

Committee Secretary
Standing Committee on Industry and Resources

Submission to the Inquiry into Resources Exploration Impediments

The Northern Regional Development Board recently had completed "A Strategic Assessment of the Australian Opal Industry" and as an adjunct to that report The Australian Jewellery and Gemstone Industry Council Inc. has commissioned a "National Opal Industry Strategy Background Paper".

Both papers go into substantial details associated with the Opal Industry in Australia but there are a number of pertinent sections that apply to the Terms of Reference of the abovementioned Inquiry. The attached sections are from both papers and mainly pertain to the four South Australian Opal fields but do have the same significance for New South Wales and Queensland fields.

The Northern Regional Development Board is currently in the process of seeking funding for a "Strategic Plan for the Opal Industry", the scope of the study is to include:

- To identify the impediments and achievable goals to the production of opal at all major opal fields
- To investigate and report on technology in opal exploration and the genesis of opal
- To identify the issues and report on the attainable outcomes in relation to the cracking of opal
- To identify areas of concern in the taxation system to the opal mining, wholesale and retail industries
- To identify a marketing strategy for the opal industry
- To develop a national training program to improve education at all levels in the opal industry.

It is expected that this study will be completed within six months.

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South Australia has four active opal mining fields, Andamooka, Coober Pedy, Lambina and Mintabie. There are four Associations, Andamooka Progress Association, Coober Pedy Miners Association, SAOMAI (South Australian Opal Miners Association Inc.) and the Mintabie Miners Progress Association looking after the miners' interests on the associated fields. SAOMI was formed to represent miners in general but more particularly Lambina. The following is an overview of each of the fields.

Andamooka

Two boundary riders from Andamooka Station discovered opal in 1930. The field was slow to go into production because of the harsh climate and world events in the 1940's but by 1962 an estimated 800 miners were working on the fields, today there would be no more than 300 leases on the Andamooka field. The opal is mined from three to ten metres down on the ancient seabed of 1.8 million to 70 million years ago. From 24 separate fields, opalised shells, stones and dinosaur bones are still being brought to the surface. Andamooka opal is considered to be the world's most stable opal.

Coober Pedy

Coober Pedy once produced the bulk of the world's opal and is possibly the most famous opal-mining town. However, in the last decade it has suffered considerable decline, due to the fact that no new mining areas have been found.

Opal can be found in mogul-type hills, where miners live underground to avoid summer temperatures exceeding 50 degrees Celsius.

It still produces the bulk of the world's light opal.

Mintabie

A well sinker, named Larry O'Toole, is credited with finding the first opal in Mintabie in the 1920's.

Mintabie's harsh climate and lack of water discouraged mining until mid 1970. In 1976, explosives and large machinery were brought to the field.

In October 1981, the Pitjantjatjara Land Rights Act came into force and Mintabie became part of a large area of freehold Aboriginal land. This Act has continued to have an effect on the Mintabie way of life.

The big rains of the summer of 1988/89 flooded many mines and some residents decided not to return after their summer break. The continuing lack of progress in negotiations for an extension of the field, led to the further frustration of many miners.

These events precipitated the gradual decline in interest in opal mining in Mintabie.

Mining activity in Mintabie today would only be 30 per cent of what it was 10 years ago.

There are only 4 dozers and one excavator working the open cuts and about 6 bobcats working underground. There is some renewed interest in claims on the old airstrip, after a good find at 8-12 feet a few weeks ago. There are still a lot of un-worked claims in this area.

The Progress Association is trying to generate more interest in opal mining at Mintabie as a tourist destination, primarily as a way of attracting investment to the area.

The website has been an effective means of attracting tourist interest.

One of the barriers to expansion is native title. The Mintabie township and the previous airfield's site are located on free hold Aboriginal land. The mining association is currently negotiating a 25-year extension on the town lease. There are also long standing negotiations to open up other areas of Aboriginal land. As a result, permission has been granted recently to begin a \$29,000 drilling program on a 74 square kilometre area west of Mintabie.

The release of GIS software for Coober Pedy and also Mintabie has generated much interest in prospecting in the area.

Lambina

Old miners claim that opal was discovered at Lambina during the depression years of the early 1930's.

A minor rush in the late 1980's occurred following discoveries by some miners at Seven Waterholes diggings. Consequently, the pastoral lessees who planted many of the claim holders expressed concern. The lessees sought compensation and more control of mining activities.

Mining continued at varying levels until mid 1990. However, the discovery of high quality stones in 1996, led to a rush of claims being pegged. Nevertheless, before many of these claims could be processed, the Wik native title decision halted any new mining. In December 1997, miners were informed that a native title claim would be lodged over the entire Mintabie area.

SAOMAI negotiators concluded the historic Lambina Native Title Mining Agreement with the native title claimant parties. The process was greatly facilitated by officers of the Department of Mines and Energy and the native title claimants.

Lambina now supports a population of around 300 and produces a major portion of South Australia's opal.

There is still a chance of becoming an overnight millionaire at Lambina. This attraction has lured many miners from both Coober Pedy and Mintabie.

However, there is a minor obstacle involving the Lambina Native Title agreement. In particular, the issuing of some unreasonable demands from a few dissatisfied Native Title Claimants. SAOMAI are currently dealing with this problem.

However, Mintabie paints a bleaker picture. The field is quiet with only 4 dozers and an excavator working in open cuts. There are also approximately six bobcats working underground. Nevertheless, there is some renewed interest in claims on the old airstrip following a recent high-quality discovery. Yet, there are still many unprocessed claims in the area.

Our Progress Association is attempting to generate more interest in Mintabie and in opal mining, with a view to attracting industry investment. The Association is encouraging tourism in the area, promoting the opal mine lottery and using its website to generate a positive impact.

Land Access

The overwhelming impediment to the future of opal mining in the Mintabie and Lambina areas is the restriction of access to Aboriginal freehold and native title land. The north of South Australia and the Anangu Pitjantjatjara (AP) Lands in particular, probably are Australia's largest untapped mining resource. However, these lands are subject to severe access restrictions.

The Mintabie Miners' Progress Association has been trying to gain access to AP lands since April 1988. One of the main Anangu objections to granting miners access to their lands has been the perception that Mintabie has had a detrimental effect on the Pitjantjatjara people.¹

Some Anangu regard Mintabie as the drug and alcohol distribution centre of the Lands. However, this perception is incorrect and the subject that frequently clouds the issues in any negotiations.

In spite of these viewpoints, Mintabie is an important service centre for the far north of the state. Its four stores, hotel and Post Office service the surrounding AP Lands as well as local and Lambina miners. The school has an enrolment of 38 students from reception to year 9, and the Frontier Services clinic and visiting RFDS provide an excellent health service.

¹ An agreement has since been signed, following 14 years of negotiations. The result was due largely to the appointment of Mr. Bob Larkins as mediator.

At present Mintabie's population is estimated to range between 300 and 400. Many miners are over 40 years of age and there are very few below 30. Fourteen different nationalities are represented with approximately 30 per cent of these residents possessing European backgrounds.

Industry fragmentation

The other main impediment in the opal mining industry stems from the independent nature of the opal miner himself. For many years an opal miner was able to be independent of the "system". He had access to country no one else desired, he could dig a hole to look for opal, and when he was finished he could just walk away.

It is a vastly different story today. The independent opal miner has no chance of working outside a Proclaimed Precious Stones Field without first negotiating environmental and native title agreements. This is a costly and lengthy process, beyond the reach of the average opal miner.

The majority of opal miners today would not be working if it were not for the formation and influence of opal mining associations. Without their input, the draconian legislation suggested by a succession of government departments, coupled with the introduction of native title legislation, would have stifled the industry.

Today's opal miner, or his representatives, need to assume a more professional demeanour so as to be able to deal with the issues of native title, taxation, the environment, National Competition Policy, occupational health and safety regulations, rising expenses, and advances in geological research.

The mining associations should be leading the development of this professionalism. Concurrently, they need to protect the integrity and autonomy of the individual miner.

Unfortunately, opal miners often support poorly such associations. Unjustified criticism is levelled frequently at the few who work to keep the association functioning. Most of these people give dedicated service for little or no reward.

SAOMAI members and the Lambina native title agreement exemplify this. SAOMAI President, Neville Hyatt, Secretary, Barry Lindner, were the principal negotiators in this historic agreement. However, rather than receiving expressions of gratitude from the hundreds of miners who were able to start work upon the signing of this agreement, the committee members were abused at a succession of SAOMAI general meetings for their alleged failure to deliver for the industry.

This is also the case for other associations. Opal miners need to support their associations. In fact, the more support an association has, the more effective it can become. Furthermore, those who benefit most from an association's existence and activities should take an active role in its management.

Ostensibly, SAOMAI has grown to the extent that it is unreasonable to expect a few committee members working part time to effectively manage its affairs.

Opal miners and opal mining associations may need to affiliate with other sectors of the industry to develop an effective and representative body for the Australian opal industry.

Recommendations

If the profile of opal mining was lifted by the formation of a national opal body; the appointment of more people like Bob Larkins by the respective mines departments to help resolve native title issues will be more likely².

Furthermore, a national organization is also recommended to lobby for more prospecting, both by government and by encouraging individual miners in SA.

The release of GIS software for Coober Pedy and Mintabie has generated more interest in prospecting both on the field and in the department. This interest needs to be fostered and encouraged to continue.

A national body may also be able to retain the services of a law firm to handle native title and other land access agreements in the 3 states. This would reduce greatly the workload of the SAOMAI committee in South Australia and would help other mining associations additionally.

Some other initiatives that may assist Mintabie miners would be a study of mining techniques with a view to cutting costs, and the introduction of a simple accounting system to acquaint the small miner with the GST and ABN concepts.

- a. **Form a Land Access Group.** This group could be restricted to representatives of the opal industry or it could include the general mining industry. The group would develop policies and negotiate agreements for access to land for future mining.
- b. **Encourage opal miners to join and support their local mining organization** and work towards the formation of a national opal mining body.
- c. **Commission a study** to determine the positive and negative effects that Mintabie has on Anangu Pitjantjatjara.
- d. **Develop a positive image of opal and opal miners.** Convey this image to Aboriginal groups, Government and the public. This positive image of the opal industry will help in attracting new miners to the industry.

² Mr Bob Larkins is a very successful mediator, particularly in negotiations relating to native title.

- e. **Employ an executive secretary/manager.** This person would oversee the daily management of the South Australian opal mining industry as well as implementing policy decisions made by a Board of Management.

SAOMAI would be an ideal body to employ such a person, although the board of management may have representatives from other sectors of the industry, for example mines departments, AJGIC etc.

Opal Genesis

Introduction

After a century of opal mining in Australia, the industry does not understand the genesis of opal. Mining will continue to be a highly speculative business until this is understood. At present, there is no way that geologists can assay the potential value of a mine. As a result, large companies will not invest in opal mining until the genesis of opal process is known.

By taking some of the guesswork out of opal mining, the industry will flourish. This will lead to the discovery of new fields, greater productivity and improved mining and prospecting techniques.

History

Serious scientific studies on the genesis of opal were commenced by the CSIRO in the late 1960's and early 1970's. Nevertheless, models for opal genesis in the Great Australian Basin are, relatively speaking, in their infancy.

Up until about 1987, sinking a shaft to intersect the claystone carried out most of the exploration on the opal fields, then developing drives horizontally to test the value of the opal dirt. The shafts were traditionally sunk by hand and later by Calweld drills. Such drills are able to bore one metre (3 foot) diameter holes. However, this method of prospecting is both slow and costly.

Following work by the New South Wales Department of Mineral Resources in the early 1980's, the interpretation of lineaments from Landsat and other remotely sensed data sets was used to select areas for exploration. An area with a high density of lineament intersections was thought to be a favoured site for opal formation.

The end of the 1980's saw the rapid field introduction of the 230mm (9") diameter auger drill. This technology redirected the emphasis in prospecting from shaft sinking and gaining direct access to the opal clays, toward testing for the existence of the essential overlying sandstone. All the while seeking 'colour' in the small clay samples that the auger drills uncovered.

In most cases, the use of auger drills to assess the opal bearing potential of an area is quicker and more cost effective than shaft sinking.

However, the thick layers of silcrete that are common on “plateau” areas slow the rate of auger drilling considerably. In a recent attempt to overcome this problem, smaller diameter (± 120 mm) percussion drilling rigs were employed – a marginally successful venture. Although they produce smaller holes and smaller samples than auger drills, they are expeditious and can readily penetrate silcrete.

In 1986, the New South Wales Department of Mineral Resources trialed the geophysical method, ‘Sirotem,’ on the opal fields. This technique uses electrical current to measure the varying resistance of the underlying rock, and subsequently provides information that indicates the existence of sandstone and claystone. The benefits of this method lie predominantly in its ability to swiftly test large areas of ground for faults and the detection of future “levels” for drilling.

In more recent times, ground-penetrating radar has been trialed as a further approach to indicating the potential existence of opal-bearing clays and levels.

However, the aforementioned geophysical techniques require a considerable amount of additional testing and evaluation, as they are in seminal form. Nevertheless, they have the potential to become important tools for the future.

The use of high-resolution, multi-spectral image mapping of prospective opal-bearing areas, is another exploration method that has been trialed recently. This mapping technique holds considerable promise, but needs to be undertaken in conjunction with a workable opal deposit model.

Furthermore, in the past 12 years a considerable amount of geological research work into the genesis of opal deposits of the Great Australian Basin has been carried out. This work has underpinned the development of a new and vastly different interpretation of the nature and importance of specific geological features. These characteristics are an integral part of all the major opal fields in Australia. Moreover, this work has provided Opal Ventures with a solid scientific framework in which to direct and advance cost effective, large-scale opal exploration.

Current Models of Opal Genesis

The geological factors controlling the genesis of opal are still poorly understood. Models for the formation of other gemstones such as diamonds and sapphires and metallic commodities such as gold, copper, silver, lead and zinc have been comprehensively studied and researched for well over two centuries. Models for the genesis of these commodities have been proposed, tested and refined, and now have a relatively high degree of reliability and predicability.

Currently, there are three main models proposed for opal genesis in rocks of the Great Australian Basin – the weathering model, the syntectonic model and the microbe model.

1. Weathering Model

Virtually all opal mined in Australia is recovered from the top 30 metres of highly fractured, deeply weathered and altered Cretaceous sedimentary units. In the weathering model, opal is thought to have formed by the remobilisation of silica, following its release as a product of extensive chemical weathering.

The model suggests that rock units overlying the opal deposits were the source of the silica that formed the opal. Silica is thought to have permeated the ground waters and been trapped by an impervious barrier. Namely, claystone, clayey sandstone, or quartzite boulders. At that time, the silica is thought to have instigated the formation of opal within voids in the claystone and sandstone at sites near or at the permeability barrier.

Many opal deposits throughout Australia have been associated with fault systems. The weathering model was later enhanced and refined to include structures such as faults, joints and 'blows' (breccia pipes and zones), as passive passageways that controlled initial ground water movement and therefore the sites of opal deposition. Collectively, these features are thought to have created permeability zones that assisted the passage of ground water down from the surface.

The fundamental concepts associated with the Weathering Model include:

- Opal occurring in the Great Australian Basin rocks has been produced from silica released by weathering, some time after the formation of the host rocks.
- The source of silica that forms opal is the overlying weathered sedimentary units.
- Permeability barriers trap the downward flowing, silica-charged groundwater.
- Faults, joints and 'blows' improve the permeability of rock units to ground water penetration, thus increasing the potential for opal formation.
- Many small-scale faults observed in opal workings are thought to have developed in response to ground water-charged, swelling clays. Resulting in the movement and faulting of overlying rock units. They are syn-opal formation.

2. Syntectonic Model

A new geological model developed in the late 1990's to explain opal genesis in the Cretaceous sandstone and claystone of the Great Australian Basin has been proposed from research work carried out during extensive opal exploration in the Lightning Ridge area. This new structural theory of fault-controlled opalisation is known as the "Syntectonic Model".

In contrast to the 'passive' weathering model, the syntectonic model proposes a more dynamic process of opal formation. This model advocates a process involving the generation of fault-controlled, cyclic, fluid pressurised systems that form opal vein arrays linked to nearby extensional and thrust faults. In this model, opal is believed to be deposited rapidly in fault-generated hydraulic extension fractures, by fluids supersaturated with amorphous silica and under hydrothermal conditions (ie at temperatures $>50^{\circ}\text{C}$).

In this model, faults and associated breccia pipes ("blows") are considered to be formed by tectonic processes coincident with opal vein formation, and to act as dynamic pathways for silica-laden fluids that move through the rock mass under hydraulic pressure. In the syntectonic model, small scale fault structures hosting opal depositional sites are not considered to have resulted from the swelling of clays, but rather, are directly related to larger nearby faults. Furthermore, the latter are related to regional-scale tectonic structures.

Fundamental concepts associated with the Syntectonic Model include:

- Opal veins, faults and breccia pipes ("blows"), occurring in the Cretaceous rocks of the Great Australian Basin, indicate that high fluid pressures, coincidental with fault-controlled brittle fracture deformation, were active during opal depositional processes.
- Vein opal deposits were formed after the sedimentation of Cretaceous claystone and sandstone.
- Potch opal was formed rapidly from fluids supersaturated with opaline silica.
- Precious opal was formed more slowly than potch, by pseudo-crystallisation processes involving the growth of fibres grouped in bundles. When these bundles were viewed at right angles to the long axis of the fibres, the distinctive mosaic pattern of colour in precious opal was evident.
- Areas of intense fault clustering are important exploration targets for the citing of drill holes and other geological evaluation techniques.

- Areas of silcrete formation on the surface are considered to have formed as a result of pressurised fluids escaping from depth during faulting and opal formation. Consequently, these areas are considered to be important exploration sites for targeting drill holes.

3. Microbe Model

Recent work on seam and nobby opal from Lightning Ridge and Coober Pedy has shown that microbe communities exist within both the host rock and opal. The presence of microbes provides important information on the formation of opal. The microbes may have also played a role in the formation process.

Rich communities of well preserved aerobic soil bacteria and other microbes have been found in potch and precious opal. The opal and the microbes are of the same Early Cretaceous age.

The ecology of the microbes suggests that opal was formed near the surface in muddy clay/silt-lenses with a high content of plant debris. The optimal growth temperature for the bacteria is 20-35°C, but the climate must have been colder at the time of opal formation. Lower temperatures imply slow processes. Under these conditions, the bacteria produced higher amounts of organic acids, which stimulated the dissolution and leaching of aluminosilicate from the host rock.

In the lenses with a high content of organic matter, the temperature may rise up to >50°C, as a result of strong degradation and intensive composting. The lenses function as 'bioreactors,' which generate strong bioweathering of aluminosilicate by the production of carbonic acid. By this process, the diagenetic reaction smectite → illite + silica hydrosol is initiated. Opalisation of the host rock, crystallisation of opal C-T, the forming of secondary illite, and the enrichment of organic carbon are associated processes.

The microbe model suggests that opal forms during short-time events, which are controlled by biochemical processes with soil solution and seasonal water flow. The generation of silica-hydrosol, sedimentation of silica-hydrosol and coagulation of sol-gel are the result.

Fundamental concepts associated with the Microbe Model include:

- Opal develops at the same time as the host rocks.
- Microbes tend to be most abundant where there is an abundance of organic matter.
- The biological activity of microbes creates a biochemical environment that promotes the weathering of clay minerals and feldspar to produce opaline silica.

Impediments to Growth

It is difficult to believe that after a century of opal mining in Australia, the genesis of opal process is not clearly understood. Mining will continue to be a highly speculative business until this process is understood. Consequently, there is absolutely no way geologists can assay the potential value of a mine. The implication is that larger companies will not invest in the industry, until the genesis of opal is thoroughly researched. By taking out some of the guesswork, mining will flourish.

A more thorough knowledge of the process will lead to the discovery of new fields, greater productivity, improved mining and prospecting techniques. Recently, microbes have been discovered in all types of opal. This breakthrough may lead to the discovery of the cause of opalisation and deposition. Most scientists agree that there is enormous prospective opal bearing areas lying undiscovered in Australia.

Finding the key could unlock untold wealth for Australia.

Recommendations

There is a real need to encourage postgraduate research into the important and largely unknown aspects of the geology of opal. This research would utilise the tremendous analytical facilities that exist in many universities in Australia.

Taxation Issues

There are a number of areas where taxation regulation and systems negatively impact upon the Opal industry, namely GST, the Tourist Refund system, fuel tax and income tax. These are discussed below.

GST

The GST affects all areas of the industry. Particularly, the sale of rough, semi finished and finished gemstone material from miners in small two to three man partnerships. Most opal miners would fall into this category and are mining either full time or part time as "hobby" miners.

The opal mining industry has embraced largely the provisions of GST, as it relates to the purchase of rough, semi finished mine material. Moreover, in discussions with many members of the industry, no major problems have surfaced.

Overseas buyers may have an advantage over local buyers, as they often pay cash for goods on the field, whereas local buyers are obliged to pay GST, or obtain an exemption statement.

The industry does not want any restrictions placed on overseas gemstone buyers who arrive in Australia with cash or access to cash to purchase goods, provided of course, they comply with existing legislation.

TRS (Tourist Refund System)

The retail tourist industry has had very few problems with the TRS, either with tourists leaving from international airports, or on cruise ships.

The only reported problems experienced have been with North American Naval ships. However, in this instance it has been extremely difficult, if not impossible, to organise a refund of the GST. It has also been infeasible to organise for dockets to be plucked from a sealed bag on the North American Naval ships.

Subsection 38-185(1), Item 1 of the GST Act, provides for a supply of goods to be GST free, if the supplier exports the goods within 60 days of receiving payment of issuing the invoice.

- If the supplier takes the goods to the naval vessel and obtains a signed statement from a responsible officer (eg Chief Petty Officer), the goods may be considered as exported.
- The statement must:
 - Describe the goods,
 - Acknowledge that the responsible officer has received the goods,
 - Declare that the vessel's destination is a port outside Australia, and
 - State that the goods will not be handed to the sailor until the vessel is outside Australia

This procedure is not available for the sealed bag scheme, or the Tourist Refund Scheme (TRS).

Subsection 38-185(1), Item 7 of the GST Act, provides for the sealed bag scheme (see GST Regulations in Schedule 5). A representative of the Duty Free Security Co Ltd collects invoices at major international airports and cruise liner ports.

- If the master of a ship contacts the Duty Free Security Co Ltd, the company may be prepared to go to another ship for a period of one hour, for example, to collect invoices.
- Alternatively, the Duty Free Security Co Ltd may authorise the Chief Petty Officer to collect invoices and forward them to the Company.
- The telephone number for the Duty Free Security Co Ltd is 021 9669 2044.

Division 168 of the GST Act and Regulations provides for the Tourist Refund Scheme (TRS). The Australian Customs Service administers this part of the

Act. Customs have established TRS Verification Centres at major international airports and cruise-liner ports.

- If Customs visit another vessel to clear it for departure, the Customs Officer will be prepared to authorise the refund of GST, according to the TRS.
- If the master of a ship contacts Customs, they may be prepared to go to another ship for a short period to authorise the refund of GST, according to the TRS.

Masters of naval vessels (especially US) may not allow civilians near their vessels. Alternatively, they may not accept parcels from civilians.

Fuel Tax investigation

The Jewellery and Gemstone Industry Council has made a submission to the recent fuel tax inquiry, which stressed the importance of diesel fuel rebates in the opal mining industry.

Income Tax

The opal mining industry comprises largely of individuals mining alone or in small partnerships. To date, no large company has been successful in its involvement with opal mining.

Primarily, the reason for this is the indiscriminate occurrence of precious opal in a typical mining lease. Precious opal is generally found in “unpredictable pockets” and many miners mine for months, or years, without finding consistent supplies of sellable opal.

It is easy to note the similarities between opal mining and primary production. Namely, their susceptibility to atmospheric conditions, pests and the unpredictable nature of the pockets of precious opals.

The new taxation measures introduce a new set of criteria, which an activity must satisfy before losses produced can be offset against other income. They are aimed at limiting the ways in which high-income earners can reduce their taxable income.

An activity must satisfy one of the following tests in order for losses from that activity to be deducted from other income:

1. The activity has assessable (gross) income of at least \$20,000.
2. The value of real property used for the activity exceeds \$500,000.
3. The value of other assets, excluding passenger motor vehicles, exceeds \$100,000 (using the same valuation method as that used for taxation purposes).
4. The activity results in a profit in three out the last five years (including the current year in which the loss has occurred).
5. Commissioner exercises discretion.

Discretion may be exercised if the Commissioner is satisfied that it would be unreasonable not to allow the losses because:

19. Special circumstances exist for the business (including drought, flood, bushfire, or some other natural disaster), or
20. The business has started to be carried on and because of its nature has not passed one of the tests but is expected to do so, or produce a profit within a reasonable time.

What happens if an activity does not satisfy one of these tests?

Any losses that are produced will be carried forward and offset against any profits from the activity in future years, or other income of the taxpayer, if the activity satisfies one of the above tests.

The new Taxation increases introduced primary producers, whose income from non-primary production sources is less than \$40,000 (excluding net capital gains), will not be subject to the new measures. Losses from the primary production activity can then be claimed in the year in which they are incurred.

The gemstone mining industry wants to be included in the exemption given to the Primary Producers.

The industry needs to prove itself, for example, in terms of dollar production. However, a stumbling block, in the form of the secrecy factor, seems to be a problem for the ATO. On field buyers are the problem; the industry concern is that local buyers are on a level playing field. If they want to be taken seriously, miners must participate in the formation of required legislation and comply with these measures. A simplified tax system could be applied – precedents exist.

Recommendations

The LRMA (Lightning Ridge Miners Association) has suggested that the opal mining industry needs to have access to a management deposit scheme, similar to farm management deposits (FMD), which commenced on the 2nd January 1999.

Broadly the scheme operates as follows:

Primary producers (with a limited amount of non primary production income) claim deduction for FMDs in the year of deposit, earn accessible interest in a fee-free account, have tax deducted from FMD repayments (generally at the rate of 20%) and include those FMD repayments in accessible income in the repayment year to the extent that a deduction was previously claimed.

A similar opal mining management deposit scheme would be ideally suited to the miners in Coober Pedy, Lightning Ridge and Queensland, as often they have a large find one year and then several years without much income.

Overview of Recommendations

The following is an overview of the recommendations made by the various authors. These recommendations have been paraphrased, so as to improve the readability and flow. They are presented at face value, in no particular order or priority.

Taxation

1. That the industry lobbies the Federal Government for a review of taxation arrangement, in order to develop a system that caters for the special needs and circumstances of the Opal mining industry. In the report, many pointers can be gained from the taxation schemes of agriculture, fisheries and forestry.
2. That the industry considers lobbying for the formation of a Management Deposit Scheme, as a means of finding a tax effective way to manage the variable income situation. It should be modelled on the Farm Management Deposit scheme.

Peak body

3. That the industry move to form a peak body to coordinate the industry's activities and which can project a united voice to the various levels of government.
4. Ideally the peak body would appoint an executive officer to oversee the body's activities.

Native Title

5. That one of the priorities of the peak body is to hold discussions with State and Federal Government regarding land title. Forming a land access task force within the Peak Body could advance this. As a sub part of the native title issue, it is recommended that a study be undertaken to assess the positive, or negative, impacts on the aboriginal community and how it might be addressed.
6. It has also been recommended that the Opal Industry form a land access group.

Research

7. That the industry proceeds with the establishment of the Centre for Australian Opal Deposit studies at the Australian universities
8. That the industry encourages, and if possible finds some means to finance postgraduate studies, particularly in the area of the geology of opal.

The decline of the Australian opal industry

It is an understatement to say that the Australian Opal industry is not achieving anywhere near its true potential. Based on our assessment, the industry is achieving somewhere between 20 to 50 percent of its value potential.

Fundamentally, there are two reasons for this. The first is the fact that production has declined significantly over the past decade, despite the fact that the resource in the ground is far from being exhausted. The second is that the opal that is being mined is being sold at prices far below its potential.

There is a real concern that unless the industry can be turned around quickly, it could start to deteriorate rapidly with a major flow on impact to the key mining areas. There is a real danger that the key mining areas will fall below the critical mass levels required to sustain the market.

There is a real danger of a "domino" effect driven by critical mass issues. Once supply and value falls below a certain level, on-field buyers and processors are no longer viable and close down taking away this market outlet. Without on-field operators, international traders and jewellers lose interest and international markets dry up.

There are a number of factors contributing to this situation which are listed below and are discussed in detail the following sections.

These factors are as follows:

1. Shortage of supply
2. Undisciplined selling practices
3. Thinness of markets due to shortage of supply
4. Complexity of product and the highly judgemental nature of valuation
5. The mining culture
6. Steepness of the value chain curve
7. Lack of cohesion between mining fields
8. Lack of marketing and promotion
9. Lack of competitiveness in processing low grade opal

These factors are discussed below.

Shortage of supply

There is a declining supply of rough opal available on the market mainly due to a reducing number of active miners in the field. Rough estimates place production levels at 10-30% of the amount that the fields were producing ten years ago.

There are fewer active miners due to a number of reasons,

1. The rising costs of mining
2. Fewer quality finds
3. Exploration issues
4. Insufficient prospecting of new ground
5. GST welfare benefits and the strong incidence of hobby mining.

Additionally the older miners are dying out and younger miners are not attracted to the industry.

The rising costs of mining

According to miners, the cost of mining has more than doubled in the past ten years.

The rising price of diesel, which is needed to run mining equipment, is the major cost impacting on the miner's bottom line. It is not unusual for a miner to use 100 litres of diesel a day. In the past five years the cost of fuel has almost doubled.

The other significant costs that miners face are machinery, parts and explosives. We understand that the cost of these items has risen much more than the rate of inflation, a situation, which has been further, exacerbated by the introduction of the GST.

Unfortunately the miner is being squeezed as the returns from opal have not risen to cover these costs and may have even fallen.

Fewer finds

Whilst the general consensus seems to be that there is still plenty of opal to be found, the feeling is that they no longer get the finds there use to be. Much of the mining now is working over old mines where there returns are nowhere near what they originally where. The cost of reworking these mines is high relative to the value of the finds.

Another factor impacting on this and which will become progressively more important in the future is that there are very little in the way of new mines opening up. This is because of native title claims and in the case of Queensland, state government regulations relating to land use and environmental issues. For both reasons a miner wanting to open up a new area needs to go through a long drawn out bureaucratic process which takes well over two years to go through and often fails. Given the highly speculative nature of mining miners are reluctant to go through the process. As a result new areas are not opening up which is contributing to the reduction in supply.

Native title in South Australia is not an issue inside of the declared precious stones field. Outside of these fields the individual miner is excluded because of the cost of the native title process.

Exploration issues

A contributing factor to the reduced finds is that the geology and science of exploration of opals is less well known than with other minerals.

With most minerals, an exploratory drill will indicate whether the area is worthy of closer scrutiny. Unfortunately because of the way in which opal is found, test drilling doesn't give a reasonable indication of the amount of opal in the area. The only way to find out for sure whether there are opals in an area is to work it over. The issue is that there are large areas of land that have never

been explored. A test drill could miss a valuable seam by a few centimetres. Because of the unreliability of test drilling and the cost there is very little exploration work being done.

There are various theories around regarding the geography of opals. Some geologists claim to be well advanced in development of theories as to how to identify areas rich in opal. If this proves to be successful it has the potential to greatly improve opal finds and rejuvenate interest in the industry.

GST welfare benefits and the strong incidence of hobby mining

The introduction of GST has had a big impact on the industry and has the potential to set the industry back considerably. If the opals are bought legitimately the buyer must obtain an ABN number from the miner, get them to sign a hobby miners' declaration or withhold 48%. The number of miners with an ABN number is small.

The problem is that many, if not the majority of miners work outside of the tax system. They can do this legitimately by assuming hobby miner's status whereby they don't claim any deductions for expenditure or declare earnings from finds. It is also relatively easy for miners to operate illegitimately because of the high value and portability of the product and the ready accessibility of cash buyers.

In our view, the attraction to this hobby miner status is more a reflection of the culture than sound business practice. It would seem from our discussions that in most cases miners would be well ahead financially by declaring their finds and claiming their expenses as a tax deduction.

The GST has had a "double whammy" effect on the opal industry. On the one hand it has substantially increased the cost; which for most miners cannot be claimed back as a deduction.

Secondly, but more importantly, it has fuelled the cash economy which is putting the legitimate traders, who have traditionally been the backbone of the industry at a major disadvantage over the cash buyers. The problem is that in each area there are Asian buyers who appear to be able to pay cash and not be affected by Australian taxation requirements.

As a result, the legitimate local buyers are being squeezed, as they can't match the cash buyer. Therefore they can't get the quantity or quality of opal they seek or often have to pay high prices just to get enough to keep going. If this situation persists, it will severely affect the industry and the continued viability of the legitimate buyers and value adders who are essential to the opal industry's success.

As an aside, any attempt by Australian Taxation authorities to clean up the cash situation could in its own right, harm the industry. To the extent that it succeeded it will force the Asian buyers out of the market.

These Asian buyers underpin the opal industry by providing a market for low-grade opal by virtue of their access to low cost processing which makes their product viable. This low-grade opal is important because it provides a cash flow for miners between the significant finds. Without a market for low-grade opal the miners' viability would be further threatened. This is particularly the case in South Australia.

The other contributing factor is unemployment and welfare benefits. Many miners in the field declare themselves as a hobby miner and receive unemployment benefits. The combination of the hobby miner tax status and the unemployment benefits takes away the incentive to mine long hours.

Although there are fears that it could exacerbate the problem, the proposed "*work for the dole*" scheme could help alleviate this problem. Under mutual obligation, welfare recipients have to make the choice between accepting welfare and doing community projects and not accepting it and working their mines. They may find that mining is a better option. On the other hand it may wipe out the sub-commercial operators who can only survive because of welfare payments. The forceful implementation of "*work for the dole*" could have a negative effect.

As was previously mentioned, miners are selling at low prices for various reasons. Low prices combined with rising costs means that opal mining is becoming a less profitable occupation and therefore is adding to the decline in active miners.

The shortage of supply at the mining end is impacting on the whole industry.

Research and development program

As an industry, the opal industry is investing virtually nothing into research and development, which is undoubtedly impacting on its performance.

Priority areas for investment in research and development include geology, exploration; new, lower cost mining techniques and cutting and processing low-grade opals.

Because of a lack of formal structure, the opal industry is not positioned to take advantage of various government programs funded on a dollar for dollar or even two for one basis.

The foundation of a peak body is the starting point for research and development funding. One of the key roles of the peak body would be to put submissions to government for research and development funding.