Sustainability Policy Unit
Department of Premier and Cabinet
197 St Georges Terrace
Perth WA 6000

Hamersley Iron Submission to Western Australian State Sustainability Strategy Consultation Draft September 2002

Hamersley Iron, a member of the Rio Tinto Group, has a long and proud association with Western Australia. Hamersley Iron and Rio Tinto are committed to Western Australia and its people. Both companies operate on a basis of finding and developing quality mineral resources that will sustain long-term operations and deliver benefits to employees, the company, Governments and local communities.

Hamersley Iron is pleased to make the following submission on the *Western Australian State Sustainability Strategy* and commends the Western Australian Government for taking a leading role in developing the sustainability agenda.

Hamersley will restrict its comments to those sections in the Consultation Draft which are directly relevant to the mining industry and other sections for which Hamersley has had some relevant experience.

Section 2 – Framework

Hamersley supports in general the Foundation Principles and process principles identified in the draft. Hamersley recognizes that many of these principles will take time and concerted effort to bring into fruition.

Hamersley endorses the notion that Techniques for Sustainability (Box 6, page 33) are tested through pilot projects prior to their broader application to programs, policies and legislation.

In particular Hamersley notes that the use of ecological economics to include the polluter pays principle and the need for full life cycle for costing of goods and services can impact on the competitiveness of businesses and industry in general. Hamersley cautions the State that approaches undertaken to embrace full life cycle cost accounting in isolation from other jurisdictions may adversely impact on Western Australia's cost structure for business and competitiveness.

Hamersley endorses the use of voluntary partnership agreements between Government and industry to provide voluntary commitments for mutually beneficial solutions. Hamersley's involvement in the Gumala Mirnuwarni Education Project in the Pilbara in conjunction with the Western Australian Department of Education, the Commonwealth Department of Education, Science and Training and other private enterprises is an excellent example of a voluntary tri-partisan approach to improving educational outcomes for Indigenous youth in the Roebourne, Karratha and Tom Price region.

Section 3 – Sustainability Assessment

Hamersley commends the State Government on its intention to move towards sustainability assessment as a process to provide integrated advice to provide net benefit outcomes.

Hamersley strongly endorses the notion that establishing a coherent sustainability assessment framework should only be applied to very large projects of State significance (page 36).

Hamersley offers its experience in developing an internal decision making process based on sustainability assessment to comment on the practicality of full sustainability assessment models (see reference to Box 7 page 37).

As described in Box 7, Hamersley undertook a pilot program to develop a sustainability assessment process and then tested the developed methodology on a decision relating to the future direction of the company's pastoral stations. Following the completion of this phase of the program, Hamersley then applied the methodology to a more complex mining decision relating to future resource development.

In the months following this program, during review and evaluation, Hamersley has formed the view that the sustainability assessment methodology developed has substantial resource requirements and is too resource intensive to apply throughout the company on a day-to-day basis, or for small and medium sized projects. It is likely that Hamersley would only use its developed methodology for significant and large new development projects in its present form. Work within the Rio Tinto group is being undertaken to assess if a modified version can be adapted for smaller project evaluation. Hamersley requests that in the final report, the last sentence of Box 7 on page 37 is replaced with " *Hamersley Iron acknowledges that significant resources are required to use the process and intends to use the methodology for significant development proposals rather than fully integrating the methodology into all aspects of the business.* "

Hamersley cautions the State on the applicability of sustainability assessment through a wide range of projects, plans, policies, and programs and endorses the approach of selecting a significant case study (ie the Gorgon Project) to evaluate the methodology and determine how manageable such an approach is for mainstream adoption throughout Western Australia. Hamersley suggests that general guidelines for assessment might be useful to develop in the event that a full sustainability assessment methodology is not practical to use.

In the discussion on the character of sustainability assessment (page 36) Hamersley notes a reference to finding integrated solutions where tradeoffs are minimized or non-existent where possible. In Hamersley's experience, tradeoffs are more likely to exist than not, and there needs to be recognition that win-win-win against all measures is often not practical.

In particular, Hamersley notes the possible criteria for sustainability assessment outlined in Table 2 on page 37. Against the ecological criteria, Hamersley suggests that "reducing ecological footprint while improving quality of life" may not be the optimal measure for determining ecological impact. Against this measure a new large scale resource development project (such as a new open cut mine) could never produce a positive result. Hamersley suggests a better measure would be one that is more inclusive of total environmental impact and could assess potential environmental benefits that might come through land-swaps for conservation management, funding available for R&D projects or improved land management programs for adjacent areas.

Hamersley notes that the State intends to establish three Sustainability Assessment Units to provide capacity for the implementation of sustainability assessment. Hamersley believes that the creation of these units and development for criteria for assessments should be undertaken in consultation with non-government organizations, universities and the private sector. In particular, Hamersley believes that very strong assurance processes need to be developed to ensure that project sensitive economic information is treated with absolute confidence. In some circumstances, companies may not readily release highly sensitive economic information about proposed projects.

Section 3 – Sustainability in the regions

As a major employer in the Pilbara region, Hamersley endorses the inclusion of Sustainability in the Regions in the consultation draft and supports the development of Regional Sustainability Strategies. Hamersley suggests that the Regional Development Commissions have a logical role to play in supporting sustainability throughout the regions. Hamersley also suggests that there is a significant role for industry to play in the creation of Regional Sustainability Strategies; and that a focus on *"facilitating development and encouraging job creation in regions"* should be included in the list of points on page 59.

Section 3 – Indigenous Communities and Sustainability

Hamersley believes that the ground-breaking work being undertaken by mining and resources companies in reaching land use agreements and regional agreements is worthy of more prominence in this section.

In particular the dot point on page 62 with reference to employment and training for Indigenous people reflects only part of what progressive mining companies are undertaking. A more inclusive statement would be:

- *The move by mining companies to sign long term land use agreements which provide a range of benefits including financial payments, provision for cultural and heritage management, employment and training, support for small business development and community infrastructure.*

Section 5 – Sustainable Mining and Petroleum Production

Hamersley supports the objective and proposed actions that have been development for sustainable mining and petroleum production. The vision is commendable, however the timeframe for achievement may be extremely long and, as identified in the report, is dependent on radical changes in consumer consumption. Minerals production and consumption is strongly linked to economic development, particularly in emerging countries, and in the medium to long term it is difficult to envisage a decrease or a plateau in the need for global resources.

Hamersley commends the State Government for its recognition in the consultation draft of the mining industry's extensive environmental management programs as well its the innovative and effective education and training programs for local Indigenous people.

Hamersley requests that the following changes are made in the final version of report to the text that relates to HIsmelt (page 112 and Box 25):

Text on Page 112 – change the reference from HISmelt to HIsmelt in the sentence "…Box 25 below sets out how the HI~~S~~smelt process has created a long-term future for Pilbara iron ore.

Text Changes required to the Box 25 (new text in bold, text in strikethrough to be deleted)

HIsmelt technology is a globally innovative technology breakthrough from ~~Hamersley Iron~~ **Rio Tinto** developed in Kwinana. This technology has been researched and developed ~~with funding from Hamersley Iron and the Government~~ **by Rio Tinto with support from Government** over the past twenty years. The project ~~is now being assessed by the Environmental Protection Authority~~ **was approved in late 2002 by the Minister for Environment and Heritage** for full-scale application at a company owned plant in the Kwinana industrial area along the coast south of Fremantle.

In terms of sustainability the technology is a breakthrough on several fronts. First, it enables vast areas of
previously uneconomic ~~phosphate rich~~ **high phosphorus** iron ore to become economic, giving the Pilbara region a much longer lifetime as a producer of quality iron ore. Second, it is a fundamental change to how iron is produced with significant potential to reduce energy **consumption** and greenhouse gases.

The process combines a hot air blast system, ore pre-heater **and** vertical smelt reduction vessel to smelt a
continuous ore/coal/flux feed into high purity iron ore without the use of coking ovens **or sinter plants**. The key innovation is the use of ~~a reduction~~ **direct smelting** rather than ~~an oxidation~~ **a shaft furnace** process, which greatly increases the range of suitable and economically viable ferrous feed stocks, due to its ability to separate impurities efficiently on a continuous basis. Phosphor~~e~~us, which **is captured in the pig iron in** ~~poisons~~ a traditional blast furnace **and is** ~~unsuitable~~ **an impurity for steelmaking**, is no longer a hindrance. After ~~an additional~~ **a downstream** sulphur removal stage, the end-result is a high-grade pig iron, which is highly sought after by steel manufacturers.

The design of the plant will also allow for the capture of ~~heat~~ **thermal** energy produced in the smelting process that can then be used for energy production. This new efficiency is called a 'Factor-X' gain (a term used in industrial ecology to denote ecologically beneficial efficiencies in a production process that are gained through producing multiple products where formerly there was only one). In this case, the dual outcomes of iron production and energy means a much-reduced greenhouse gas output as compared to the production of these two commodities independently. This is a precursor to the next wave of production technology and regulatory requirements, which will eventually result in the retirement of older, less greenhouse efficient, stand-alone energy plants.

The sustainability benefits of the HIsmelt process are many. Locally, the Perth area gains a new industry and a value added technology. ~~while simultaneously reducing its greenhouse gas output per unit of production.~~ Regionally, both the Perth metropolitan area and the Pilbara benefit through the extended life of an industry that is of vital importance to both in terms of employment and economic stability. The State of Western Australia also benefits in a similar manner. ~~Nationally~~ **At a National level**, technologies such as HIsmelt will be crucial to Australia's commitment to reduce greenhouse gases, as well as ensuring a role for this country in an emerging global market through the steady progression of agreements, such as the Kyoto Protocol.

On a global scale, licensing this technology will mean that steel production can be combined with energy production in many areas (such as China, which is both heavily coal dependent and a major steel manufacturer),merging the greenhouse emissions of the two industries into one. Finally, the energy and iron/steel industries benefit through a more secure future, steel and energy production efficiencies, reduced need for carbon offset trading, fewer emissions and a greater potential ore body to mine. Furthermore, this technology, through the expanded range of viable feedstocks will facilitate the eventual merger of the iron mining and iron recycling industries. This is a microcosm of a similar transition, which is expected to occur across the mining industry over the next 50 to 100 years. Through HIsmelt, Australia has the opportunity to be a leader in this development.

Section 5 – Sustainable Rangelands Management

Hamersley commends the Government for its focus on rangelands management and endorses the vision, objectives and proposed action. With respect to proposed action 3.56, Hamersley draws the Government's attention to the following program in which Hamersley is involved through partnership with the University of Western Australia (UWA).

In 1995 Hamersley Iron and CALM signed a Memorandum of Understanding to promote Pilbara rangelands management. Since inception, the program as encompassed a range of innovative research programs undertaken with UWA. Although the original period of the MoU has lapsed, the research programs are on-going and three of the main programs are described below:

The dynamics of Acacia populations in the rangelands.

A key area of study into arid land ecophysiology has been woody shrubs *(Acacia)* - the effects of their density on biodiversity and the effects of disturbances, through their impacts on soil that result in changes to the availability of water and nutrients to plants.

This broad-based study has now furthered the understanding of these communities to a point where new management techniques can be trialed.

For example, Snakewood *(Acacia xiphophylla)*, which dominates areas of floodplain on Hamersley Station, is an endemic species that interferes with pastoral production when it becomes dense. It is referred to as a woody weed from a pastoral point of view, but a regionally desirable species from a conservation perspective.

Hamersley and UWA designed a study to increase understanding of the processes of drought tolerance in woody shrubs (including Snakewood) and factors that affect their distribution. The study is seeking to determine the best approach for returning biodiversity to the floodplains, where, in some places, Snakewood has displaced grasslands due to overgrazing.

An experiment is now under way to determine: which disturbance produces the greatest density and diversity of grasses and forbs, while locally reducing Snakewood shrub density; whether artificial seeding is required to increase grass and forb density; whether particular species preferentially germinate and become established; and the progress of long-term survival of germinating species.

Soil factors, grazing and the growth and diversity of Pilbara grasslands.

A project is under way that investigates the ecophysiology of the northern Pilbara grasslands, which provide the largest food source for stock.

This project is examining the effects of cattle grazing on nutrient cycling and sustained nutrition and growth of selected grasses. Effects of practical options for land management (such as fencing, destocking and burning) on growth and nutrition are being established.

The project is seeking to develop studies of soil processes, including measurement of carbon and nitrogen pools; and evaluate effects of amendments to soils, for example, fertilisers and organic matter, with the aim of evaluating methods for rehabilitating soil degraded by over-grazing.

Work on this project has progressed to the stage where exclusion areas have been fenced off on Hamersley station, in order to conduct trials. The project team has formed the hypothesis that “crusts” of ground – or the bare ground between grass clumps – are more important to nutrient cycles in grasslands that has been previously thought. Fenced off areas at the station are enabling examination and evaluation of the value of the crusts.

Detection and management of reductions in the availability of water to trees and shrubs.

This project aims to predict water stress in native trees and shrubs, through the understanding of the relationships between vegetation and types of water sources.

A key methodology is the selection of sites in the Pilbara and the undertaking of comparisons. For example, railway lines and roads might have an influence on the distribution of floodwaters, thereby changing the availability of water to adjacent vegetation. Water status can be compared upstream and downstream of the site.

Through this study, the consequences of lowering the water table for tree physiology and health can be examined.

This project, which has worldwide implications, is using innovative biological chemistry techniques and extensive survey work, which includes the use of carbon isotopes to analyse plant material. Exploratory work is developing new methods to analyse compounds in leaves and water stress effects, as well as root architecture.

The project is important for Western Australia's mining industry, as it has an impact on mine de-watering. The Hamersley-UWA team is believed to be the only group working full-time on this issue.

Hamersley would be pleased to discuss any particular aspect of its rangeland research programs with relevant agencies.

Section 8 – Industry Sustainability Convenants

Hamersley supports the concept of ensuring that any sustainability convenants are non-binding for maximum industry support and participation. Hamersley encourages the Government to ensure there is extensive consultation in the process of developing any such sustainability convenants.

If you would like clarification on any aspect of this submission, please contact me on 9327 2444.

Yours sincerely

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