the World Trade Organization to resolve some of areas of free trade dispute under some sort of international mining sustainability trading agreement, however this will be a second or third order item on the agenda. However, this would then create a standard, which could be revised and improved over time.

Other areas where the Government can have dramatic impacts include: resolution of Native Title claims, encouragement and facilitation of preliminary negotiations between communities, industry and relevant government agencies affected by new mining projects, acknowledgement and the reward of successful

[13] Ameef document for the July 19, 2001 conference in Perth

industry innovations, tax schemes to encourage investment in sustainability related research, development and management of strategic infrastructure to prepare remote communities for life after mine closure are all vital proactive roles that government should play, and the development of a sector sustainability body.

Successful sustainability innovations reveal the advantages of strengthened communities to the nation, state, locality and individual. They represent an opportunity for industry and government to work together to achieve exponential gains rather than existing in opposition to one another. Long term and short term both these areas offer the best prospects for keeping WA at the vanguard of minerals industry sustainability and technology, while international criteria and enforcement mechanisms evolve. [14]

Environmental Sustainability

Environmental regulations and standards have been getting tougher since the sixties and with concern among the global and local populaces about the future of the world trending upward, there is little likelihood that the trend will reverse itself. The mining industry like the energy industry suffers from the very high visibility of its accidents and operations. Ok Tedi and Bougainville, for example, are well remembered by a large proportion of the population, and many of those who don't are still under the impression that mining is an environmentally hazardous business. However, modern mines, while clearly not perfect, have some of the strictest environmental standards of any industry. Relative to agriculture the ecological footprint of even the largest mines is miniscule and short of increasingly unlikely disasters at the better run mines the environmental risk is proportionately low as well. In short, this aspect of the industry is on a firm footing and improving constantly. The one area that remains for the state to consider procedurally is incorporating the current processes within a cohesive sustainability strategy.

The issues that arise can be divided into three main categories: visual impact, destruction of habitat, and management of wastes and/or tailings. The first two are management issues that are increasingly being addressed by industry through liaisons with the local community and government agencies at the outset of projects. Examples of good and best practice are plentiful and the trend indicates that these methods will continue to spread through the industry in the future.

[14] This section drawn widely on readings referenced.

The wastes and tailings issue is more complicated, however. It is a very expensive proposition to completely contain runoff in all circumstances. Having to double protective tailing dam walls or similar over-compensatory practices can make the difference between a project being economically feasible or not. In this area a combination of international standards through a trade agreement and innovation by industry will have to combine in order to make the gains that will allow the industry to assert that its operations are as environmentally benign as possible. Regulation of these issues must move in step with international considerations lest Western Australia's market share be undermined to its very great detriment. Conversely, however, this is also the area where the greatest potential improvements can be had. On a normal basis the best run mines leach very little into the surrounding ecosystem. International regulatory provisions for the near elimination of accidents represent the last opportunity for a great leap forward in an industry that currently measures improvements by fractions of a percentage point. [15]

Social Sustainability

Social issues are by far the most slippery of the sustainability equation. While it is easy to measure by current methods improvements in economic efficiency and feasible to assess the environmental impacts of industry operations, people are much more complicated. People respond as much to perceptions of industry carelessness as they do to the daily complications associated with living in a community impacted by a large mining operation. On the other hand, if approached in a straightforward and timely manner on issues that impact the community and the mine, people are typically open to discussion and negotiation. Results are most significant in the long term, however the same good plan to accommodate the community handled internally within in the mine versus openly with input from the community will face much more difficulty finding acceptance and support from community members. The approach taken is equally as important as the actions themselves.

Once again, this is an area where industry, at it's best, leads government, both in terms of innovation and commitment to the ongoing improvement of community relations. The issues that typically face Western Australian mining projects are numerous and diverse in combination. Indigenous people create cultural dilemmas for mining companies operating under the Western market paradigm. Along the same lines, there is often resentment over past abuses of Aboriginal peoples that complicate efforts to resolve Native Title and/or other issues surrounding operations on sacred lands. In short, the industry and government

[15] This section drawn widely on readings referenced.

are both viewed with scepticism if not outright cynicism and the path to repairing relations will take time and a coordinated effort between all three parties.

A major complication that has begun to be overcome through some pioneering efforts of some of the larger mining companies located across the sector and geography of WA is that of the cultural divide. To the surprise of many the benefits of cross cultural education and training programs has provided unanticipated *mutual* benefits. Mutual respect has ameliorated racial tensions within and surrounding the mining operations, while also providing economic benefits as fly in fly out (FIFO) costs begin to come down due to a rise in the local employment component. In return, the new aboriginal employees or contractors provide a local economic stimulus as well as stability in the region, as they now possess transferable skills that offer employment opportunities past the life of the mine.[16]

Increased respect for the local Aboriginal heritage stimulates greater interest in the local area by non-indigenous people and potential for eco-tourism industries has been discussed in many areas. Along similar lines the indigenous respect for and highly nuanced understanding of the land in which mines are located has naturally evolved through aboriginal participation in rehabilitation schemes at some mines. The story of the land that has been passed down over thousands of years provides valuable insights into the tolerances of land for mining activity. It has also led to the concept of ethno-botanical revegetation programs[17] as a potential means for communities to support themselves after the mine is closed. Pioneering programs are investing in providing horticultural training and business classes to facilitate the transition of these operations into wholly Aboriginal owned and operated businesses that both contract with the mine and pursue the development of pharmaceutical markets for the medicinal plants.

Other companies have facilitated through a range of programs the successful development of a range of Aboriginal owned businesses that either contract with the mines to plug old drill holes or provide other services to the surrounding community. There is no shortage of examples of efforts being made, though the range of quality ranges from exceptional in some cases to average in others. However, there is reason for optimism as the secrets of best practice are shared across the industry through word of mouth and contracting arrangements.

[16] Informed by visits to BHP Billiton and Hamersley Iron Operations in the Pilbara and supporting company documentation referenced.

[17] Ethnopbotany (see Argyle case study) refers to the cataloguing and planting of traditionally useful medicinal and edible plants.

A glaring shortcoming in these respects is the lack of effective government support and coordination for these programs. While it is in the industry's interest to create and maintain these programs during the life of the mine, it cannot be expected to continue to do so past this time. Therefore, it is essential that greater collaboration exist in these areas.

School programs could seek extensive collaboration with industry programs to provide the basic skills that are essential to the success of participants. Extensive library and Internet resources are particularly critical in remote locations for aspiring students to have a chance at a comprehensive understanding of the greater world within which they live. Good schools must be provided with a flexible format in order to provide the sort of quality education that will allow families to remain after their children reach high school age. The wealth created by these industries is enormous. So too is the tax revenue. Proper education can be provided in small venues if a flexible approach is taken.[18]

Case Study

The Aboriginal Training and Liaison (ATAL) Group of Hammersley Iron provides an optimistic glimpse into the future potential of good corporate citizenship. This program developed as an indirect result of the complex, difficult and frustrating process of sorting out Native Title claims, in combination with a growing understanding within parent company Rio Tinto Limited that the global sustainability agenda provided an opportunity to restructure management to accommodate the changing ethics of the international business environment. In an effort to relegate the divisive court process to an option of last resort, Hammersley, like many other companies, began efforts to deal directly with traditional owners. The process identified the numerous and complex issues that needing resolutions, if similar complications were to be avoided in the future. From tentative beginnings that highlighted the distrust between the parties on all sides of the issues, the process burgeoned to the point that groups like ATAL became a natural next step to build upon the lessons learned. It is a reflection on the advanced state and efficacy of Hammersley's efforts in this area that ATAL leads the way in industry efforts within Australia to empower and employ indigenous people.[19]

ATAL incorporates a growing number of programs across a range of categories:

[18] This section drawn widely on readings referenced.
[19] This section was informed by a visit to ATAL headquarters and literature provided.

- Business development, tax, accountancy and management consulting;
- Educational support programs like tutoring and after school study centres;
- Industry skills training and apprenticeship programs with the possibility of future employment within Hammersley Iron (96% placement rate due to proven excellence of previous graduates);
- Candidate recruitment programs targeted at local traditional owners;
- Community assistance programs addressing cultural, social and health issues;
- Mentoring programs to encourage youth to avoid destructive behaviour and activities;
- Cross cultural programs to improve relations between Hammersley employees and surrounding indigenous groups through education and interaction.
- Mediation of internal cultural disputes relating to indigenous issues as a means of encouraging dialogue and incorporating the concerns of all affected by these programs.

The group's activities continue to expand organically as issues and possibilities arise. The management team has been granted wide discretion as a result of its early and repeated successes, and has come to be seen as an integral part of Hammersley's development of a successful sustainability management model. Public relations advantages notwithstanding, socio-cultural and economic benefits to Hammersley over the period of ATAL's development have solidified the future of the group, with future expansion of its role a strong likelihood

Drawing on a case study documented in the MMSD final draft report, AMEEF has highlighted the successful work done in negotiating the Yandi Land Use Agreement. Hammersley Iron and the Gumula Aboriginal Corporation worked together to avoid the typical adversarial or legal process that had come to symbolize negotiations between mining concerns and traditional owners.

The project involved running a rail corridor through Gumula land. The process of mapping and deciding how to manage issues surrounding each of the many sacred sites along the planned path of the rail line, was fraught with the potential for impasse at many points; yet, a new corporate management culture at Hammersley, which was willing to conduct the process openly, transparently, and with the acceptance of due criticism, allowed the issues to be steadily worked through. This reversal of traditionally conservative approaches to such a process was a leap of faith by Hammersley management, as the process could have become bogged down in the mire of criticism and distrust that has often characterized corporate/community relations in the past. Also crucial was the

advance consultation of experts, Gumula elders and other key stakeholders were in an effort to build a profile of issues and priorities concerning the Gumula community in advance of the formal negotiating process. Thus, the thorniest issues were known and considered with the luxury of time to innovate solution that might have been impossible under pressure. In all, the process took only two years, yet achieved good outcomes for Hammersley and the Gumula people. It has also laid the groundwork and trust for ongoing consultation and collaboration on future issues may arise.

Governance, Regionalism, and Sustainability

Current regional policies affecting the mineral sector

The arguments for and against regionalism fall largely into two camps. There are those who argue that the last thing government needs is another layer of bureaucracy to dilute the desires of the people. There are others who assert that the regions are too distant, disparate and complex to be effectively managed by the states. The evidence, however, collected in the process of evaluating Western Australia's mining industry for this paper seems to favour the latter approach.

Creating more self-governing regions needs to be a gradual and considered process, to avoid the mistakes likely to arise from rapid action. Thus, the logical method to advance the process is on a project performance basis. A region's demonstrated capacity to manage an aspect of society stemming from a program such as the facilitation of indigenous property and benefit agreements with industry could provide the basis for such a project. The Kimberley Land Association's work, for example, could be funded directly as part of a regional budget, and overseen by a small regional body. If successful, the process could be duplicated throughout the Western Australian regions.

The greatest advantage to regional governance is that the people with direct influence on policy decisions live and work locally. Recruiting properly trained people to the regions has always been difficult. Therefore, an argument can be made for delaying the process until a given region has the population to support the majority of its government seats. However, the coastal region in the Pilbara, for example, is arguably already at this threshold, and would be a logical location for a regional government body. Furthermore, the design of the infrastructure, the wealth of the region, the existing social investments by industry, and the considerable economic expansion resulting from the North West Shelf Development Project, will likely see the Pilbara's coastal population grow

significantly in the coming decade. The Pilbara could, thus serve as a test region for a phased expansion of government powers.

The remaining arguments for regionalism come from a number of sources including the MMSD process itself. The sustainability principles section of the "Breaking New Ground" document advocates governance on an 'as local as possible basis.' The Local Agenda 21 document produced over a decade ago by the United Nations made a similar argument for the local perspective as a key element of sustainability. Supporting evidence, put forth by regional leaders such as Tony Ford of the Port Hedland Town Council in the Pilbara, reveals the imbalance between local government resources versus portfolio responsibilities in many regions outside the Perth-Metro area. Then there is the Australian precedent where the devolution of governing powers from Canberra to the States occurred in the past when remote regional governments became untenable without greater powers and resources. Finally, (unpopular though this comparison may be) in a similar situation, the United States Federal Government also divided much of its power with 48 contiguous states over a similar landmass (different geography notwithstanding). Together these elements make a strong case for enacting legislation authorizing a similar dilution of power to the more developed Western Australian regions on a rolling basis, thus freeing the State Government to focus on broader issues.

Conclusions

The benefits of launching a State Sustainability Strategy in Western Australia in the same year that the MMSD process is concluded are many, particularly due to the large component mining comprises of the State economy. A clear alignment of principles between the State and the international community is now possible. An opportunity also exists to be a leader throughout the continued development of the mineral sector's global sustainability processes. Some of the more innovative environmental, social and economic sustainability innovations are already taking place within the State's mining industry. The addition of effective government collaboration in the appropriate sharing of these innovations would elevate the process significantly.

Of particular interest are the themes of improved regional coordination and governance, and a sustainability database to serve as a clearinghouse for social and environmental sustainability innovations. Regional governance is a long-term complex project that should currently be entering into a pilot project phase, while a sustainability database is a simple, immediate, and non-intrusive means of elevating the industry's practices through cooperation.

One of the tenets of sustainability is that it remains a multi-stakeholder process. Therefore, government must work with industry to establish an oversight group comprised of representatives of all concerned stakeholder types, and is appropriately funded. Ideally, a body of this sort would include community, regional and state government representatives, minerals sector representatives from large and small companies, and a range of academic representatives. This would also be the best way for the State to gain recognition within international sustainability efforts as an important voice to consider.

Through addressing these three core elements, Western Australia could very effectively answer a number of coming obligations at all levels of society. The final form each will take, much like sustainability itself, will depend upon the stakeholder consensus that develops. Whatever that may be, it is an important opportunity for a State sector that already leads the world in many areas, to cement its role as a leader in the debate and outcome of the global evolution of this industry towards sustainability.

Glossary of Terms and Organizations

AMEEF	Australian Minerals Energy and Environment Foundation – Australian Regional MMSD Partner (now defunct).
CIPMA	Centro de Investigación y Planificación del Medio Ambiente – South American Regional MMSD Co-partner responsible for research.
CSDP	Community Sustainable Development Plans –plans identifying priorities for sustainable development at the local level.
CSIR	Council for Scientific and Industrial Research - Southern African Regional MMSD Co-partner.
Economin	Private consultancy engaged by IIED to do MMSD research in Indonesia
Eurometaux	European non-ferrous minerals industry organization consulted by IIED during MMSD assessment of Europe
Euromines	European mining industry organization consulted by IIED during MMSD assessment of Europe
FSU	Former Soviet Union Region defined for the MMSD process as the Russian Federation, Kazakhstan, and Kyrgyzstan (no formal process was initiated).
GMI	Global Mining Initiative – An initiative undertaken by the MMWG of the WBCSD
GRI	Global Reporting Initiative – a code developed to standardise the reporting criteria of businesses, which includes sustainability criteria.

ICMM	International Council on Mining and Metals - industry organization consisting of the heads of a large number of the world's largest mining and metals companies.
IIED	International Institute for Environment and Development – Global Managing Partner for MMSD process.
IISD	International Institute for Sustainable Development – North American Regional MMSD Partner.
ISO	International Standards Organisation - an organisation that certifies other organisation's compliance with internationally accepted reporting standards
IUCN	World Conservation Union – an international NGO with a mandate to advocate for environmental conservation.
MERN	Minerals and Energy Research Network
MMSD	Mining, Minerals and Sustainable Development – An independent global sustainability assessment of the mining industry concluded in May of 2002 as a component of the GMI.
MMWG	Mining and Minerals Working Group – A group of ten member companies of the WBCSD that initiated the GMI. These companies include: Anglo American, BHP, Billiton, Codelco, Newmont, Noranda, Phelps Dodge, Placer Dome, Rio Tinto and WMC.
MPRI	Mining Policy Research Initiative - South American Regional MMSD Co-partner responsible for participation.
NFCFSD	Non-Ferrous Metals Consultative Forum on Sustainable Development -
NGO	Non-governmental Organization – typically also not for profit.
OECD	Organisation for Economic Co-operation and Development – a member organisation of developed countries formed to negotiate solutions to international issues.
UN	The United Nations – the peak international governing institution
UWSME	University of the Witwatersrand, School of Mining Engineering – Southern African Regional MMSD Co-partner.
WBCSD	World Business Council on Sustainable Development – Global industry a coalition of 160 international companies formed to create a concerted international voice on sustainable development issues. Managing Partner of the GMI
World Bank	The International Business Redevelopment Bank (IBRD) – a global financial institution that is funded by developed nations to provide development assistance to projects in developing countries

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This case study was written based on consultation with Hamersley Iron and BHP managers during a visit to the mine site during November 2001. Additional consultation also occurred during the draft stage to ensure factual accuracy of company statistics. *However, the argument for regionalism is the author's conclusion alone.*

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