PILBARA ENVIRONMENTAL MANAGEMENT GROUP

NEWSLETTER No. 10

July 1996

I must start this Newsletter with special thanks to Ken & Marie Walker for the most memorable night of the "Bush Tucker-Camp Oven Spectacular". For anyone unlucky enough to have missed it, a scrumptious four course dinner was staged around a welcoming fire on a beautifully calm night at Cossack . The gastronomic (and alcoholic) fare was followed by cabaret variety - thanks to Peter Long and Steve Vellacott (unplugged) and especially to Dave Button who's art of story telling and foreign accents (forget Allo! Allo!) must now become legendry.

P.S. Apologies to the gardener and one poor courtyard tree. *(And one concerned botanist! Editor)*

Secondly thanks to our guest speakers, Peter Hicks, Andrew Heyward, Steven Vellacott and our excursion leaders, Greg Oliver, Emile Thoma and Sarah Shields who kindly gave their time and a lot of interesting information.

Thirdly thanks to all the people whom turned up for the PEMG meeting and field visits. It was certainly the largest attendance I have been involved with and demonstrates that there is a lot of interest and I believe value, in exchanging information and ideas directly relevant to environmental business in the Pilbara. *The seven major resource industries (Robe, HI, Woodside, BHP Iron Ore, WAPET, Dampier Salt) in the Pilbara were well represented as were government departments, DEP, DOME, CALM and Chamber of Mines. It was encouraging to see representatives present from the Shire of Roebourne and the Shire of Ashburton along with three environmental consultancies (Seeds of the Pilbara, ECOS and Astron) Ed.*

A number of informative and interesting presentations were given following the PEMG business meeting (minutes attached). Brief summaries are provided below, followed by some general interest items.

AIMS Pilbara Research

Dr. Andrew Heyward Scientist in Charge, WA from the Australian Institute of Marine Science presented a comprehensive overview of the research currently being conducted in the Pilbara by AIMS. One of the key objectives of the AIMS research is to gain a better understanding of how arid mangrove systems work and their role in nearshore ecology. Approximately 2 years of research into Pilbara mangroves including physiology, growth rates and nutrient cycling have been undertaken to date. Preliminary findings have indicated that there are significant differences between east coast and west coast mangroves. Our western counterparts survive within a very narrow band of habitat and are exposed to more extreme ranges of salinity and heat. Research is indicating that the Pilbara mangroves may have reduced tolerance to additional stress relative to east coast mangroves.

AIMS coral research studies includes the establishment of transects on a variety of Pilbara coastal and offshore reef systems where quantitative long term monitoring of coral and reef fish communities will provide information to assess natural and anthropological induced change. Recruitment studies using settlement plates will provide additional information from which to assess a reefs ability to recover from damage. Potential major impacts to coral reefs include ballast water, cyclones, predator outbreaks, localised turbidity, oil spills. Monitoring programs designed to evaluate the effects of some of these outbreaks are being carried out on our eastern shores.

Along a similar theme, Andrew discussed a study at Ningaloo which aimed to harvest coral gametes and larvae during the spawning period. Such collections could potentially be used to re-stock damaged areas of reefs. This plan was unfortunately scuttled by cyclone Olivia for this year, however, the potential applications make this work quite exciting. I wish them better luck for '97.

The Use of Remote Sensing and GIS for Resource Industries in Arid Australia

Dr. Peter Hicks Senior Research Scientist and Project Leader in the Minesite Rehabilitation Research Programme of the CSIRO presented a range of examples on the use of remote sensing and GIS for environmental management in Australia's mining industry, placing special emphasis on examples in the Pilbara. Peter has kindly provided a summary of his talk which is reproduced below.

"The talk began with some of the basic physics involved in the interaction of light and vegetation. The spectral response of vegetation, soil and water is what is measured from remote systems and some examples of the acquisition and processing steps to create useful images were covered.

Examples of satellite data from the broad continental-scale showing the fortnightly vegetation status (AVHRR); to the regional-scales of the Landsat series of satellites; and then some examples of micro-scale imagery from airborne systems such as the Airborne Videography.

These examples were drawn from work done within the CSIRO Minesite Rehabilitation Research Programme and covered Robe River, Dampier Salt, Hamersley Iron in the Pilbara and from Weipa in Qld. They showed vegetation monitoring over mine-life scales; vegetation classification into species or associations; and some potential uses in benthic communities.

Specific emphasis was placed on the importance of calibration and precise geolocation that will enable digital data to be incorporated over the long-term for monitoring and for integration into Geographic Information Systems (GIS)"

Department of Environmental Protection's New Licensing System

Steve Vellacott, Senior Environmental Officer from the Pilbara DEP Office presented an overview of the impending changes to the DEP's licensing system. A great deal of discussion was generated by this presentation with much interest ascribed to the relative pros and cons of seeking a Best Practice Licence over a Monitored Licence. A comprehensive summary of the changes was provided by Steve and is attached to this Newsletter.

Hamersley Iron's Rehabilitation Excursion

Sarah Shields and Emile Thoma took us on a guided tour of the Dampier Operations rehabilitation programme. The tour started with a visit to the conservation services nursery where over 200 species of plants are raised for planting throughout HI's Pilbara operational areas. At the nursery we were introduced to one of a suite of well controlled trials which HI are undertaking to assess the best seed treatment techniques to maximise the success of germination in Pilbara natives. This is an excellent initiative and one which all present thought warranted publication.

We were also fortunate to view HI's Technical Resource's seed storage facility where seed is cleaned and vacuum packed for long term storage at a chilly 4-6^{0}C until it is used in larger scale revegetation programs. The tour ended with a drive past of rehabilitated areas adjacent to HI's port loading and stockpile facilities. Despite of chronic iron ore dust loading and soil accretion on East Intercourse Island, excellent results have been achieved. The value of regular watering was clearly evident here, with well established trees and shrubs and high ground cover having been achieved in some cases in less than 2 years.

(Emile and Sarah stress the value of revegetation as an effective means of dust suppression. They see their research and field work as furthering this concept rather than treating it as a landscaping or revegetation program as such. Good luck Emile and Sarah! Editor)

Woodside's Mangrove Rehabilitation Trial

A visit was also made to No Name Bay, adjacent to Woodside's Onshore Gas Treatment Plant, to view the progress of mangrove seedlings raised and planted out in 1994 in an attempt to rehabilitate approximately 1500 m^2 of *Avicennia marina* mangal which died as a result of the discharge of sediment laden dredge spoil tailwater in 1986/87.

Monitoring of survivorship and growth has taken place regularly since planting and 56 % of the seedlings have survived into their second year with average growth (height) increasing to about 45 cm. Few *in situ* deaths have occurred. Most losses are attributed to scouring and smothering, with the highest rate of attrition occurring in the first 3 months following planting.

For those interested a brief summary of the technique used is provided below.

> Fruit from *Avicennia marina* (90%), *Bruguiera exaristata* and *Ceriops tagal* were collected from No Name Bay following their fall in March 1994 and potted up in a 50% potting mix 50% mangrove mulch/beach sand mix. Grow out occurred at the Dampier Salt nursery (unshaded) with daily watering (fresh) until the seedlings were at the 2-4 leaf stage and 4-5 cm in height. Planting occurred in June with densities of about 2.5 plants/m^2. Protective fences made from star pickets and shade cloth were initially installed to reduce the perceived threat of wave and tidal action
> washing out seedlings.

Further details can be obtained from Greg Oliver (09 2244099).

Minutes of Business Meeting

1. Apologies

Dave Lindsay, Mary Fletcher, Steve Van Leeuwin, Marilyn White, Peter Long

2. Welcome and Thankyou

All (29!) participants were welcomed. This was an appropriate time to acknowledge the departure from the PEMG of one of its actively supporting members, namely Marilyn White. Marilyn first joined the Group representing WAPET and later as the newly established QUEST's rep. Marilyn has been responsible for producing the very informative Newsletters for the PEMG over the past 18 months. A vote of thanks to Marilyn for her work was made and a letter will be forwarded to her from the Group once we have an address for her.

3. Financial Membership

Members were reminded that financial membership was well due for 1996. Only 6 members to 6th of June had paid their fees.

4. Financial Report

It was agreed that as we now have membership fees that a financial report should be issued at each meeting and included in the newsletter.

Finances to May 24, 1996 (as per the latest bank statement):

Income from membership fees :	$ 500.00
Outgoings:	
Payment to Karratha Cafeteria for lunches PEMG meeting 19/9/95	$ 132.00
Government and banking fees	$ 23.90
Balance 24/5/96	**$ 344.10**

5. Direction of PEMG

A discussion was initiated by Vicki regarding the direction of the PEMG... are members satisfied with what they gained from the Group meetings and excursions.. is there something more constructive we should be accomplishing (with the Goldfields Rehab. Group 's newly published book in mind).. should we at least be pooling information into some central data base for general distribution.. are meetings regular enough etc ??

Several ideas and comments were put forward and discussed. In summary, in view of the distances between participating members, the diversity of environmental problems we are all looking for solutions for, and what we do in fact gain from each meeting/excursion, members are satisfied. A few directional decisions to further disseminate information as follows:

- It was decided that two meetings a year would be continued along with the issue of two newsletters. This gives members a "quarterly" update as to the Groups activities and acts as a reminder that, for the Group to continue to be effective, the networking and sharing of techniques and results of various resource projects, is essential. Contributions can be made at meetings or forwarded to the Co-ordinator for inclusion in the newsletter.

- Participating companies are to nominate key personnel to whom the newsletter should be sent. These people will be responsible for sharing and dissipating information to other members within the company. In many cases at present correspondence is being sent to a many as seven people in the one company. This is not cost or time effective for the PEMG (let alone the tree destruction!).

- Newsletters should incorporate minutes of meeting and a summary of presentations given by key speakers. Excursion summaries should also be included. Contributions from members sharing opinions/techniques/results in differing areas of expertise should be an important component.

- A directory of members and their areas of expertise (A Who's Who of the PEMG) should be compiled for distribution. This would allow members to network problems and hopefully find solutions more efficiently. (** Pro-forma attached)

6. Management Structure

Newsletter: Responsibility to be rotated. Key speakers will be asked to submit a brief outline of their presentation for inclusion. Minutes of meeting taken by co-ordinator (or other) to be included.

Chairperson: Dave Button has done a great job chairing most of our meetings until now. We still love the sound of Dave's voice but Dave is happy to share the role of Chairperson with other members. Volunteers please!

Co-Ordinator: Vicki is willing to continue providing members are happy with her role.

7. Pilbara Research Funding Organisation

A discussion ensued on this concept which basically involves major resource companies in the Pilbara donating finances to the Organisation for research that is generated from common problems being experienced by them. David Porterfield (BHP IO) is co-ordinating and currently processing the initial ideas. These ideas should have been submitted by July 10th, but for anyone who missed the meeting (or has forgotten since) David is very keen to receive your ideas. **PLEASE FILL IN THE FORM ATTACHED AND RETURN TO DAVID ASAP!!**

8. Other Business

AMIRA Research: Dave Button gave a quick up-date
Useful Publications: Charles Newlands reminded us of two CSIRO publications, *Rangeland Soil Condition Assessment Manual*, *Assessment of Soil Condition in Tropical Grasslands*, both by David Tongway, also the GLRP *Plant Rehabilitation Guide* and that there has been a revision of the bloodwooods published.
Chamber of Mines: Jane Aberdeen updated us on the activities of the Chamber of Mines.

Jane is a great source of all sorts of very useful information relevant to the resource industry (Codes of Practice; forthcoming workshops; publications etc). Jane can be contacted at the Chamber of Mines on (09) 325 2955.

9. NEXT MEETING - NOVEMBER 7 & 8TH - PORT HEDLAND

Please note these dates in your diary. BHP IO will host the meeting. A sketchy program includes meeting at Shay Gap on the 7th to review the rehabilitation there, returning to Port Hedland for a BBQ in the evening. On Friday we will hold the business meeting. This will be followed by a tour of BHP's facilities in Port Hedland incorporating the dust suppression system, mangrove revegetation, gas pipeline rehabilitation, the new power station and the HBI site. And if this doesn't hold enough interest for you, Mark and Peter have suggested we finish up the meeting at Port Hedland's well known Friday night "cultural show"!! A flyer with details will follow nearer the time.

Close of minutes.

Other Items of Interest

EnviroNET Australia

The Commonwealth Environmental Protection Agency has released EnviroNET Australia, a free source of information about the environmental protection industry, accessible through the Internet. Environet is all about helping users find solutions to environmental problems and is comprised of 6 databases:

* Environmental Management Capabilities Database
* Environment Technology Reference Sites Database
* National Cleaner Production Database
* Research & Development Database for Waste Management & Pollution Control
* Scheduled Waste Treatment Technologies Database
* Environmental Education Courses Database

Having seen the brochure put out by CEPA I would recommend having a look over this site. A brochure can be obtained by contacting Nigel Kirk or Sophie Montgomery from CEPA (06) 274 1781; (06) 274 1694; or email environet@dest.gov.au

To log into the site the Internet address is:

URL:http://www.erin.gov.au/net/environet.html

Ballast Water Research

$2 million dollars has been budgeted for over the next two years by the Australian Ballast Water Council (headed by Dr. Meryl Williams CEO AIMS) to conduct research aimed at managing the risk of exotic pests entering Australian waters through ships ballasts. The work will include an assessment of the practicality of heat treatment of ballast water organisms.

Bioremediation Research

A study is to commence shortly looking specifically at the cleanup of oil spills in warm environments by bioremediation. The work is to be conducted by AIMS and AEA Technology and is sponsored by AMSA, ERDC, CEPA and the AIP.
Further information is available from Trevor Gilbert AMSA (06) 279 5680.

Local Bioremediation Project

A comprehensive site investigation of what is believed will be one of the largest bioremediation projects to be carried out in the Pilbara to date is being undertaken by Rust-PPK and Astron Environmental on behalf of the Australian and U.S Departments of Defence at the Harold E. Holt centre at Exmouth. The investigations to date have identified the presence of contaminated soil over parts of the site and some deterioration in groundwater quality. The bulk of the soil contamination is due to hydrocarbon products together with some metal compounds. In addition polychlorinated biphenyls (PCBs) have been identified. The bioremediation project includes a substantial revegetation program.

Thank you Greg for compiling the bulk of this Newsletter. Looking forward to seeing you all in November but please respond to Dave Porterfield before then!

Vicki.

PILBARA RESEARCH FUNDING ORGANIZATION

RESEARCH PROJECT SUGGESTIONS

PRIORITY	TOPIC	PURPOSE OF RESEARCH	AMOUNT OF WORK ALREADY ATTEMPTED ($ OR YEARS OF RESEARCH)	CONTACT
1				
2				
3				
4				
5				

Example

Mangrove Impacts To study impacts and collect data on existing impacts	- to establish baseline conditions, assess impacts and identify potential rehabilitation strategies - understand and collect relevant research to help guide future research and re-establishment	- Years of study im most tropical coastal areas - Several research reports (List) already done by .....Any other comments or ideas	Company Name

153766

** Please return as soon as possible to : David Porterfield, Senior Environmental Officer, BHP Iron Ore, PO Box 655 Newman WA 6753*

PEMG MEMBERSHIP DIRECTORY

Name*	Company	Position	Phone No.	Expertise

* *The directory can include all environmental personnel, as authorised by the PEMG member Company, Shire, Consultancy or other. Directory inclusion is not limited to the key person responsible for dissemination of information although this person should be asterisked.*

New DEP Licensing System

INTRODUCTION

Purpose of this brief presentation is to advise all members that the licensing system is about to change quite radically, and that DEP's activities will also change.

Key Points are:

1. Review the **"Prescribed Premises"** List- Small industries like abrasive blasting, fibreglass works, etc will no longer be licensed, but covered by Regulation. About half of existing licenses will disappear. You will need a licence if your waste discharge is over a prescribed limit for any waste type. *(there is general agreement now on new list)*

2. **Fee for Service-** The licence fee will better reflect the cost of providing the licensing system and will provide incentive for industry to reduce waste discharges/emissions. There will be a 6 fold increase in fees over the next three years. DEP will be retaining the fee monies to fund some of its operations.

3. The new system is designed to give **incentive** to industry to develop Environmental Management Systems, and therefore self regulate to a degree, and to reduce waste output.

4. The new system is due for commencement in the 96/97 financial year, with commencement of new fee structure due in September 1996.

5. All current licensees and future licensees will get adequate notice.

6. Other States have introduced similar types of systems. Victoria has similar elements, but also has significant differences.

THREE TYPES OF LICENCE

1. **Existing type** of licence- Regulation and auditing all done by DEP. The licence pays a higher fee, which is based on the throughput of the plant, not on the actual discharges.

2. **Monitored Licence-** The licence will pay a fee for the licensed amount of emissions. A **fee unit** will be used to determine the total cost of discharge of each waste type. That is, sulphur dioxide will attract a certain cost per tonne, heated water will attract a certain cost per ^{0}C above ambient. Specially sensitive areas (eg Peel Harvey Estuary, Swan Coastal Plain) may attract higher fee structures for nutrients. A United Nations publication details all of the known waste types produced by different industries, and this will be used as a guide in developing the new system.

3. **Best Practice-** A licence can apply for a Best Practice Licence which can provide a number of benefits including good public relations and lower licence fees. To qualify for a Best Practice Licence, the licence needs to have:

(a) A good track record
(b) Accreditation under ISO 14000 or approved equivalent
(c) A formal environmental policy
(d) Independent audit system
(e) Quantifiable Environmental Protection Objectives
(f) Continuous improvement
(g) An acceptable level of public information on environmental performance

DEP CHANGES:

The DEP will have, through the funding made available by the new licensing system, a capacity to employ staff and deploy resources to carry out more work which is pro-active and pre-emptive. Some changes (not all directly related to the new licensing system) include:

1. Establishment of a new Division - **Environmental Systems Division**

2. Strengthening of the **Policy Coordination Division**

3. Appointment of **extra staff to existing Regional Offices**, including the Pilbara office which, from July 22, will include an officer specifically for licensing functions.

4. Establishment of a Regional Office in Geraldton.

5. Air modelling and Marine Research work in the Pilbara, beginning 1 July 1996.