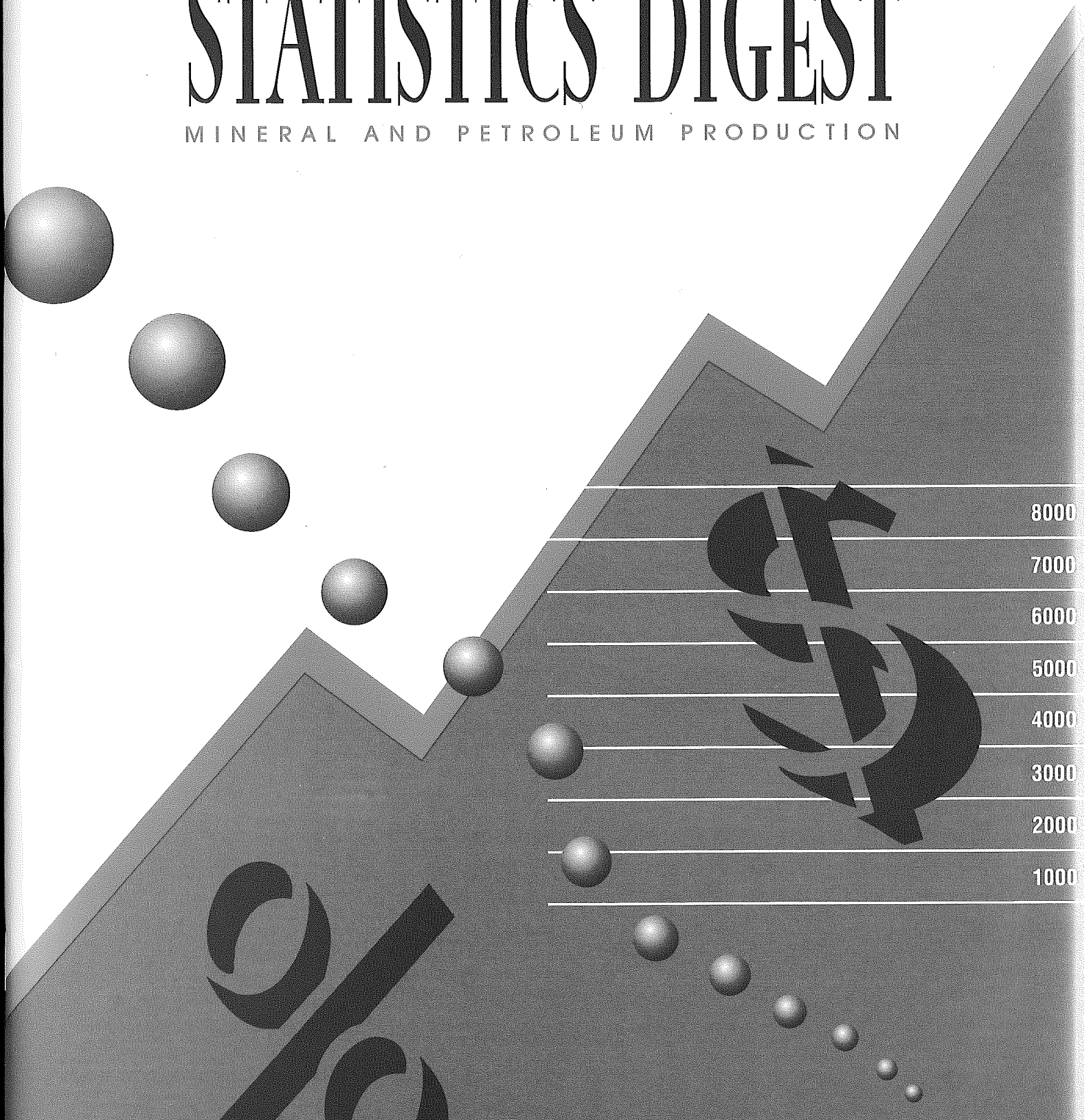


1995-96

STATISTICS DIGEST

MINERAL AND PETROLEUM PRODUCTION



8000
7000
6000
5000
4000
3000
2000
1000



GOVERNMENT OF
WESTERN AUSTRALIA



DEPARTMENT OF
MINERALS AND ENERGY
WESTERN AUSTRALIA

Policy and Planning Division

J | A | S | O | N | D | J | F | M | A | M | J

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FOREWORD

In 1995/96 Western Australia's resources sector continued to underpin the State's economy, accounting for around 29% of State Gross Product; over 70% of its exports; over 50% of private capital investment; and around one fifth, both direct and indirect, of its employment.

The value of production rose by 10% in 1995/96 to around A\$15,350 million. The rise was mainly attributable to the strong increase in the value and production of condensate, gold, nickel, iron ore, mineral sands, and LNG.

Undoubtedly the highlight of 1995/96 was the continued surge in the petroleum sector, making it the State's first industry to produce more than A\$4,000 million of product in a year. The petroleum sector remains the State's leading resource industry, and not surprisingly Western Australia is now Australia's largest oil producing State.

The Native Title Act (NTA) still remains a significant barrier to the additional development of the State's resources sector. Compliance with the Act has significantly lengthened State approval processes. In addition, the National Native Title Tribunal (NNTT) on 7 August 1996 decided that the State was not complying with the NTA's requirements to negotiate in good faith. This impacted on over 900 mining lease applications potentially setting them back by more than six months.

Unfortunately the impediments created by the NTA coincide with a time when previously unexplored highly prospective countries are opening up their economies to foreign investment and exploration. There is supporting anecdotal evidence of a trend towards less greenfields exploration in Western Australia, more orebody definition and increasing overseas exploration. Airborne survey companies have indicated to DME staff that greenfields broad acre work in Australia is 10% - 30% of the levels two years ago and in some instances similar overseas work has trebled.

The long-held goal of Government to enhance downstream processing of the State's resources is coming to fruition. Construction of BHP's DRI plant commenced in late 1995, with commissioning expected in 1997/98. In addition a number of other iron ore further processing projects are under active consideration.

There are a number of resource projects coming onstream with another A\$25,000 million or more worth of projects either committed, under consideration or investigation.

Deregulation of the gas market, commencement of gas deliveries via the Goldfields gas pipeline coupled with a favourable 1997 outlook for Asian growth and commodity prices, suggest that the outlook for Western Australia's mineral and petroleum sectors is bright. Nonetheless, a quick resolution to the native title issue is required so as to enable new resources to be identified and developed. This will be especially important for the gold sector where significant levels of production derive from short mine life operations.

A handwritten signature in black ink, appearing to read 'K P Perry'.

K P Perry

DIRECTOR GENERAL

I. ECONOMIC AND SOCIAL ENVIRONMENT

1.1 World Economic Overview

With foreign exports accounting for more than 35% of Western Australia's economy - as compared to around 15% for Australia - the State's future growth prospects are more reliant on world economic conditions than for Australia generally.

Western Australia's major international trading partners (MTPs) continue to provide significant impetus to growth in the State's economy. Since early 1996 growth in the United States has been stronger than expected and the recovery in Japan has been gathering momentum. In addition, other Asian economies have continued their rapid growth paths of the early 1990s.

In 1995/96 on the back of favourable world economic conditions, the value of the State's exports increased by 15% to around A\$18,900 million, resulting in a trade surplus of about \$12,600 million. The resources sector accounted for over 70% of the State's 1995/96 exports. Asia was the State's predominant export market accounting for more than two thirds of its exports. The world economic outlook for Western Australia's MTPs, which includes Japan, Korea, China, USA and Singapore, is positive.

Economic growth in the State's MTPs is forecast to average 4.9% in 1997, a slight acceleration on 1996 (4.7%). Given that the State's MTPs accounted for over 75% of the State's 1995/96 exports, this should underpin the State's 1996 and 1997 growth prospects. For example, it has been estimated that a 1.0 percentage point increase in Japan's economic growth would add 1.4 percentage points to Western Australia's economic growth.

USA Economy

Following a moderation in growth in late 1995, all economic indicators suggest that growth in the USA economy picked up in the first half of 1996. Supported by private consumption and residential investment the USA economy grew by 2.0% in 1995/96 and is expected to grow by 2.3% in 1996/97. Despite the acceleration in economic growth in the first half of 1996, inflation has remained moderate in the USA.

Asian Economies

Western Australia's Asian MTPs are expected to grow by 6.0% to 8.0% in 1996. However, growth in most Asian economies is expected to slow by around 1 percentage point over the next two years. This will occur because a number of Asian governments are introducing measures to address increasing inflation levels and/or high current account deficits.

The main potential threat to Japanese growth stems from Government moves, as announced in the 1996 Budget, to reduce the fiscal deficit. While the 1996 Budget brings to an end the Government's initiatives previously designed to stimulate the economy, there is some concern that confidence in the Japanese economy is not currently sufficient to absorb cuts in Government spending.

The Japanese economy is expected to grow by 3.3% in 1996 before moderating to 2.5% in 1997. Following economic growth of 0.9% in 1995, the Japanese economy is expected to grow by 3.3% in 1996 before moderating to 2.5% in 1997. Contributions to growth from investment and the housing sectors have been strengthening and the recovery has been broadening across the economy. Over the twelve months to June 1996, the Yen depreciated by about 30% against the US dollar and this has been a major factor in bolstering business confidence in 1996. With inflation expected at less than 0.2% in 1996/97, the economic conditions for Japan are right for sustained growth in 1996 and 1997.

Japan

The Japanese economy grew strongly in the first half of 1996 indicating the long awaited recovery is finally underway. With industrial production growing by 5.3% on an annualised basis in the March 1996 quarter it seems the Government's September 1995 ¥14 trillion (A\$175 billion) stimulus package is beginning to flow through to the economy.

While some progress has been made to reduce the Budget deficit, fiscal policy still remains a challenge for the USA. The 1995/96 Budget conflict has been partially resolved but an agreement is yet to be reached between the Administration and Congress on a plan to balance the Federal Budget by 2002.

The main exception to this has been China. Policy makers in China have been addressing the issue of inflation since 1994 and the initiatives undertaken have been successful in reducing China's inflation rate. On an annualised basis China's inflation rate has fallen from 25.5% in December 1994 to 10.1% in December 1995.

The slowdown in China's domestic economy has been offset by a rise in exports and this has resulted in its net trade position moving from deficit in 1993 to a surplus in 1995. Given the success in the Government's monetary policy it is expected that China's economic growth rate will be 10.5% in 1996 and 1997, up from 10.2% in 1995.

Asian MTPs have increased significantly in relative importance as markets for the State. Eight out of the State's top ten export markets are in Asia and South Korea is now the State's second largest export market behind Japan. This increased significance in part reflects Asia's higher recorded economic growth rates over the last ten years which on average have been significantly higher than the OECD average. In the early 1990s, Western Australia was able to cushion itself from the full impact of a general slowing down in OECD economic activity because the State's Asian MTPs continued to experience buoyant growth over the same period.

Even though Asian growth is expected to moderate over the next two years the economic growth projections for Asia are still significantly higher than those of Western economies.

Europe

Economic growth of 2.4% was recorded for Western Europe in 1995. However, in the latter half of 1995 Western Europe's economy stalled and in the case of Germany this continued into the third quarter of 1995/96.

The move to monetary union is causing some uncertainty in Western economies with poor fiscal positions. Despite an easing in monetary policy in most Western European countries over 1995/96, combined with tax cuts in some countries, unemployment remains stubbornly high. Nevertheless, there is some evidence that the Western European economy is improving. Western Europe is expected to grow by 2.6% in 1997, up from 1.5% in 1996.

While Germany's GDP increased by 2.1% in 1995, it declined in both the December 1995 and March 1996 quarters to leave the estimated growth for 1996 at 0.8%. Nevertheless, anecdotal evidence suggests that Germany will be able to increase its exports on the back of the expected growth prospects for the US and Japanese economies. The impetus to Germany's growth has also been enhanced with a 0.5 percentage point cut to the official discount rate in April 1996. As a result of these developments Germany's growth rate is expected to rise to 2.5% in 1997.

Although the pace of growth in the UK's economy eased to an annualised rate of 1.8% in the 1996 June quarter, the outlook remains positive. In part the UK's exchange rate flexibility continues to assist export growth. Although business investment has been weak in recent quarters, profitability remains high and this bodes well for further investment in the near term. In addition, the 0.25 percentage point reduction in the UK's official base rate in June 1996 should provide added impetus to economic activity in the housing sector. The UK's economy is expected to grow by around 2.5% in 1996/97.

Other World Economies

The major Eastern European economies of Poland, Czech and Slovak Republics continue to benefit from trade with Western Europe and foreign investment. Following growth of about 4% in 1995 Eastern European economies are expected to grow by 5% in 1996 and 1997.

If political and economic reforms proceed successfully in Russia it is believed the economic downturn which commenced in the early 1990s will bottom out by the end of 1996. Russia's economy is expected to grow by around 2% - 3% in 1997.

With a resurgence of resource projects and the opening up of economies to foreign investment it is expected that Latin American economies will grow on average by 4.0% over the medium term. The recession in Mexico triggered by the December 1994 peso crash seems to be over. On an annualised basis, Mexico's GDP to the June 1996 quarter grew by 7.2%, the first year on year increase since the peso crash.

Emerging evidence suggests that Chile is becoming the "tiger economy" of Latin America.

Employment in Australia increased by 2.6% in 1995/96 and its average unemployment rate fell to 8.5%.

Western Australia's employment growth slowed from 4.9% in 1994/95 to 1.8% in 1995/96. This reflects the fact that Western Australia's economic recovery has been stronger than Australia's over the last three years and that growth in the various sectors of the State's economy has been uneven. Western Australia's average unemployment rate in 1995/96 remained at its 1994/95 level of 7.6%, still the lowest rate in Australia.

In 1995/96 Australia's headline inflation rate rose by 4.2% while average weekly earnings rose by 2.5%. Growth in Western Australia's headline inflation rate and average weekly earnings eased over the second half of 1995/96 with the final outcome being 4.0% and 3.5% respectively. Nevertheless the State's underlying rate of inflation for 1995/96 was 3.5%, compared to 3.1% nationally.

After raising interest rates by 2.75 percentage points in 1994/95, the Reserve Bank of Australia (RBA) continued to maintain a cautious stance on monetary policy in 1995/96, with interest rates remaining at December 1994 levels over 1995/96. Nevertheless, following a continued fall in Australia's underlying inflation rate over the first half of 1996, in July 1996 the RBA reduced official interest rates from 7.5% to 7.0%. The RBA, and the Commonwealth Government, believe that Australia's inflationary outlook is consistent with its objective of maintaining underlying inflation at between 2% and 3% over the medium term. The RBA's view is that while economic activity is expected to remain firm in 1996/97, estimated in the Commonwealth Budget Papers at 3.5%, there is scope for the economy to grow a little faster without any rekindling in inflationary pressures.

According to the RBA, of all the factors affecting Australia's medium term inflation rate only wages growth has the potential at this time to cause it to reassess its position on interest rates. In September 1996, the RBA indicated that growth in adult ordinary full time earnings had fallen from its 5% peak a year ago to less than 4% and this outcome was consistent with its inflation objective. The RBA has indicated that it will be

Chile is expected to grow by between 7% and 8% for 1996 and 1997, making it the fastest emerging economy outside Asia.

World Economic Outlook

A positive world economic outlook, particularly for Asia will see opportunities emerging for Western Australia, particularly in the resources sector. Provided that Western Australia can maintain its international competitiveness in the resources sector the take up of these export opportunities should underpin the State's, and to a considerable extent Australia's, growth prospects for the rest of the decade.

1.2 Review of the Western Australian and Australian Economy

The Australian national economy has continued its strong growth of the previous two years, growing by 4.1% over 1995/96. The 1995/96 GDP outcome represents the fifth sustained year of Australia's economic recovery. More significantly about 2 percentage points of Australia's 1995/96 growth came from business investment and net exports. Continuing the strong rates of economic growth of the past three years, Western Australia grew by 6.3% in 1995/96, outpacing growth in all other States. Whilst dwelling investment (down 16%) dampened economic growth, business investment in new equipment (up 16%) and growth in net exports (up 11%) underpinned Western Australia's economy. Together they accounted for more than 4.5 percentage points of the State's 1995/96 growth.

The unevenness in growth across the State's various sectors is best illustrated by an examination of employment in the construction industry. Of particular interest is the fact that in 1995/96 State construction industry employment statistics remained largely unchanged. This outcome is primarily due to increases in employment in the engineering sector nullifying falls in employment in the residential building sector. The rise in engineering construction activity reflects both high ongoing investment in the mining industry and a range of resource projects such as the Goldfields Gas Pipeline and the Colliie Power Station.

1995 - 96 STATISTICS DIGEST

monitoring current wage negotiations and that if it considers wages outcomes are inconsistent with meeting its inflation target it will raise official interest rates.

The RBA's positive assessment on Australia's medium term inflation outlook is shared amongst international bond investors. According to the RBA, yields on Australian long term bonds in the latter half of the 1980s were typically 5 to 6 percentage points higher than US yields, whereas now the differential is less than 2 percentage points.

In the longer term, Australia's balance of payments problem as well as its Commonwealth budget deficit position has the potential to impact upon growth. In 1995/96 Australia's current account deficit (CAD) totalled A\$20,500 million, down A\$7,000 million on 1994/95. Whilst this accounted for 4.2% of Australia's GDP in 1995/96, down from 6.1% in 1994/95, this outcome is considered still too high but at least it is moving in the right direction. In 1996/97 the CAD is expected to be around A\$20,000 million, representing about 4.0% of Australia's GDP.

In 1995/96 the Commonwealth budget deficit was A\$10,317 million. This represented 2.1% of Australia's GDP, and was significantly lower than the 4.2% peak of 1992/93. The Commonwealth Government has recognised that unless the budget is in a sound structural position, in future the Government will not have the flexibility it needs during the various stages of the economic cycle. With the household savings ratio at 2.5% being at historically low levels, the Government has also recognised that it must take the lead to addressing Australia's low savings ratio.

To this end the Commonwealth Government has reassessed its spending priorities and programs in line with its objective of cutting the underlying budget deficit. On a *no policy change basis*, it was estimated that the Commonwealth's cumulative budget deficit would total A\$23,700 million over the three years to 1998/99. The 1996/97 Budget has provided a framework for reducing the underlying budget deficit over the same period to A\$6,200 million, but more importantly being in surplus by 1998/99.

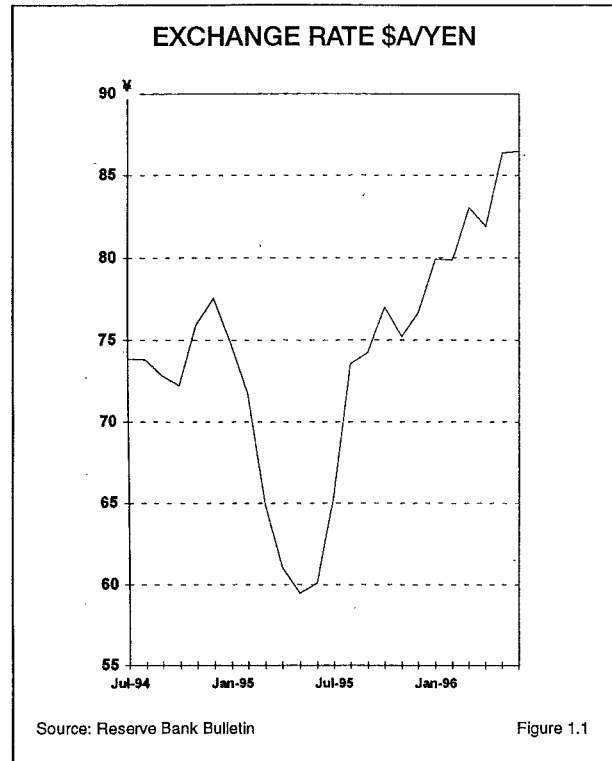


Figure 1.1

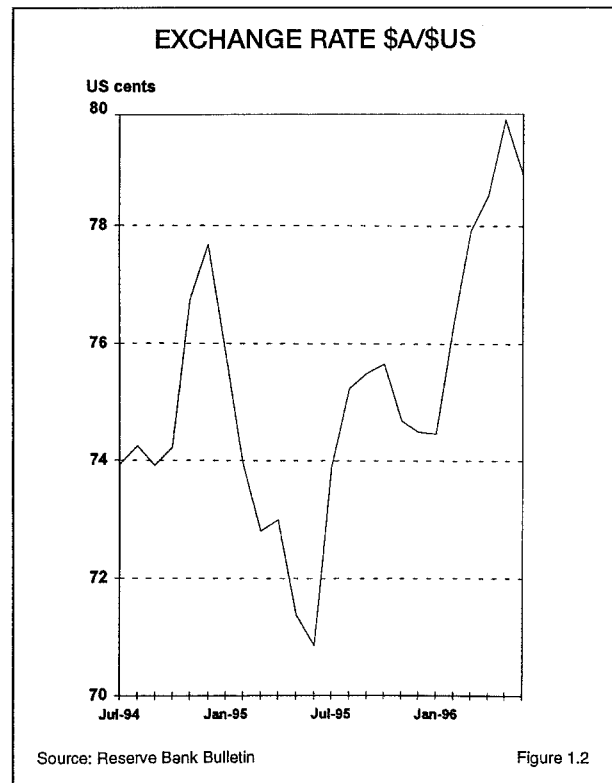


Figure 1.2

Following a significant depreciation in the \$A in the second half of 1994/95, the \$A gained ground against all major currencies in 1995/96. The rise in the \$A to 86.48 Yen and 78.9 US cents in June 1996 brings the \$A back to and above December 1994 levels (Figure 1.1 & 1.2). The rise in the \$A

is in part attributed to the lagged effect of a widening in international interest rate differentials caused by the 2.75 percentage point increase in Australia's official interest rates in 1994/95. The trade weighted index, which measures Australia's real exchange rate and provides an indication of its international competitiveness rose from an all time low of 48.4 in June 1995 to 58.1 in June 1996.

Outlook

With a favourable international economic environment, a bright outlook for commodity prices and a 1.4% rise in business investment, the Australian economy is expected to grow by 3.5% in 1996/97. More significantly inflation is expected to be maintained at between 2% and 3%. Average employment growth is forecast at 1.5% but the average unemployment rate is expected to remain at 8.5%. In light of a favourable international economic and commodity price outlook, and with over A\$45,000 million worth of current or prospective projects, including an emerging trend towards the value adding of Western Australia's vast resources, the State's economic prospects are bright. On the back of strong investment and export growth, the State's growth is forecast at 5.75% for 1996/97 and 6.0% for 1997/98. Inflation and wage pressures over the corresponding period are expected to remain moderate.

Western Australia's MTFs continue to provide a substantial impetus to growth in the economy. The expected improvement in the Japanese economy as well as a positive economic outlook for other Asian economies should continue to benefit the State's mining industry. The region currently takes more than three quarters of the State's mineral and energy exports and will remain the main target of exporters.

Mining Industry

1.3 Economic Factors Affecting the General Economic Factors

There has been an easing in commodity prices over the first half of 1996. This easing, expected to continue over 1996, has occurred because of the lagged effect of a slowdown in some world economies such as Germany, in late 1995, and a perception that others were not growing fast enough. Given the strong rates of economic growth experienced in the US and Japanese economy over the first half of 1996 and an improvement in the 1997 economic outlook for other developed economies, such as Germany, ABARE's 1997 commodity price outlook is bullish for most mineral commodities.

Overall for 1996/97 ABARE expects a marginal rise in the prices received by mineral and energy exporters, with more significant price rises forecast for 1997. Some of the gains are assumed to be removed by a 1.3% appreciation in the 1996/97 US\$/A\$ exchange rate.

In November 1995 the 18 Asia Pacific Economic Co-operation (APEC) nations reaffirmed their commitment to free trade among industrialised nations by 2010 and 2020 for developing nations. While commitments are voluntary, if implemented in their entirety the removal of trade barriers among APEC countries will be of benefit to Western Australia, particularly to its mining industry.

Commonwealth Budget Measures

With the Commonwealth Government promising to address its budget deficit there was considerable speculation, prior to the 1996/97 Budget, that a number of mining industry concessions would be abolished. In particular it was believed that as part of the Commonwealth's deficit reduction strategy it would scrap the diesel fuel rebate scheme (DFRS) for the mining industry. DFRS compensates industry for the costs of fuel excise, so that exporters are not disadvantaged against foreign competitors that do not have a similar impost on their fuel costs. It provides a excise rebate on diesel fuel used for off-road purposes in mining and agricultural operations.

DFRS has been retained but the Commonwealth will continue to fine tune its eligibility criteria. The mining industry remains concerned that the Commonwealth will tighten the eligibility criteria so that mining operations which DFRS originally intended to cover would no longer be eligible. There is some evidence that the Australian Customs Service - which administers DFRS - is already doing this. The mining industry has stated that any move to reduce DFRS coverage would undermine the mining industry's competitiveness and result in lower grade minerals being left in the ground.

The 1996/97 Commonwealth budget removed the exemption previously provided under paragraph 23 (pa) of the Income Tax Assessment Act 1936 to income derived by bona fide prospectors from the sale, transfer or assignment of rights to mine for gold or any other prescribed metal or mineral. The budget stated that the exemption would no longer be available to income derived under contracts entered into after 20 August 1996. Given that prospectors/exploration companies are responsible for over 50% of the fieldwork or major

contributors to discovering a deposit in Western Australia this 1996/97 Commonwealth budget measure is causing considerable concern in the prospecting community. As a result of such concerns the exemption will be maintained to 31 December 1996.

The reduction in the premium rate of deduction for research and development expenditures from 150% to 125% could impact upon mining industry research levels. Of far greater importance are changes to thin capitalisation rules as detailed in the 1996/97 Commonwealth Budget.

Explanation of Thin Capitalisation Rules

Thin capitalisation rules are designed to prevent non-residents who hold a 15 percent stake or more in Australian companies from over gearing their Australian investments and extracting out the profits through tax deductible interest charges. Tax deductions on debt are only available up to a given debt to equity ratio, currently set at 3:1. From 1997/98 the ratio is expected to fall to 2:1, but the ratio currently applying to financial institutions - being 6:1 - will be maintained. As of 1997/98 this, in effect, means that on a A\$33 million loan to an Australian company in which a non-resident holds a major stake, the foreign entity must have A\$16.5 million of equity - rather than A\$11 million under current arrangements - if the local entity is to receive a tax deduction for all the interest payable on that loan. This measure could cause a number of overseas controllers of local companies to convert interest bearing loans into shares or face losing currently legitimate tax deductions. Given that there is substantial foreign ownership of the State's mining and energy industries, through local subsidiaries of foreign corporations, this measure has the potential to adversely impact on the mining and petroleum industry.

The Commonwealth Government in attaining its objective of reducing its budget deficit has implemented significant reductions in funding for the States and Territories. The major impact on the States and Territories arises from the agreement at the June 1996 Premier's conference for the States and Territories to make payments to the

Outlook

In the past, the stability in Western Australia's economic performance, which averaged 5.0% from 1984/85 to 1994/95 as compared to 3.0% for Australia, has been largely due to commodity diversification in the mineral and energy area.

Exporting a range of mineral and energy commodities to a broad range of markets means that the effect of a fall in the price of one commodity can be cushioned by other commodity exports. The diversification in Western Australia's mineral and energy export base has led to the variation in the State's real economic growth since 1984/85 being the lowest of all the States.

While it remains unclear as to the potential impact on the resources sector of the new Commonwealth Government's initiatives designed to reduce the budget deficit, it is nonetheless believed that on the back of a favourable international economic outlook and good commodity prices the State's mining and petroleum industry will continue to grow and make a significant and positive contribution to the State's economy.

These sentiments have been echoed by ABARE in September 1996. On the back of estimated OECD and world growth of about 2.3% and 3.5% respectively in 1996/97, ABARE has estimated that the value of Australia's exports in 1996/97 will rise by 7% to around A\$37,000 million. ABARE has forecast a 5.8% increase in Australia's mine production for 1996/97.

The Australian Bureau of Statistics' (ABS) Australian Business Expectations Survey also suggests that mining profits are expected to be around 15% higher in the September quarter 1997 compared with the September quarter 1996. This is despite an expectation that profits will fall by around 5% in the December 1996 quarter. This suggests that most mining companies responding to the survey expect a more favourable international economic climate and commodity price outlook in 1997. It is also expected that Australia's new mining investment will rise by 34.5% in 1996/97.

Commonwealth in 1996/97 and the following two years. In return the Commonwealth agreed to extend the real per capita guarantee on CFAg to 1998/99, and to maintain the schedule of competition payments agreed in 1995 with the previous Federal government, subject to satisfactory progress on the implementation of National Competition Policy reforms.

The States and Territories are expected to contribute A\$1,559 billion over the next three years to the Commonwealth, with Western Australia's share amounting to A\$151 million. Western Australia's payment will be made through cuts to its Commonwealth financial assistance grants (CFAg) over the next three years.

In addition, the 1996/97 CFAg distribution to the States was changed in line with Grant Commission recommendations. This has resulted in a A\$67 million reduction in Western Australia's share of CFAg when compared to 1995/96. A continuation of the Commonwealth's policy to shift a portion of its budget deficit problems onto the States will in future constrain Western Australia's ability to fund the infrastructure necessary to foster the continued growth of its resources sector.

In April 1995, the Commonwealth Government moved to abolish its tariff concession scheme in its entirety. Under the tariff concession system, businesses which import goods not available in Australia are not liable for import duty. The net cost of the scheme's total abolition on the State's mining industry was estimated at around A\$100 million per annum.

Following industry and State Governments' concerns (and dissidence on the Government's back bench), the Commonwealth Government's policy was amended. The concession was cut by 40% and has taken effect from 1 July 1996. However, from 1 July 1996 tariffs on most business inputs were reduced from 8% to 5%. This means that the net cost to Western Australia's mining industry would be around A\$40 million per annum.

While industry welcomed the Commonwealth's revised position on the tariff concession system the outcome was considered to be only a partial victory as Australia's mining industry will now be subject to an additional cost impost.

1.4 Social Factors Affecting the Mining Industry

(a) Change of Government

The Federal election held on 2 March 1996 saw Australians vote in a Coalition Government for the first time in 13 years.

The Coalition's election commitments significantly impacting on the resources sector include:

Taxation

- "... the tax burden on the mining industry will not be increased during the term of the next Parliament."
- "Fringe Benefits Tax will be reviewed to simplify the existing legislation and compliance costs."
- "Examine the need for variations to existing secondary taxation policies to encourage (petroleum) exploration and production."
- "Maintain the existing excise/royalty regime applying to companies engaged in petroleum production from the North West Shelf area."

Native Title

- "The Coalition supports the Principle of native title" but "We reserve the right, after full and thorough consultation with all interested parties, to amend the Native Title Act to make it more workable."

Uranium Mining

- "Abolish the Three Mines uranium policy of the Labor Government ... but not allow the sale of uranium to countries with which we do not share bilateral safeguard agreements."

International Law Making

- "Ensure that the Australian Parliament, the States, industry and wider community are given proper and timely involvement in international law making, including where appropriate undertaking a cost benefit analysis in terms of Australia's national interests prior to any ratification."

Export Controls

- "Abolish export controls on mineral commodities except controls on uranium."

Tariff Reform

- "Maintain the existing schedule for tariff reduction to the year 2000. Beyond that, tariff reduction, consistent with the APEC objective of complete trade liberalisation to the year 2010, will proceed in step with other key elements of the Coalition's comprehensive program of microeconomic reform."

Environment

- "Ensure that, through proper consultation and adequate management programs, World Heritage Listings become matters of national pride rather than division."
- "Under the Coalition, sites will be proposed for listing only after the fullest consultation and with the cooperation of the relevant State or Territory government."
- "Develop mechanisms for accrediting State environmental procedures, so that wherever possible, proposals are only subject to one environmental assessment."

In general, at the time of the March 1996 Federal election, the mining and petroleum industry welcomed the Coalition's resources and energy policy. Some of these policies, such as the abolition of the three uranium mines policy, have been instituted and details of these are provided in some of the areas discussed below.

Nonetheless, a number of the Government's resource and energy policy initiatives, particular those dealing with native title, will be heavily scrutinised and may be blocked by the Senate. The balance of power in the Senate is held by the minor parties and independents. In addition to obtaining the votes of all Coalition Senators, the Government must secure the vote of two Senators from either minor parties and/or independents for its legislation to pass through the Senate.

(b) Commonwealth Budget Deficit Problems

The Commonwealth Government has recognised that its budget deficit problems experienced since 1991/92 could be an impediment to Australia's future growth. The 1996/97 Commonwealth Budget has provided the mechanism for addressing this issue and returning the budget to surplus by 1998/99. Nevertheless, some Budget

Negotiations on those mining lease applications which were still subject to the NTA's six month negotiation period must recommence afresh, as resubmitted to the NNTT for clearance.

Government had not followed NTA guidelines when negotiating in good faith and then be determined to be reviewed on the basis that the State. These determination were withdrawn by the State. Those under the NTA at the time of the ruling, and in which the State had applied to the NNTT for a six month negotiation period allowed for those mining lease applications which had passed progress through the complex native title process.

at the time of the ruling will have to restart their negotiate or future act determination procedures lease applications subject to the NNTT's right to The decision means that more than 900 mining NTA guidelines when negotiating in good faith. Western Australian Government failed to follow decision by the NNTT which found that the Of even greater concern is an August 1996

procedures. negotiate and the future act determination other 76% (or 901) are now subject to the right to only 24% (or 279) were cleared for grant. The (NNTT) and going through its notification period, referred to the National Native Title Tribunal 1996, of the 1180 mining lease applications As an illustration, from 16 March 1995 to 21 June industry.

processes caused by the NTA will impact on the associated with a lengthening in approval mining industry a continuation in the problems affected exploration and investment in the State's While the NTA has to date not significantly referred to the NTA procedures.

applications in Western Australia have been and 30 June 1996 over 90% of all mining title Native Title Act (NTA). Between March 16 1995 been significantly lengthened under the Federal of Exploration Licences and Mining Leases have It is clear that approvals processes for the granting reached) before DMF can issue a title to that area.

negotiated settlement acceptable to all parties is resolved by the National Native Title Tribunal (or a a title. Areas subject to a native title claim must be tenement within two months then DMF may issue Aboriginal group does not lodge a claim over the

to the National Native Title Tribunal. If an Minerals and Energy (DMB) and are then referred applications are advertised by the Department of miners of the new requirements. All title informed petroleum and mineral explorers and Federal Government's Native Title Act and implemented procedures consistent with the The Western Australian Government has now Western Australia.

significant delays in mineral title approvals in Uncertainties with the Federal Act have led to Federal Native Title Act (NTA).

became subject to the full provisions of the was invalid, and as a result the issuing of WA titles the State's Lands (Titles and Traditional Usage) Act The High Court decided on 16 March 1995 that mining and petroleum sectors.

again been native title and its impact on the Without doubt the major issue over 1995/96 has

(d) Native Title Issues

Commonwealth Government. are considered in more detail by the on these will be taken once the recommendations been assessed by the Commonwealth. Decisions of the Commission's key findings are currently incorporated in the 1996/97 Budget and a number Some of the Commission's recommendations were population on the Budget.

Commission also detailed the impact of an aging better provided for by the private sector. The some Government goods and services could be assistance to business or individuals and whether Commonwealth should continue to provide was also required to determine whether the Commonwealth programmes. The Commission effectiveness and cost efficiency of incoming Government and to assess the financial position of the Commonwealth to the was to provide an independent report on the provided its report to Government. Its objective In June 1996, the National Commission of Audit

(c) National Commission of Audit

likely to face the stiffest opposition in the Senate. fund an ambitious environmental programme, is partial sale of Telstra, which is designed in part to In particular the Government's proposal for a measures will find stiff opposition in the Senate.

potentially the State in previous negotiations was not complying with the NTA's negotiating in good faith guidelines.

In essence the NNTT decision means that the approvals processes for each mining lease application affected by the ruling can be lengthened by more than six months.

The WA and Federal Governments are still negotiating establishment of a State based native title tribunal to complement the Federal NNTT. It is intended that these State-based tribunals would run parallel to and act as an alternative to the Federal body. In October, 1995 the South Australian Government set up the first of such State based tribunal systems in Australia.

A key issue relevant to Western Australia is whether pastoral leases extinguish native title. This remains largely unresolved. The Commonwealth Government indicated in mid 1996 that it does not support the extinguishment of native title on pastoral leases through unilateral Commonwealth legislation, prior to the High Court's decision on this issue. It believes that the High Court, through the Racial Discrimination Act, could rule such Commonwealth legislation invalid and therefore be counterproductive to its objectives of minimising the uncertainty associated with this issue.

In September 1996, the Commonwealth Government indicated that it was investigating various options to streamline the NTA so as to make it more workable. The proposed amendments to the NTA were detailed by the Prime Minister in October 1996. The main features of proposed native title changes are:

1. All native title claims be subject to a threshold test to determine their legitimacy and avoid unnecessary time delays.
2. Once only right to negotiate for mining companies and developers.
3. Exploration companies and prospectors can be excluded from right to negotiate obligations.
4. Multiple land claims are to be restricted. Claims can be lodged only by groups approved by an Aboriginal representative body appointed by the Aboriginal Affairs Minister.

The State Government has indicated that it will set up a WA native title tribunal once the proposed

native title amendments acceptable to the State are passed by the Commonwealth Senate.

(e) World Considerations

The return of Boris Yeltsin as the President of Russia and the resolution in the Chechen conflict should bring stability to the region. This should largely alleviate the uncertainty on international minerals markets associated with the political and social upheavals in that country.

In the US business has expressed concern that the US Presidential elections, scheduled for November 1996 could adversely affect the US economy, particularly if Japan and US trade difficulties become an election issue. Concern has been also expressed that a continuation of the Iraqi/US conflict which resurfaced in September 1996 could impact on world oil supply and oil prices.

In addition the independence movement in Taiwan and continued calls for free trade in negotiations with Japan could heighten the external constraints on the US.

(f) Institutional and Tax Changes

National Competition Policy

In 1993 the Commonwealth's Independent Committee of Inquiry into National Competition Policy - referred to as the Hilmer Report - emphasised the value in promoting a consistent and cooperative approach to competition policy across the three levels of government in Australia. Hilmer emphasised that the following areas would yield substantial economic benefits to Australia:

1. extending the reach of the Trade Practices Act to Australian businesses, regardless of ownership;
2. provision for third party access to infrastructure considered to be of national significance;
3. a review of all legislation so as to identify and remove sections which restrict competition by the year 2000;
4. the introduction of competitive neutrality principles to remove any unfair advantage a public sector business has when competing with a private company;
5. the restructuring of public sector monopolies where competition is introduced; and
6. a refinement of prices surveillance procedures.

Globalisation

Increasing economic liberalisation of many countries has stimulated numerous Australian mining companies into taking a global view of their operations. A number of significant mining company mergers have taken place since 1994. The most significant of these is the merger of CRA and RTZ in 1995/96. With a combined market capitalisation of A\$26.7 billion, this makes the CRA and RTZ conglomerate the world's largest mining group.

(g) Environmental Issues

State Government Approach

The State Government has continued its policy of balancing environmental and development objectives.

On 7 September 1995 State Cabinet agreed that Western Australia join the National Environment Protection Council (NEPC). The WA Government took this course of action after it became satisfied that it would not become captive to an unsuitable set of standards determined by a majority of other State governments. The objective of the NEPC is to set nationally uniform standards for the environment.

Commonwealth Initiatives

More importantly, with a change in the Commonwealth Government in March 1996, there is now a concerted push by the Commonwealth Minister for Resources, Senator Parer, to rebalance environmental and development considerations. In the Minister's view the previous government skewed debates on important issues, such as greenhouse, towards environmental protection as against development considerations. It is the Minister's view that the previous Commonwealth Government had closed too much land to exploration and mining, and as a result, there is a need for this situation to be rectified. A Cabinet submission is currently being prepared by the Commonwealth's Environment Minister on the need for an environmental law review. A number of peak mining industry bodies have, in the past, expressed similar views to those of Senator Parer. The Commonwealth Government has stated its views on the need to balance environmental and development considerations at the July 1996

The Commonwealth, State and Territory governments endorsed these six areas of reform and signed three agreements to this effect in April 1995. The agreements require amongst others government business enterprises to be subject to the Trade Practices Act (TPA) from 21 July 1996. All States and Territories, except Western Australia, have enacted legislation which subjects their public enterprises to the provisions of the TPA. The Western Australian legislation is currently before the Upper House and when enacted will be retrospective to 21 July 1996.

In addition, the April 1995 agreements also provide for a Commonwealth/State sharing arrangement in the anticipated revenue benefits arising from the competition policy reforms; and also detail the necessary procedures a State must follow when applying for an "economically justifiable" exemption from the competition policy principles for any of its activities.

Given the competitive nature of the Western Australian economy as well as its export focus the Hilmer package, when implemented, could have substantial economic benefits. In particular, while energy market deregulation is currently occurring, further deregulation, via Hilmer reforms, will benefit the State's economy significantly, as energy represents a high proportion of the costs of downstream processing.

Amendments to the Mining Act

Amendments to the State's Mining Act and Regulations were passed by the State Parliament in October 1995. The amendments aim to reduce disputation over tenement applications and further encourage mineral exploration in the State.

Significant Mining Tax Ruling

A December 1995 tax ruling by the Australian Taxation Office will significantly benefit open cut operations in the mining industry. The ruling states that expenditure incurred in the extension of a mine is of a capital nature, while spending on the working of the mine is a revenue expense. This opens the way for overburden removal to be allowed as an outright deduction in almost all circumstances. Previously overburden removal was considered by the Tax Office, in almost all cases, to be a capital expenditure.

Climate Change Convention in Geneva. As part of Australia's international greenhouse response the Commonwealth said any outcome in negotiations should protect Australia's economic and trade interests, including Australia's energy intensive and energy export industries.

Consistent with the Commonwealth Government's new philosophy it has also abolished the former government's uranium three mines policy as well as removing price controls on coal, bauxite and mineral sands. This should see increased opportunities in the mining industry in Western Australia and in particular could lead to in future development of the Kintyre and Yeelirrie uranium deposits.

In addition, the Commonwealth Government has moved to establish a marine and science and technology policy for Australia to ensure the sustained development of marine resources which are expected to generate up to \$80 billion annually by 2020. This will form a part of an integrated oceans policy being developed by the Commonwealth's Environment Minister. It is expected to be finalised by the end of 1997.

Following problems created by the previous Commonwealth Government parameters for setting the level of wood chipping, in 1995 the Commonwealth and State governments went through a Deferred Forest Assessment process. This aimed to identify and then provide interim protection to forests of high conservation value, before a more detailed assessment of the State's South West areas was made. The assessment process is referred to as a Comprehensive Regional Assessment (CoRA) and is fundamental for creating a forest conservation reserve system prior to the State signing a Regional Forest Agreement with the Commonwealth. The State Government is responding to the new Commonwealth Government with the necessary methodology and information needed for the requisite CoRA. A Steering Committee and Technical Advisory Group have been established to deal with the considerable range of issues to be worked through. Specifically the State's

Department of Minerals and Energy is engaged in extensive research and evaluation to ensure that any mineral potential on targeted tracts of land, as well as State Agreement Act responsibilities, are taken into account in the assessment process.

Mining Industry's Approach

The State's mining and petroleum industries are recognised internationally for good environmental performance. The State's mining industry recognises that it must continue to demonstrate that mining and environmental protection are compatible in order to maintain the community's continued acceptance - now spanning over 100 years - of the industry. Recognising the green commitment of the State's mining and petroleum industry, in August 1996, the State's Department of Minerals and Energy presented environmental awards to a number of mining companies.

Recipients of the State's environmental awards were Alcoa, Dominion Mining and Rod Mitchell's Transport and Exploration Services. Naturalist Harry Butler also received an environmental award for his role as environmental adviser to the State's mining and petroleum industries.

(b) Reserves

According to the World Bank (September 1995), Australia, with its vast natural resources, is the world's richest nation. On a per capita basis Australia's average net worth is \$US835,000 a head, followed by Canada (US\$704,000).

The Commonwealth's Department of Primary Industries has estimated that Australia has:

- around 30% of the world's economically recoverable reserves of mineral sands, uranium, lead, zinc and tantalum;
- over 10% of the world's economically recoverable reserves of bauxite, iron ore, silver, industrial diamonds, brown coal, manganese and cadmium; and
- over 5% of the world's economically recoverable reserves of black coal, nickel, gold, copper, lithium and magnesite.

MAJOR MINERAL AND PETROLEUM PROJECTS
IN WESTERN AUSTRALIA
WITH AN ANNUAL VALUE OF PRODUCTION IN EXCESS OF \$10 MILLION

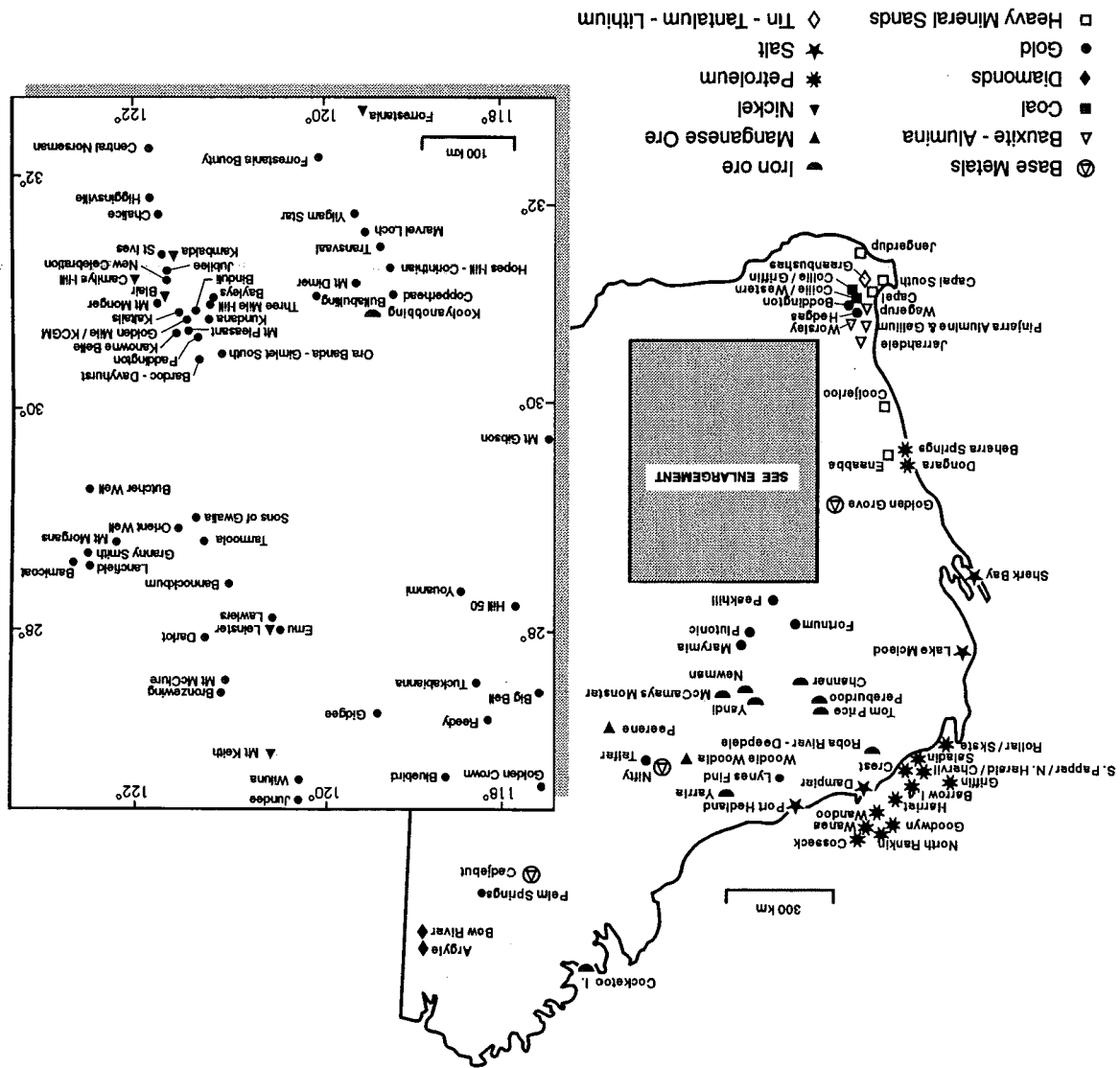


Figure 1.3

2. REVIEW OF MAJOR MINERALS AND PETROLEUM

2.1 Overview and Outlook

In 1995/96 Western Australia's resources sector continued to underpin the State's economy, accounting for around 29% of Gross State Product, over 70% of its exports and one fifth, both direct and indirect, of its employment.

In 1995/96, the value of production rose by 10.3% to around A\$15,350 million. The rise was mainly attributable to the strong increase in the value and production of condensate, gold, nickel, iron ore, mineral sands, and LNG.

The performance of the industry was impressive in 1995/96 with production increasing for most minerals, with the notable exception of base metals.

In 1995/96 the industry as a whole had higher investment and exploration levels.

Based on ABS data, in 1995/96 average mining profits rebounded after recording falls over the previous two financial years. Nonetheless, manufacturing profits, which take into account basic metal industries, fell in 1995/96, albeit they remain at historically high levels. Anecdotal evidence suggests that the easing in commodity prices over the first half of 1996, with more significant falls recorded for copper, has meant that the 1995/96 profit distribution within the resources sector has been uneven.

In 1995/96, in US\$ terms, small price increases were recorded for most minerals. However, many of the gains in prices were countered by a stronger Australian dollar and a general easing in commodity prices over the latter half of 1995/96.

Undoubtedly the highlight of 1995/96 was the continued surge in the petroleum sector, making it the State's first industry to produce more than A\$4,000 million of product in a year. As a result the petroleum sector has maintained its position for the second successive year as the State's leading resource industry. Against this background it is not surprising that Western Australia became Australia's largest oil producer in 1995/96.

Another highlight of 1995/96 has been the increased moves by industry to further process the State's iron ore resources. Construction of

BHP's Direct Reduced Iron (DRI) plant commenced in late 1995, with commissioning expected in 1997/98. The long-held goal of Government to achieve downstream processing of the State's resources is now finally coming to fruition.

Deregulation of the gas market, commencement of gas deliveries to Kalgoorlie via the Goldfields Gas Pipeline coupled with a favourable outlook for Asian growth and commodity prices, all suggest that the outlook for Western Australia's mineral and petroleum sectors is bright.

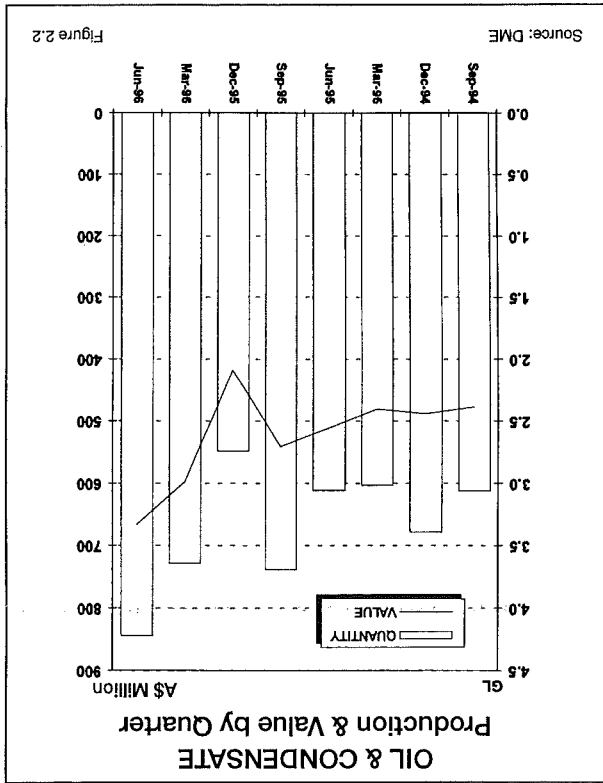
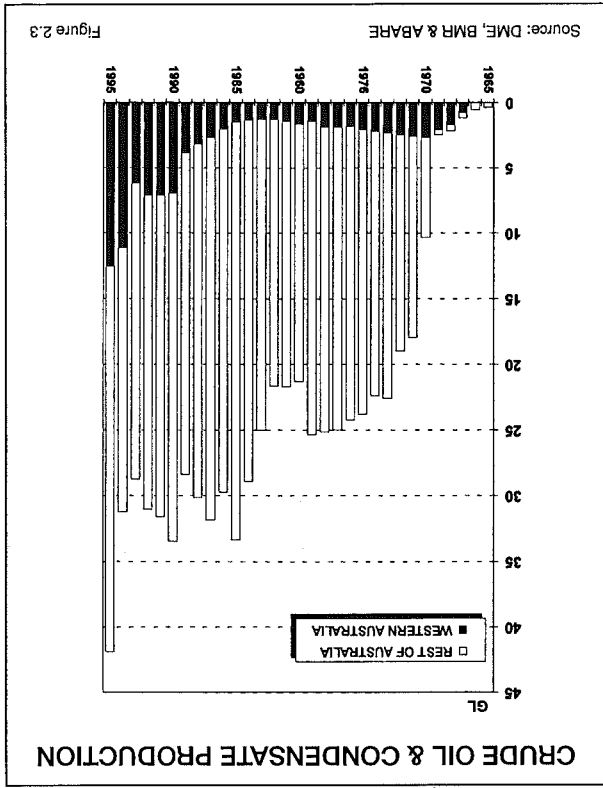
Western Australia is expected to continue to be a significant world player on many international commodity markets. Western Australia currently supplies (by quantity) around 13% of the world's iron ore production, 9% of its gold production, 10% of its LNG production, 18% of its alumina production, 11% of its nickel production, 50% of its zircon production and about 38% of its diamond production (Figure 2.25).

The State's prominence on the international minerals scene is expected to be maintained well into the 21st century. At 30 June 1996 there was A\$6,200 million of projects under construction in Western Australia, with another A\$2,031 million committed. In addition, as of June 1996, more than A\$25,000 million worth of resource projects were either under consideration or listed as a possibility for Western Australia.

The State's Department of Minerals and Energy (September 1996) has estimated that the value of Western Australia's mineral and energy sector in 2000/01 will be in the range of A\$20,000 million to A\$23,000 million. The average annual rate of growth in production between 1995/96 and 2000/01 is expected to range between 6% and 9%. These forecasts have not changed significantly since the previous issue of the Statistics Digest (Figure 2.26).

2.2 Petroleum

In 1995/96, the combined value of petroleum production rose by 11% to A\$4069 million, accounting for 26.5% of the value of Western Australia's total minerals and energy production. The petroleum sector is the State's first resource industry whose value of production is more than A\$4,000 million.

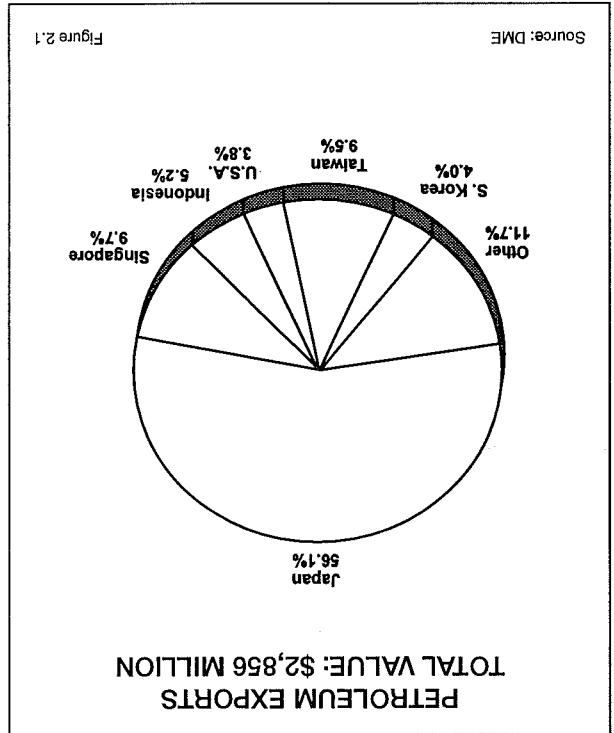


concrete gravity substructure capable of holding 300,000 bbls of oil will be located on the seabed and will support the steel topsides. Full production is expected to commence in December 1996, at a rate of up to 40,000 bbl/d. The field has estimated recoverable reserves of 40 million bbls.

- Western Australia accounted for approximately 46% of Australia's total crude oil and condensate production as well as 58% of its gas production (Figure 2.2 & 2.3). Western Australia became Australia's largest oil producing State in 1995/96. Western Australia also has more than three quarters of Australia's identified gas resources.
- First production from the Wanaca and Cossack oilfields commenced in November 1995.
- A commitment by Apache to develop its offshore Stag oilfield. Reserves are estimated at 30 million barrels of oil and the field life is anticipated at 10 - 15 years. Oil production has been scheduled for the last quarter of 1997. Project expenditure is estimated at A\$180 million.
- Development of the A\$610 million Wandoo oil field project is proceeding on schedule. The Wandoo "A" platform is currently producing 13,600 bbl/d from five horizontal wells. A

Highlights of the Western Australian petroleum industry over 1995/96 included:

Petroleum Industry Highlights



The combined value of petroleum exports totalled A\$2,856 million with the major destinations being Japan (56.1%), Singapore (9.7%) and Taiwan (9.5%) (Figure 2.1).

- Completion of the A\$450 million Goldfields Gas Pipeline project. A number of power station projects are currently under construction along the pipeline route. In addition, the East Spar gas field, which is expected to supply gas into the pipeline, is expected to commence production in December 1996. Gas deliveries into Kalgoorlie commenced in October 1996.
- The exploration programs of petroleum companies for the Timor Gap area in the far north west of the State are finally coming to fruition. The Bayu/Undan oil and gas field has been earmarked for development at a cost of between A\$800 million to A\$1,000 million. In addition a commitment to proceed with the development of the Laminaria oil and gas field has been made by North West Shelf Joint Venturer (NWS). The field contains around 200 million barrels of oil and will cost A\$900 million to develop.
- In recent years there has been a growing international interest in Western Australia's petroleum industry, with a number of foreign companies seeking to purchase local assets. The heightened focus on Western Australia is reflected in the movement of head offices of major oil companies to Perth. For example, Texaco, Ampolex and Woodside now have their head offices in Perth.
- The return to the world oil market by Iraq through an oil-for-food trading agreement with the United Nations injected some volatility into oil prices in early 1996. The talks were successful and Iraq sold its first oil since trading was boycotted after Iraq invaded Kuwait in 1993. Oil inventories fell to their lowest level in almost 20 years in early 1996 as the major refiners bought stock for the busy northern summer season.
- In February 1996 gas supplies to the State's South West from the North West Shelf were cut by 75 percent, over a 24 hour period, as a result of Cyclone Jacob. Gas supplies to major customers were cut to a minimum. The biggest industrial user of gas, Alcoa, switched to distillate as its fuel supply over that 24 hour period.

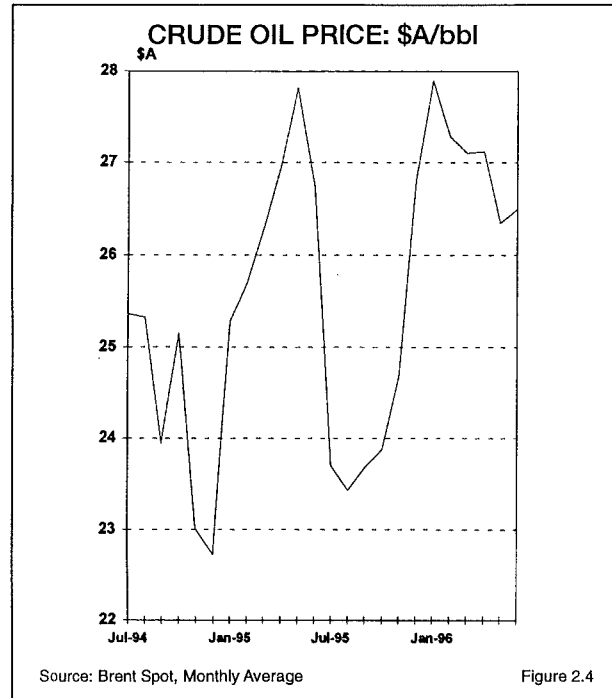


Figure 2.4

World Petroleum Outlook

In 1995 the world's production and consumption of oil equalled 70 mbd. ABARE expects world oil production to rise by 3.0% and 2.5% over 1996 and 1997 respectively.

ABARE also forecasts oil consumption, to rise by 2.6% in 1996 and by 2.4% in 1997. The excess in crude oil supply will see oil prices fall by 6.3% in 1997, after an expected rise of 14.2% for 1996 (Figure 2.4).

With Iraq now entering the world oil market, in June 1996 OPEC members agreed to increase the target for their production quotas, with the overall target raised from 24.53 million barrels a day to 25.03 million barrels a day. Nonetheless, an escalation in US and Iraqi tensions, which arose in September 1996, could lead to the UN reimposing trade sanctions on Iraq, hence, delaying Iraqi's re-entry into world oil markets.

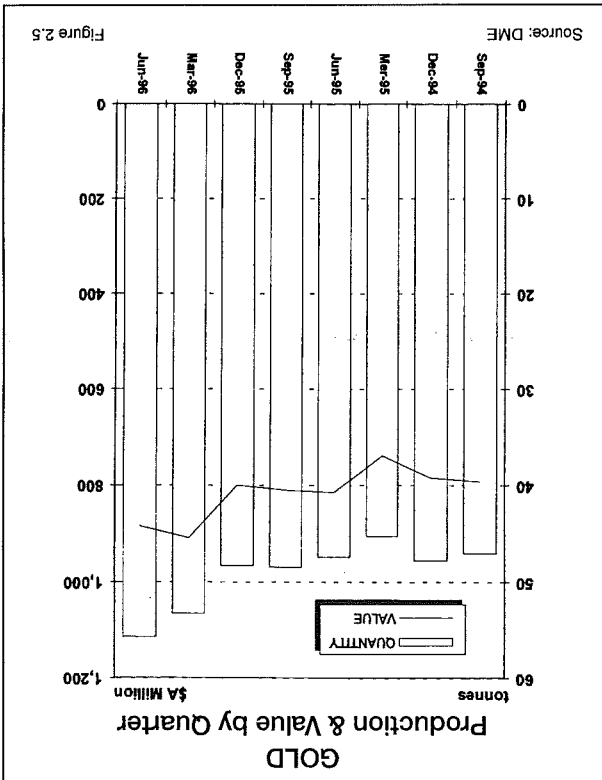
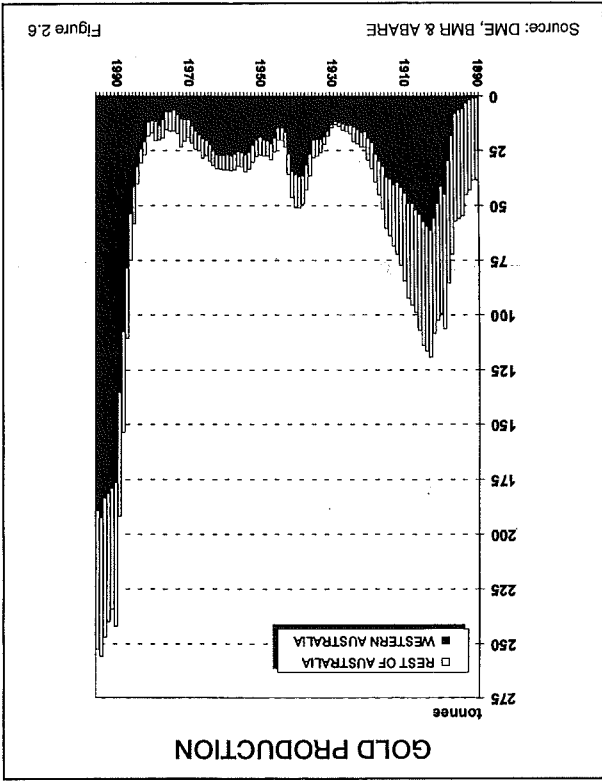
World natural gas markets are expected to continue to expand with new supply agreements adding to production.

State Petroleum Outlook

The outlook for the State's petroleum industry is extremely positive with many oil, gas delivery and gas processing projects expected to come on stream either in 1996/97 or in subsequent years.

of Australia's output (Figure 2.6).

production continues to account for around 75% energy production. Western Australia's gold accounting for 22% of the State's mineral and second most valuable sector after petroleum, The industry maintained its position as the State's value of the State's gold production rose by 8.6% to A\$3,403 million (Figure 2.5).



2.3 Gold

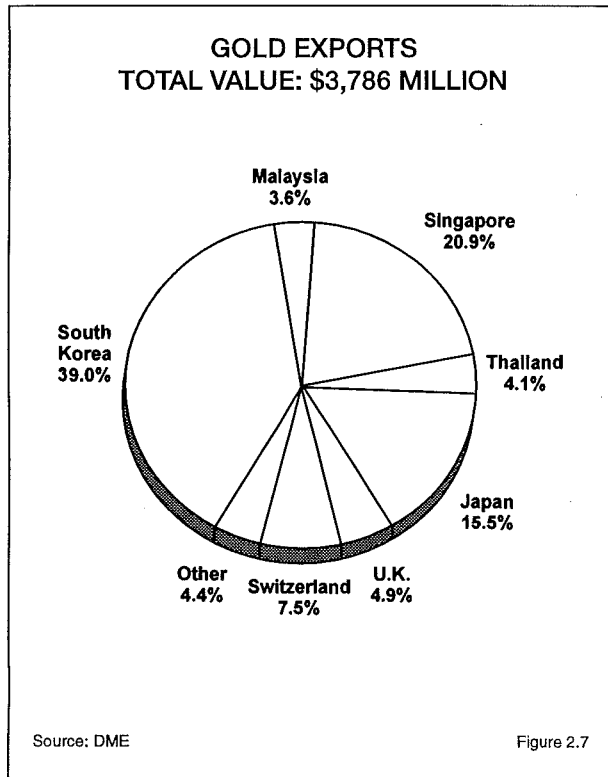
Western Australian gold production increased by 9.6% to 206 tonnes, in 1995/96. With a stronger Australian dollar lowering the A\$ price of gold, the exports is expected to rise by 9.3% in 1996/97.

- The State's LNG outlook is positive and according to ABARE the value of State's LNG exports is expected to rise by 9.3% in 1996/97.
- The State's LNG outlook is positive and according to ABARE the value of State's LNG exports is expected to rise by 9.3% in 1996/97.
- Japanese LNG demand.
- million, to meet the anticipated 2003 additional LNG capacity, at a cost of around \$5,000 are also considering doubling their existing this increase in Japanese LNG demand. NWS to around 14.5 million tonnes a year to meet gas production capacity will need to increase million tonnes of LNG from 2003. Australia's buyers are interested in taking an additional 6.8 field. It has been announced that Japanese proving up gas reserves from their Persus of The NWS participants is also in the process of participants.
- considered by the WAPET consortium and NWS the Gorgon and the Rankin gas fields is being time an integrated LNG project using gas from by WAPET for the Gorgon fields. At the same tonnes per annum plant are being developed Plans for a possible stand alone nine million and new LNG markets opening up in Asia. with two potential projects being examined
- Exciting developments are occurring in LNG processing and power generation sector.
- expected to be driven by the resource more than double by 2009/10. Gas demand is primary energy use in 1994/95, is expected to at 287 petajoules represented 47% of the State's up gas reserves. Demand for natural gas, which further increase in petroleum exploration activity and a continuance in the trend to prove international economic environment will see a processing opportunities and a favourable in addition to the take up of downstream
- Continued deregulation of the energy market, production in late 1997.
- and the Stag oil field is expected to commence December 1996. In addition full production field for the Goldfields gas pipeline for
- Scheduling of supply from the East Spar gas

These include:

1995 - 96 STATISTICS DIGEST

Western Australian gold exports amounted to around A\$3,786 million. The major reason for the State's 1995/96 gold export value being higher than its 1995/96 production value has resulted from the selling of the State's gold stocks. In



previous years the value of the State's gold exports has been significantly lower than the value of production. Asia continued to be the State's major gold export destination, accounting for more than 80% of gold exports in 1995/96 (Figure 2.7).

Industry Highlights

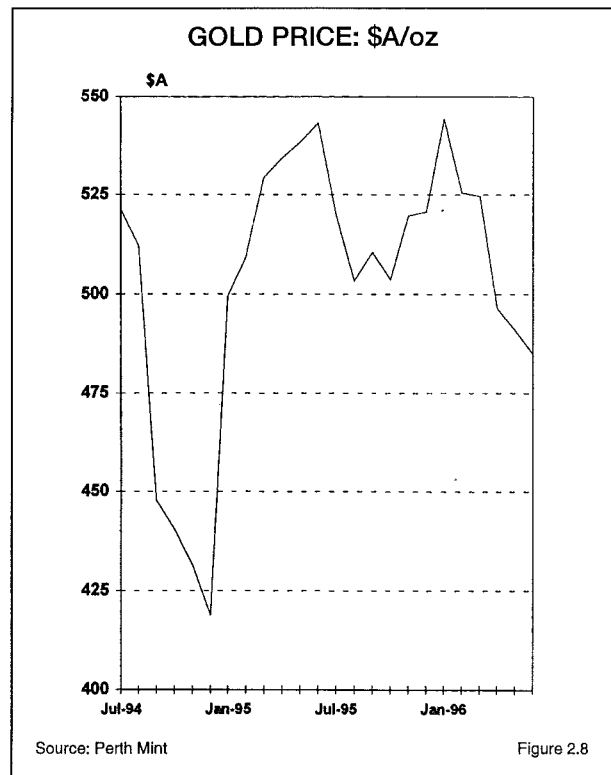
Expansion in the State's gold production for 1995/96 continues to reflect the industry's high profitability levels and a continuing high level of exploration expenditure.

ABARE has calculated that the average industry cash margin (i.e average price received minus average production costs) was A\$140 an ounce in 1995/96, down on 1994/95 but roughly at the same level as 1992/93. When combined with Western Australia's high gold prospectivity and the generally short pay back period for gold operations it is no wonder that gold companies are investing large amounts of money into gold exploration.

Over half of the State's gold production was accounted for by 13 producers. The largest

projects, were the Golden Mile - Kalgoorlie (19.9 tonnes), Kambalda - St Ives (11.8 tonnes), Telfer (11.4 tonnes), Boddington (10.7 tonnes), Granny Smith (8.8 tonnes), Bronzewing (7.1), Kanowna Belle (4.7 tonnes), and Plutonic (4.5 tonnes). The State's gold industry is over 100 years old but significant gold discoveries are still being made. For example, in addition to Bronzewing, first full financial year production has also been recorded for Chalice (4.1 tonnes) and Jundee (4.1 tonnes).

Average world gold prices increased by 1.4% to US\$389.85 an ounce in 1995/96. Nevertheless with the Australian dollar appreciating in value the average prices received by Australian gold producers fell by 0.8% to A\$514 an ounce (Figure 2.8).



In August 1995, Gold Mines of Kalgoorlie and Homestake announced a major upgrade of resources at the Superpit and nearby Mt Charlotte mines to a total resource base of 24 million ounces, worth over A\$12,000 million.

In September 1996 the Boddington joint venture partners announced a 52% increase to 6.9 million ounces in the resource estimate for the Wandoo deposit, near Boddington. The Wandoo expansion, if feasible could lift Boddington's annual gold

Industry average cash margins are expected to fall to \$130 an ounce 1997. This fall is primarily due to a higher Australian dollar and also a move by companies to underground mining. In Western Australia a number of underground operations have commenced, or are on the drawing boards, and it is anticipated that by the year 2000 gold production from underground mining as a

Outlook

production to around 16 tonnes. A pre feasibility study is due to be completed by the end of 1996. Underground development of Kanowna Belle commenced in July 1995. A three year decline/sloping program is underway to assess underground reserves and resources.

World gold demand continues to be dominated by the jewellery fabrication market. In 1995/96 this market constituted more than 80% of world gold demand.

World gold prices are forecast to remain relatively flat in 1997. It is expected that strong growth in jewellery demand will be countered by increases in world gold supply. It is anticipated that the downturn evident since 1994 in the world's largest gold producing nation, South Africa, will stabilise.

Nonetheless, a common consensus among gold analysts is that gold has lost its attraction as an investment medium with world events no longer appearing to have any apparent effect on price. Importantly, there is an enormous supply, estimated at around 35,000 tonnes that is held in central banks and multilateral institutions such as the IMF and the prospect of sales from these sources will continue to weigh on future gold prices.

As a result of the \$A appreciating over 1996/97, ABARE expects gold prices paid to Australia's producers to fall by 1.6% to A\$506 in 1996/97. However, Australia's gold production is expected to increase by 9.1% to 297 tonnes in 1996/97. The medium term outlook for Australia's gold production is positive.

Given that Western Australia produces about three quarters of Australia's gold production the outlook for the State's gold industry is positive.

The State's gold production should be boosted from new gold projects which could possibly commence production or construction in 1996/97, including Border Gold's Karonite project near Kalgoorlie and resurrection of the Butcher Well mine near Leonora by Sons of Gwalia; Acacia's Sunrise Dam gold project located 50 km south of Laverton; and Mt Burgess Gold Mining. First full financial year production from Nimary should also boost the State's 1996/97 gold production.

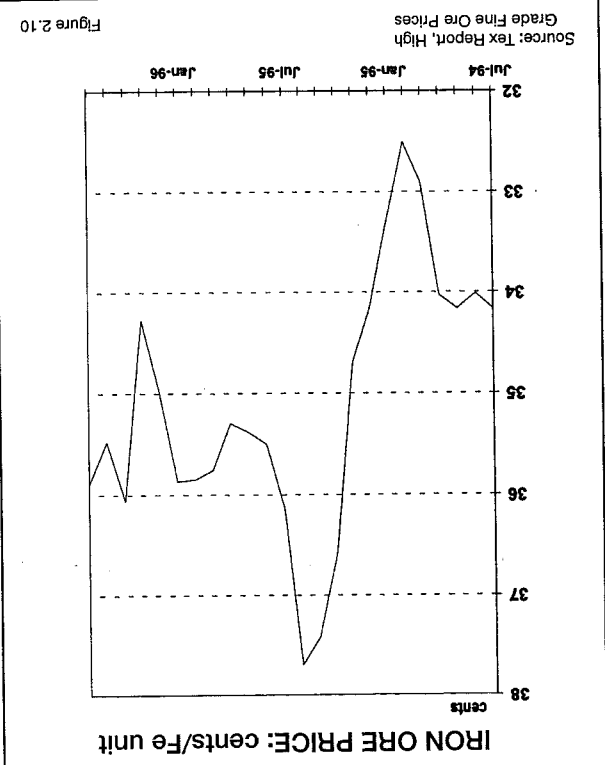
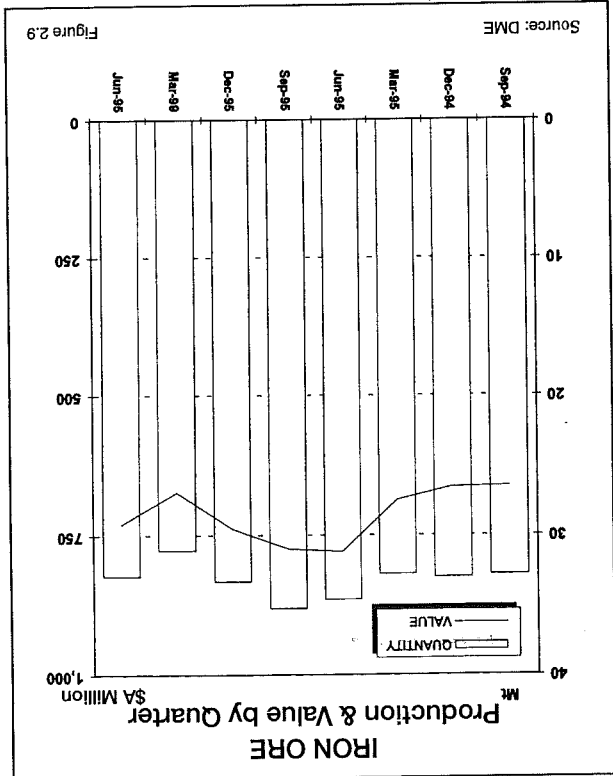
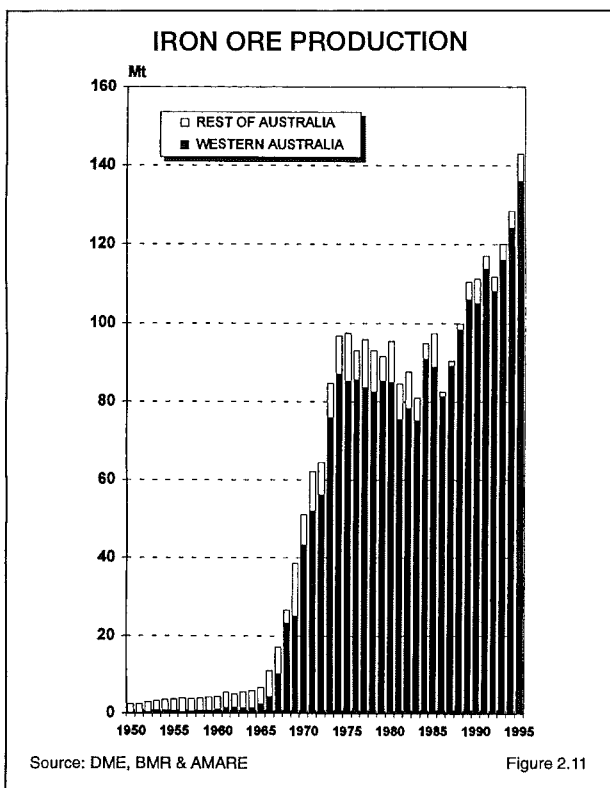


Figure 2.10

percentage of the State's gold production will increase. Nonetheless, industry average cash margins for the gold industry still remain relatively high, as compared to other industries, and this should ensure continued gold exploration.

2.4 Iron Ore

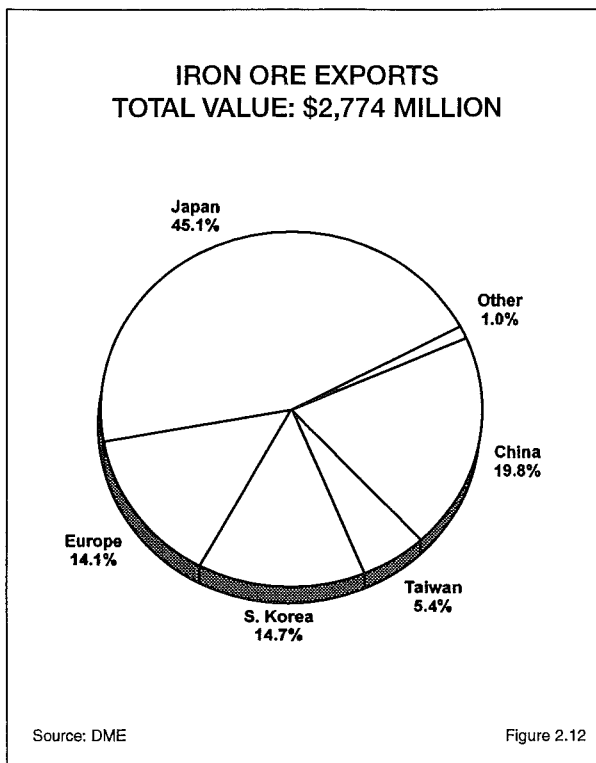
The combination of a 4.8% increase in the average iron ore price received and a 0.2% fall in iron production resulted in a 4.6 % rise in the value of production to A\$2,924 million (Figure 2.9 & 2.10).



Western Australia accounts for more than 90% of Australia's iron ore production and exports from the State totalled A\$2,774 million in 1995/96 with Japan (45%), China (20%) and South Korea (15%) the State's largest iron ore export markets (Figure 2.11 & 2.12).

BHP Minerals commenced construction of its A\$1,500 million DRI plant and associated infrastructure project in late 1995. This is Australia's first DRI project.

The 2.5 million tonnes per annum DRI plant will convert iron ore fines from the BHP's Newman operations into direct reduced granules which are then briquetted into Hot Briquetted Iron (HBI). Commissioning of the plant is expected to



commence in December 1997 and to be finalised in mid 1998. A\$400 million of product is expected to be produced annually.

Hamersley Iron, which is 100% owned by CRA, commenced a full feasibility study of its Yandicoogina iron ore deposit in the central Pilbara in 1995/96. It is expected that a development proposal will be considered by the board in early 1997. Up to 300 million tonnes of ore has been identified for mining, meaning the project would be similar in size to Hamersley's Marandoo mine. Subject to CRA board and Government approvals, development of the US\$300 million project is likely to commence during 1997.

Hamersley Iron's Paraburdoo fines ore treatment plant commenced production in late 1995. The 13 million tonnes per annum plant will remove ultrafines resulting in lower alumina and phosphorus levels and a higher grade of ore.

A notable occasion for highlighting Robe River Iron Associate's long mining history in Western Australia was the loading of the 3,000th ship to take iron ore from its Cape Lambert port facilities in September 1995. Nonetheless, Robe has deferred its decision to reopen its pellet plant. Robe is now considering the possibility of obtaining a higher grade feedstock, from its other leases, than is currently available. A decision on

the pellet plant cannot be made until tangible results from its exploration program become available. Re-commissioning of Robe's Pellet plant would cost between A\$250 million and A\$300 million.

The January 1996 round of iron ore price negotiations by Australian iron ore producers and Japanese steel manufacturers saw a favourable outcome for the year. BHP and Hamersley have been able to secure a 5% and 6% rise for lump and fine ores respectively. Robe River also secured a 7.4% rise in the contract price of its fines.

Outlook

Given that major growth in steel consumption is expected in Asia over the next decade, the outlook for the State's iron ore industry is excellent.

World steel production is forecast by ABARE to grow by 3.2% in 1997, up from 1.6% in 1996. This will translate into stronger world iron ore demand. ABARE has forecast a rise of about 2.5% in the A\$/iron ore export price for 1996/97. Australia's 1996/97 iron ore production is anticipated to grow by 0.9%.

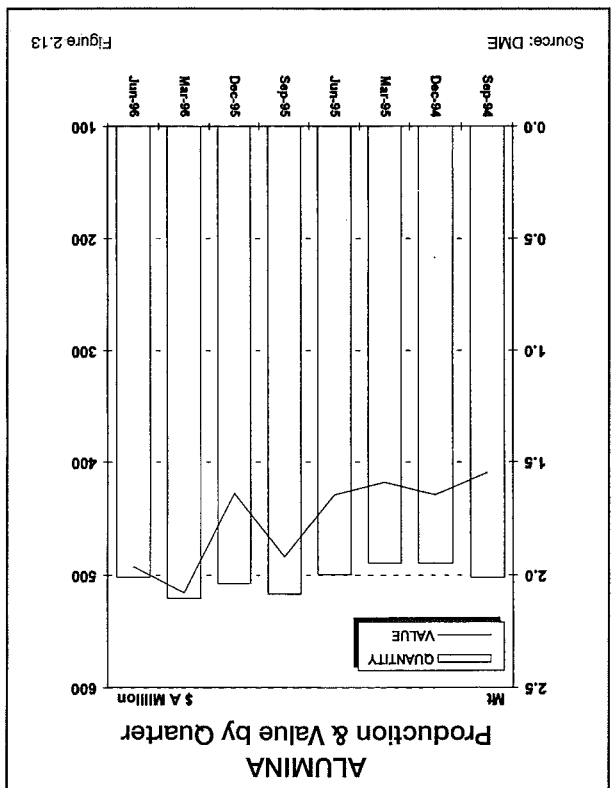
The world demand for DRI will be governed, in future, by technological shifts in steel making, particularly shifts to electric arc furnace steel making processes. Approximately 30% of Asian steel making processes by 2010 are forecast to be electric arc based, thus creating a strong demand for metallics, such as DRI and pig iron.

Deregulation of the State's gas market, technology improvements in the use of fine ore and a transport advantage over South American producers mean that the Pilbara is now well placed as a DRI producer for the Asian region. As a result a number of iron ore value added projects are under consideration or investigation including:

- The A\$4.7 billion Mineralogy Project involving a HBI plant costing A\$1.65 billion and a A\$3.1 billion DRI and integrated steel plant. Mineralogy announced in January 1996 that it will continue to examine the project's feasibility.
- The A\$1.5 billion Australian United Steel Industry (AUSI) project consisting of a beneficiation, pellet plant and DRI plant to be

established south of Cape Lambert capable of producing almost 3.6 million tonnes per annum of HBI. AUSI also has off-take contracts with major Asian steel producers, with letters of intent to export the full production from three modules.

- The Kingstream Resources project involving a A\$950 million 1.4 million tonnes per annum steel mill at Narngulu near Geraldton has been revised. After attracting An Feng Steel of Taiwan to take a 70% stake in the project it is now proposed that the steel mill will be expanded to 2.4 million tonnes per annum of steel. If this is progressed, new environmental approvals will

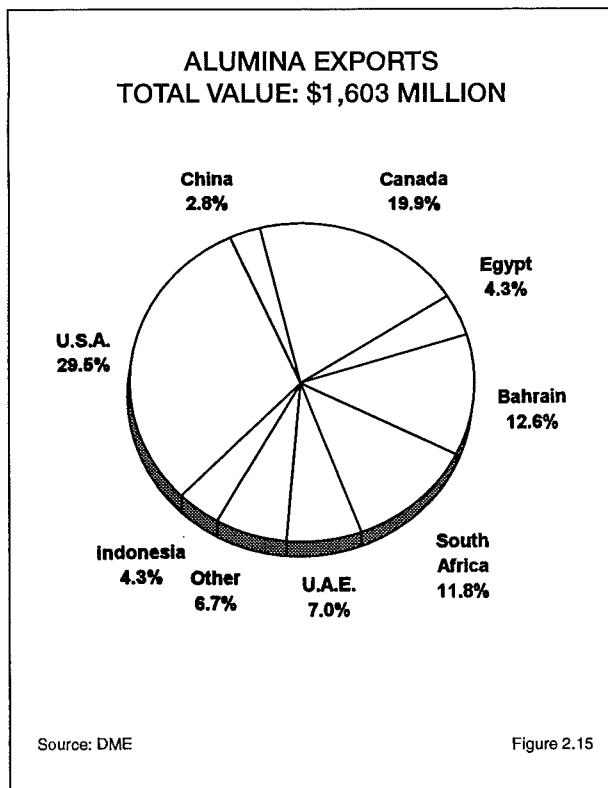
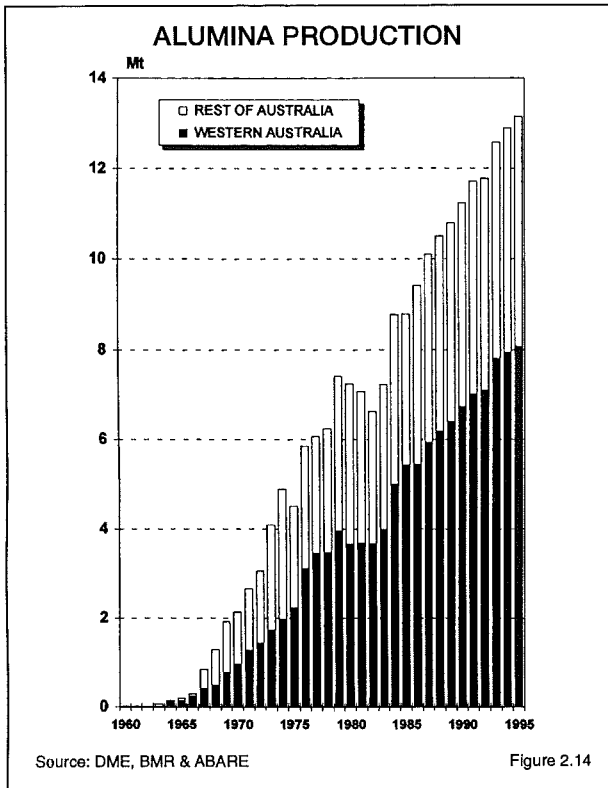


needed to be obtained. A decision to commit to project construction is expected later this year and if given the go ahead it is anticipated that An Feng will take all production.

2.5 Alumina

Alumina production increased by around 4.1% to 8.2 million tonnes in 1995/96. With a 14.4% rise in average \$A alumina prices over 1995/96, the value of alumina production increased by 13.9% to A\$1,918 million (Figure 2.13).

Western Australia's alumina production represents 62% of national alumina output (Figure 2.14).



About 83.6% (or A\$1,603 million) of the State's 1995/96 alumina production was exported overseas, largely as smelter grade product. The largest export markets for the State's alumina were the USA (30%), Canada (20%) and Bahrain (13%) (Figure 2.15).

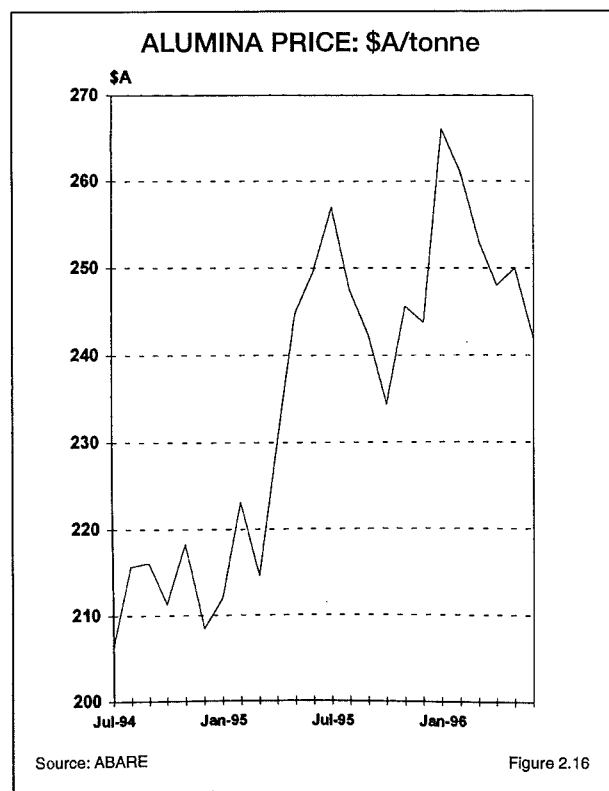
Industry Highlights

Signatories to the Memorandum of Understanding, comprising the six leading aluminium producing countries, pledged a 10% cut in output as a means to reduce the world stockpile of aluminium during 1995. This was a significant factor in world primary aluminium stocks falling in 1994/95 and prices rising by 46% in 1994/95.

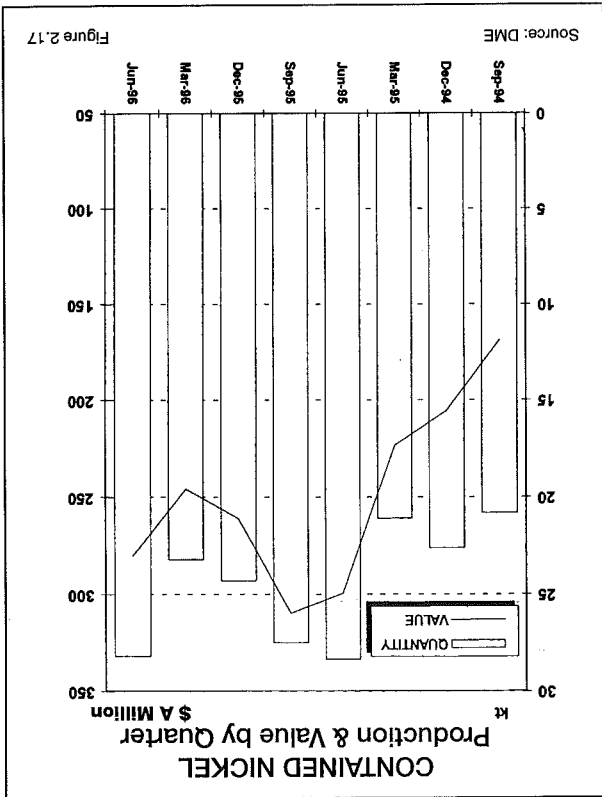
As would be expected the substantial rises in aluminium prices have led to an reopening of previous capacity idled in the early 1990s by poor aluminium prices. As a result world aluminium production rose by 3.6% in 1995/96. The increase in supply led to \$US aluminium prices to fall by 6.2% in 1995/96. Nonetheless the 1995/96 \$US aluminium price is 38% higher than its low 1991/92 level.

While overall A\$ alumina prices rose in 1995/96, over the latter half of the year alumina prices they have been falling (Figure 2.16). With better than expected world economic growth, alumina and aluminium prices are expected to rebound in 1997.

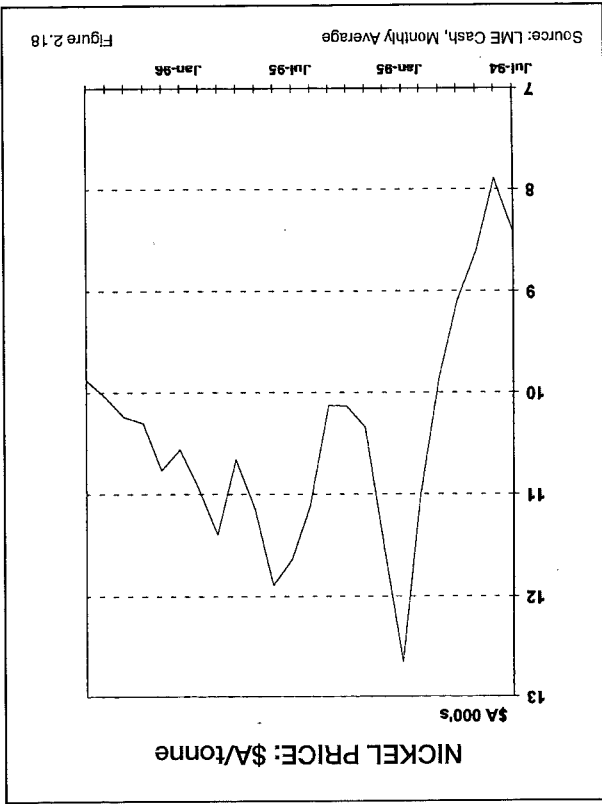
In light of what is perceived to be a favourable long term environment for aluminium and alumina prices, Alcoa in February 1996 resurrected its plans for a proposed two stage A\$970 million



significantly on the back of a substantial rise in average \$A alumina export prices, the value of Australia's alumina exports is expected to rise by 8.4%. Alumina prices are expected to rebound strongly in 1997. The rise in alumina prices for 1997 is due to improvements in the aluminium



Source: DME
Figure 2.17



Source: LME Cash, Monthly Average
Figure 2.18

expansion of its Wagerup facilities. Alcoa is waiting to commit to Stage 1 of the expansion, being a \$A620 million first stage expansion of its Wagerup alumina refinery. This will add 850,000 tonnes of high-quality alumina to its 25% share of the world alumina production capacity. All approvals are in place. If the expansion goes ahead in its entirety, this will almost double alumina output from its current level of 1.7 million tonnes per annum to 3.3 million tonnes per annum.

The State's other alumina producer, Worsley, is currently undertaking a feasibility study of a \$A670 million expansion of its refinery. As one of the world's three most efficient alumina refineries, the expansion, if given the go ahead, would double its current capacity of 1.75 million tonnes per annum. The environmental approval process commenced in October 1995. Stage one of the project involving an \$A80 million expansion to increase alumina production by 6% to 1.85 million tonnes per annum commenced in 1996 with its commissioning expected in late 1997.

In another development, Alchem is working towards establishing an Aluminium Fluoride Plant in Kwinana. A pre-feasibility study for processing alumina hydrate to produce 20,000 tonnes per annum of aluminium fluoride has been completed. It is expected that 75% of the final product will be sold on the domestic market. All environmental and statutory approvals have been granted. A bankable feasibility study is expected to commence in 1997. The total project cost is A\$40 million.

Outlook

With strong world economic growth increasing aluminium demand, US\$ aluminium prices are expected to rise by 15.1% in 1997. Nevertheless, given that aluminium prices are expected to fall by around 14.6% in 1996, primarily as a result of a continuation in the drawn down of aluminium stocks, over 1996/97 aluminium prices are expected to fall by 3.1%. The return in the health of the world's aluminium industry is highlighted by the fact that most of the increases in aluminium production for 1996/97 will come from previously idle capacity. Australia's alumina production is expected to increase only marginally over 1996/97, but more

price over 1997 and better world economic conditions leading to increased consumption.

The longer term market outlook for aluminium and hence alumina is positive to 2001. Asia is expected to be the fastest growing aluminium consumption region over the remaining decade.

Given Western Australia contributes more than 60% of Australia's alumina production, this industry will continue to maintain its position and importance in the State.

2.6 Nickel

Western Australia's nickel production continued to grow strongly with output reaching 103,303 tonnes of contained nickel in 1995/96. This represents an increase of 11.1% on 1994/95 output. With increased nickel prices, the value of production over 1995/96 rose by 22.3% to A\$1,097 million mainly due to increased nickel prices (Figure 2.17 & 2.18).

Western Australia accounted for 97% of Australia's nickel production in 1995/96, up from 95% in 1994/95 (Figure 2.19).

Nickel exports totalled A\$1,046 million in 1995/96 with Europe (46%), Japan (27%) and North America (16%) the State's largest nickel export markets (Figure 2.20).

Industry Highlights

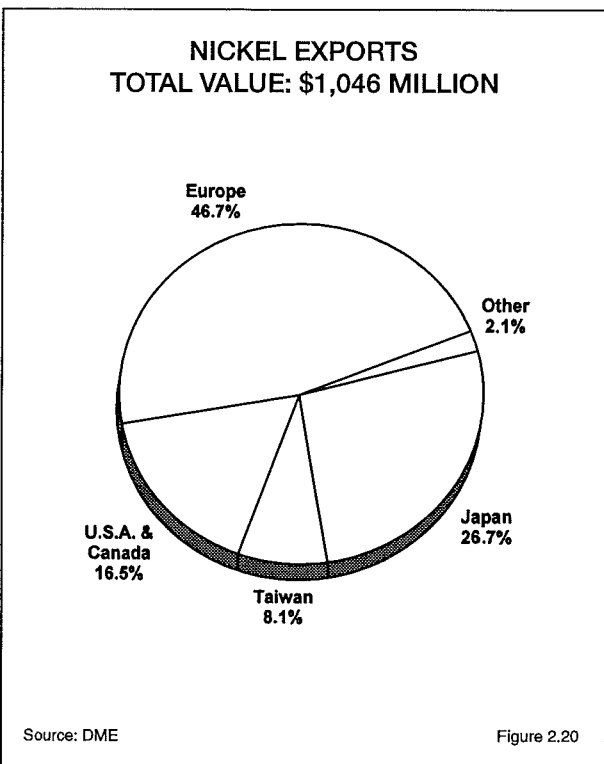
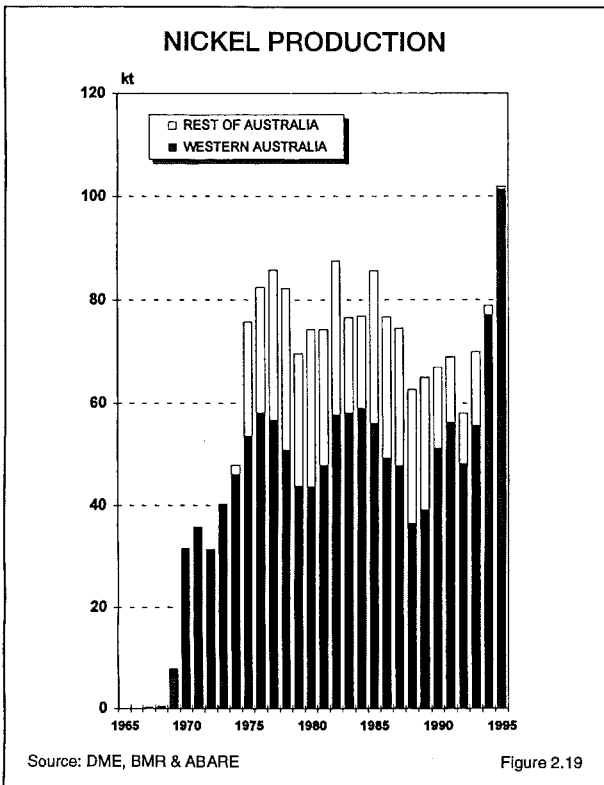
In 1995/96 Western Australia became a significant player on the international nickel market. Western Australia's share of world nickel production has increased from about 6% in 1991/92 to 11% in 1995/96.

In 1995/96, nickel also became the fifth minerals sector to record a value of production in excess of A\$1,000 million.

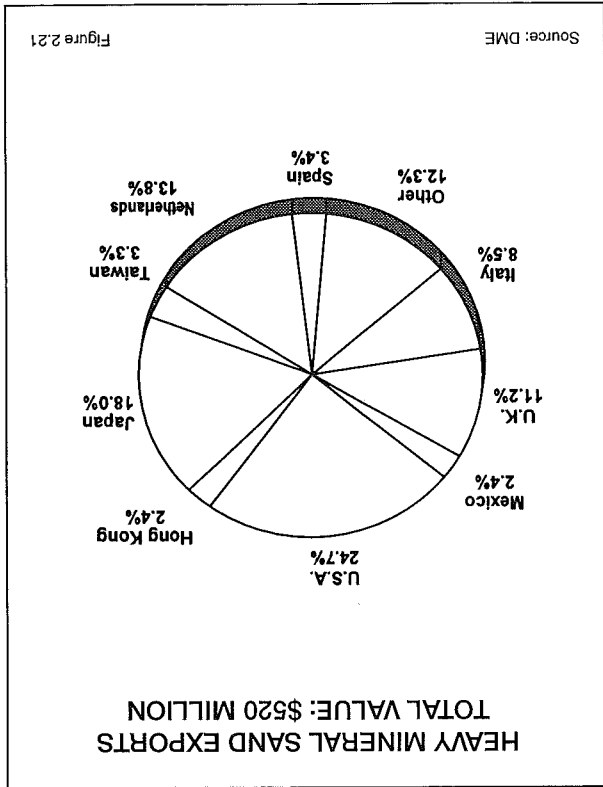
The most significant contribution to increased nickel output came in part from full financial year output achieved from Mt Keith and improvements in existing projects.

The development of Mt Keith has elevated WMC to the status of the western world's third largest producer after Canada's Falconbridge and Inco. It has also placed Australia as the world's second largest producer behind Canada, excluding the CIS.

Nickel prices grew strongly over the first half of the year, but prices eased over the latter half of 1995/96. The easing in prices is associated with an easing in stainless steel production and an increase in the availability of stainless steel scrap, which is regarded as a substitute for nickel. Nonetheless, given that world economic activity is expected to pick up in 1997, hence increasing



In September 1996, Resolute Samantha announced that it will proceed with the A\$184 million Bulong nickel project, 30 kilometres east of Kalgoorlie.



A major observation from the inaugural Australian Nickel Conference held on 4-5 December 1995 in Kalgoorlie is that the Voisey Bay discovery will have the ability to drive out all producers with operating costs over US\$3.00/lb. In addition, if Voisey Bay were to proceed in the time expected, it could impact upon the decisions of those companies looking at developing nickel projects in this State.

According to AME Mineral Economics (1996), production from Voisey Bay could possibly take place in 1999. Initial nickel production would be around 60,000 tonnes per annum before rising to 122,500 tonnes in 2000. This suggests Voisey Bay could be producing around 10% of the world's nickel in 2000. This development would reinforce Canada as the largest and most important influence in the nickel industry and would exert downward pressure on prices. This pressure would be significantly increased if the CIS were to resume full production in the medium term.

deposit, suggest that its production costs will be amongst the lowest in the industry.

In particular, the discovery of a large high grade nickel deposit at Voisey Bay near the coast of Labrador in eastern Canada has been labelled as the most significant in the world in the last few decades. Its proximity to the surface, and the large amounts of copper and cobalt associated with the

of sharp increase followed by long flat periods. Although many projects are being assessed, not all of them are likely to come into production, since the nickel price is characterised by short periods

Of greater interest is that three of the deposits - Murrin Murrin, Silver Swan and Cawse - are laterite ores. These have been previously shunned by Australian producers in favour of more easily treated sulphide deposits. Silver Swan is expected to be in production in 1997, as is Cawse. Nonetheless the major player in the laterite stakes is the A\$900 million Murrin Murrin project. This project could be in production by 1998, producing 45,000 tonnes per year of nickel metal and 3,000 tonnes per year of cobalt.

* Projects Committed

- Silver Swan* (MPI-Outokumpu).
- Carr Boyd (Defiance Mining); and
- Cawse (Centaur Mining);
- Maggie Hayes (Forrestania Gold-Gencor Ltd);
- Bulong* (Resolute Samantha);
- Yakabindie (Dominion Mining-North Ltd);
- Murrin Murrin (Anaconda);
- Honeymoon Well (CRA-Outokumpu);

projects being assessed including:

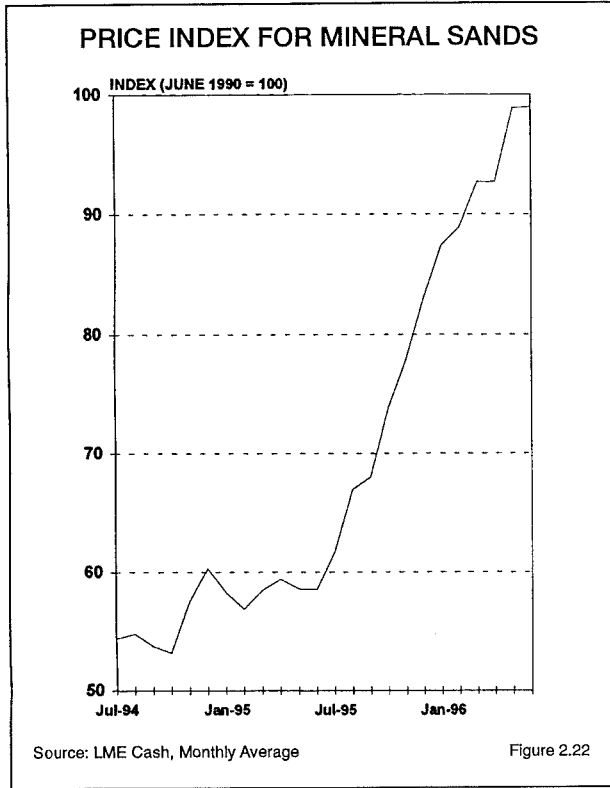
Higher nickel prices have led to several new nickel industry.

The Goldfields Gas Pipeline has the potential to significantly reduce energy costs in the Eastern Goldfields and this would further improve the highly competitive cost position of the State's

Outlook

stainless steel production, US nickel prices are expected to increase by 10.5% in 1997, after an expected fall of 6.7% in 1996. While on balance the 1996/97 nickel price forecast will be about 52% higher than the low of 1993/94, being US\$5,246, it represents a fall of 3.2% over 1995/96. This suggests that nickel prices are expected to rebound more strongly over the latter half of 1997.

First production from the mine is expected to be in the first quarter of 1998, with mine and infrastructure construction due to begin in late 1996.



2.7 Heavy Mineral Sands

The 1994/95 recovery in the State's heavy mineral sands industry continued in 1995/96. All mineral sand commodities recorded increases in value and quantity and their combined value increased by 23.4% to A\$586 million.

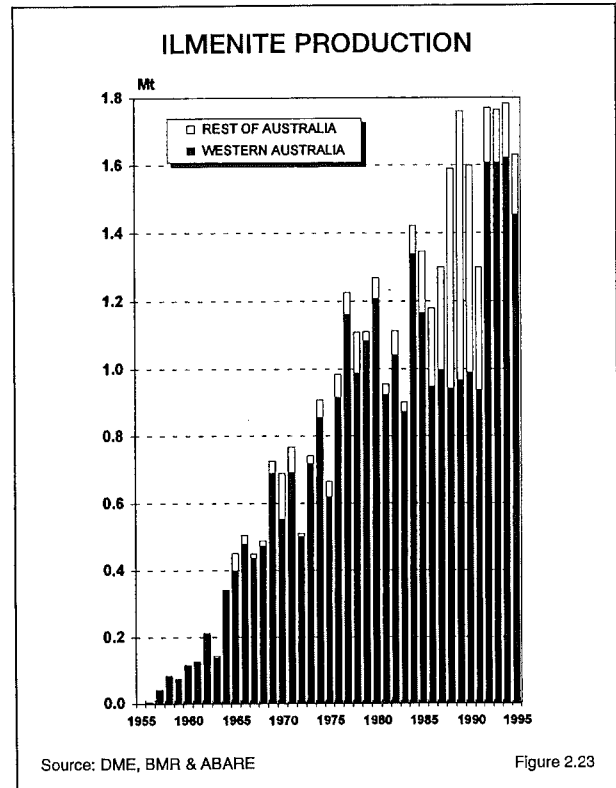
Heavy minerals sands exports totalled A\$520 million in 1995/96 with USA (25%), Japan (18%) and the Netherlands (14%) the State's largest heavy mineral sands export markets (Figure 2.21).

The growth in the mineral sands industry is the result of a strengthening in international demand for titanium group minerals and zircon.

Industry Highlights

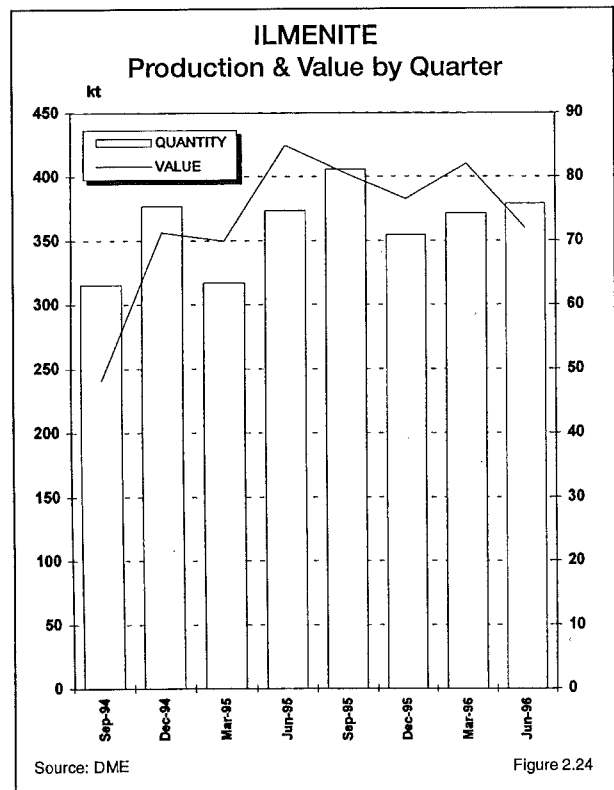
In 1995/96 the heavy mineral sands industry overtook diamonds to become the State's sixth largest mining industry sector.

Due mainly to an increase in price the value of zircon production increased by 39.6% to A\$181 million in 1995/96 (Figure 2.22).



With increased world prices and State production, the value of titanium group metals increased by 17.2% to A\$396 million in 1995/96. (Figure 2.23 & 2.24).

An increase in demand for synthetic rutile has occurred due to a shortage of natural rutile resulting from the suspension of production at the



the State's mineral sands production will increase in 1996/97.

Beyond 1996/97 there is an element of uncertainty in international mineral sands markets. Titanium pigment A\$ export prices, which rose by 6.7% in 1995/96, have nonetheless been falling since early 1996. The fall in pigment prices is due to supply demand imbalances and ABARE believes this will not be rectified in 1996/97. Pigment A\$ prices are forecast to fall by 5.0% in 1996/97.

In response to lower pigment prices SCM Chemicals deferred its A\$470 million expansion of its titanium dioxide plant at Kemerton. The expansion would have increased its production from 80,000 tonnes to 190,000 tonnes. Construction previously scheduled for early 1997 has been postponed indefinitely.

Given that rutile and ilmenite are a feedstock to titanium pigment, a continuation in the excess supply in international pigment markets will result in these prices falling in 1997/98. It is hoped that the pick up in world economic activity will address the titanium pigment supply demand imbalance in late 1997.

2.8 Diamonds

On the back of a 41% increase in diamond carat sales, its value increased by 10.7% to A\$531 million in 1995/96.

The world diamond marketing cartel controlled by De Beers was on the brink of dissolving in 1995/96 until Russia signed a co-operation agreement with the Central Selling Organisation (CSO) in February 1996. This agreement stabilised the diamond market in 1996.

Industry Highlights

The Bow River alluvial diamond mine, owned by Normandy Mining Ltd, ceased production in 1995/96. It is understood the Bow River plant will be kept on care and maintenance for some time while exploration continues in the hope of further discoveries in the vicinity of the mine.

The marketing agreement between the owners of the Argyle diamond mine and the CSO expired at the end of June 1996. Under that agreement the CSO was bound to purchase 78% of Argyle's output. In recent years, however, the CSO deferred the purchase of up to 25% of Argyle's output and last year imposed an 11% price cut.

world's largest natural rutile mine in Sierra Leone, West Africa. Production from this mine is not expected to, at least, commence until late 1996 or early 1997.

BHP's A\$200 million Becup mineral sands project is expected to commence production in 1996/97, producing 600,000 tonnes per annum of ilmenite and 20,000 tonnes per annum of zircon. In addition Westralian Sands Limited A\$134 million synthetic rutile plant expansion project at Capel is expected to be completed in mid 1997. When commissioned synthetic rutile production will increase to 230,000 tpa.

The State's synthetic rutile production should be boosted further in the future. For example, Twiwest is planning an expansion in the synthetic rutile production capacity at its Chandala plant in stages to 165,000 tpa to be achieved by 2000. Detailed engineering design commenced in March 1996 and is scheduled for completion in 1997. Following completion of engineering design, Twiwest has indicated that no additional resources will be committed to the project until environmental approvals have been received.

Rhone Poulenc Chimie Australia has resurrected proposals to build and operate a rare earth plant near Pinjarra. The current proposal includes a facility producing 16,000 tonnes per annum of rare earth nitrates. Following community concern over the transport of radioactive waste from Pinjarra to Mt Walton, located 100km north-west of Coolgardie, the level of environmental assessment for the project was set by Government to the highest level, being an Environmental Review and Management Program (ERMP).

The Environmental Protection Authority (EPA) has assessed the proposal and found it to be acceptable on environmental grounds, subject to the proponent's commitments and recommendations set out in the assessment report. Construction of the plant is expected in early 1997 subject to approval by the Rhon-Poulenc board. Commissioning of the plant is proposed for 1998.

Outlook

The 1996/97 outlook for the State's mineral sands industry is positive. Thanks to new production capacity coming onstream and the average price of zircon, ilmenite and rutile to rise, the value of

The move to direct marketing by the Argyle joint venture has tested the cohesiveness of one of the oldest cartels in existence. DeBeer's initial response to Argyle's proposed departure from the CSO was that losing Russia from the cartel would have had a much greater ramification. In clarifying its statement it indicated that while Argyle produced about 40% of the world's diamonds, by value it only contributed 6% to CSO sales as against Russia's 26%.

Nevertheless, DeBeer's move to allow Argyle to sell outside the CSO has set a precedent and DeBeer's is reassessing its initial position. The CSO could be facing a threat to its dominance of the high quality gem diamond market when BHP Ltd reveals its marketing strategy for its big Canadian Lac de Dras diamond project in late 1996. BHP's diamond production contains a higher proportion of gem - quality diamonds and if it opts to market outside the CSO it will challenge the CSO's major income stream. In addition CRA - RTZ is close to committing to the development of the large Diavik diamond project in Canada.

If BHP and CRA - RTZ opt out of the CSO up to 20% of the world's gem diamond sales will be traded outside the CSO. The effect on the diamond cartel could be significant.

Recognising that the CSO's dominance of the diamond market is potentially under threat, DeBeer's has recently attempted to bring back Argyle diamonds into the marketing cartel. Diamond market analysts have indicated that a marketing war between the CSO and Argyle could eventuate. There are suggestions that the CSO may flood the Indian diamond market causing prices to fall. If this occurs this will impact on Argyle as India is Argyle's predominant market, accounting for more than 20% of Argyle's sales.

Argyle is continuing with its studies of an underground operation for when the open pit life cuts out in the year 2004. Nonetheless, a decision on the proposed underground development has been deferred by from the first quarter of 1996/97 to the end of the year. As Argyle has changed its diamond marketing practices it claims it must more fully assess current market conditions before making an assessment on whether to proceed with underground mining. The capital cost of developing an underground mine at Argyle is

estimated at between A\$150 million to A\$180 million.

In 1995/96 significant diamond exploration activity has continued to occur in the Kimberley and in the Gulf of Carpentaria. It is believed that results from the CRA, Zephyr Minerals, Australian Kimberley Diamonds and Cambridge Gulf offshore project are encouraging.

Outlook

The strong growth experienced in international diamond market in 1995 is expected to continue into 1996 and 1997. Demand from South-East Asia has been particularly strong, making the region the principal source of the phenomenal growth in sales of smaller gem diamonds, around one carat or less.

The outlook for the State's diamond industry is uncertain. Argyle's decision to leave the CSO could result in a price war and this would impact on Argyle's profitability. Decisions by BHP and CRA - RTZ on the marketing arrangements for their Canadian diamond projects could also impact on Argyle.

Argyle is facing a difficult decision over its moves underground, but a move underground is essential to extend the life of its operation.

Future diamond exploration activity in the Kimberley and Gulf of Carpentaria is becoming increasingly dependent on a significant commercially viable diamond discovery being made.

2.9 Other Minerals

Base Metals

With base metal production falling, in 1995/96 the combined value of the State's copper, lead and zinc production fell by 26.2 percent to A\$134 million.

In US\$ terms per tonne, in 1995/96 copper prices fell by 0.9%, zinc prices fell by 2.2%, but lead prices rose by 18%. Nonetheless, with supply outstripping demand in copper markets, copper prices fell markedly in the second half of 1995/96, falling from US\$2,616 a tonne in January 1996 to US\$2,160 a tonne in June 1996.

The outlook for copper, which contributes more than 40% of the value of the State's base metal production, is poor. Copper prices are expected

Onslow Salt Pty Ltd is considering a new A\$55 million salt field project at Onslow with a capacity of 1.5 million tonnes per annum. The project has the capability to expand to 2.5 million tonnes per annum.

Manganese Ore

Due to a substantial increase in manganese ore production, its value increased by 367% to A\$41 million in 1995/96.

Other

In 1995/96, Gwalia Consolidated Ltd commissioned its new lithium carbonate plant at Greenbushes. The plant is expected to produce 5,000 tonnes per annum of lithium carbonate powder.

Gwalia Consolidated's A\$10 million silica sand project near Bunbury was commissioned during the second quarter of 1996 and the first silica sand shipment was dispatched in July. While initial production capacity is at 400,000 tonnes per annum the project has the ability to expand to 1 million tonnes per annum as market requirements dictate.

The building boom in Asia has boosted Asian demand for gypsum, now growing by around 5% per annum. Dampier Salt is committed to developing a 2 million tonne per annum capacity gypsum deposit at Lake McCleod. Construction of the project is expected to commence in late 1996 with production beginning in the second half of 1997.

CRA is conducting a \$5 million feasibility study into a A\$250 million 100,000-500,000 tonnes per annum kaolin mining and processing operation project in the South West. The study is based on deposits near Wickkepin and Narrogin.

Construction of Westlimes (WA) A\$25 million quicklime plant, with a capacity of 150,000 tonnes per annum, south of Dongara commenced in early 1996. Completion is scheduled for March 1997.

In view of the abolition of the Federal Government's uranium three mines policy CRA is examining the feasibility of developing its Kintyre deposit, located 400 km south east of Port Hedland. Development of the A\$120 million Kintyre project would result in 1200 tonnes of yellowcake being produced per year over a 10 year mine life.

to fall by around 25% in 1996/97. On the other hand, zinc and lead prices are expected to rise in 1996/97.

Western Metals (WML) has indicated that the exploration decline at the Kapok zinc/lead deposit is 75% complete. An overall assessment of the orebody, including a decision on whether to proceed with development, will be made at the end of 1996. If committed, Kapok ore will be treated at the Cadjebut mill, which is already treating Goongewa ore.

WML is also considering the development of the larger Blendevale deposit. Its A\$20 million exploration program over the deposit is due for completion in March 1997.

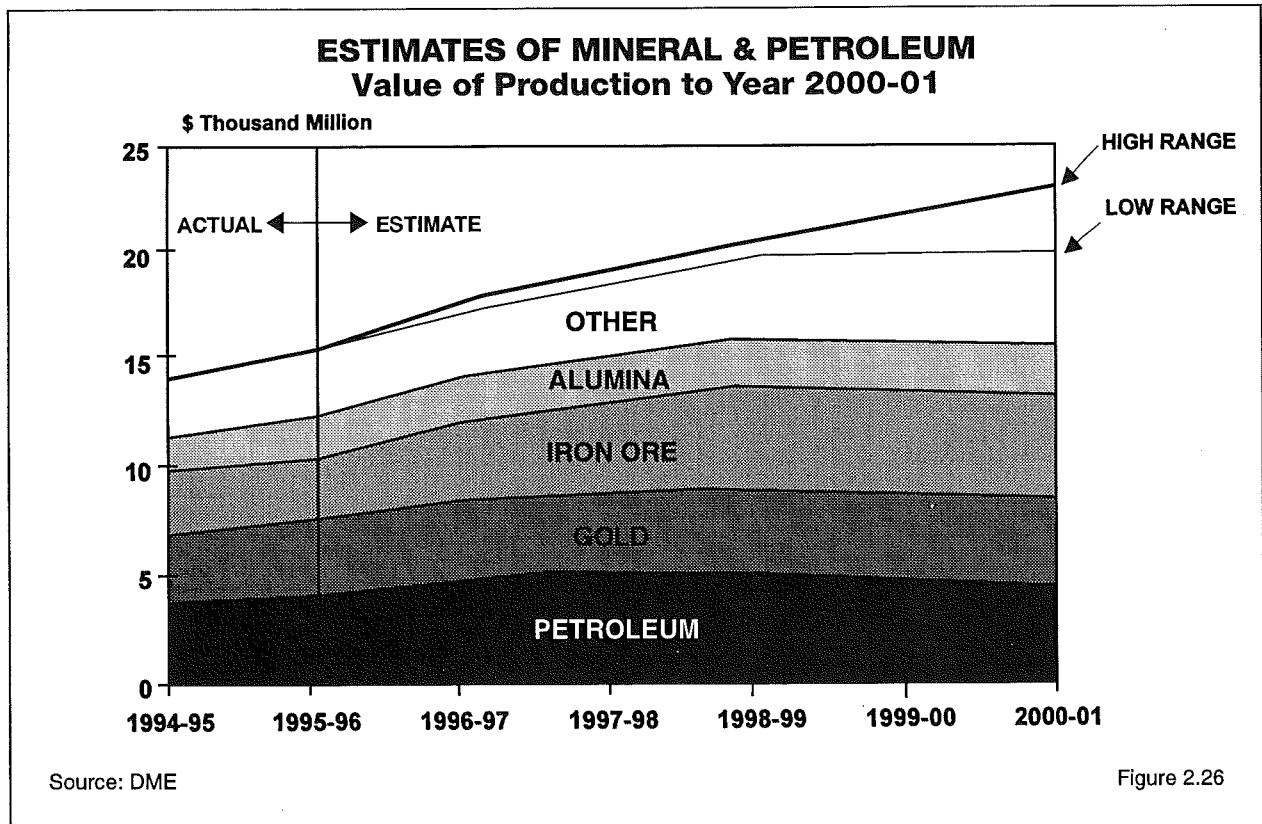
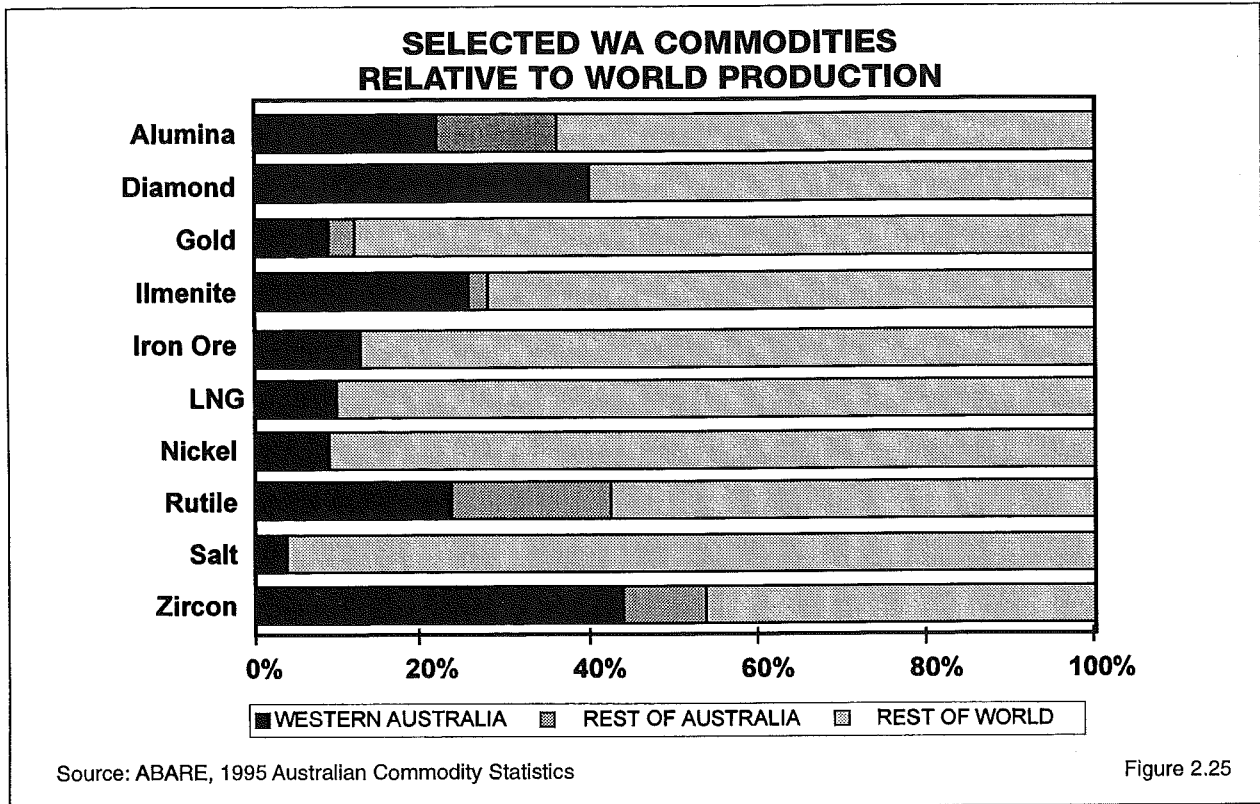
Coal

Following strong production growth in 1994/95, coal production in 1995/96 increased marginally (0.6%) to around 6 million tonnes. Nonetheless the value of production fell by 1.6% to A\$270 million.

Commencement of the deregulation of the gas market and electricity market for large customers has meant that coal producers will need to continue to price coal at competitive levels so as to maintain market share. Nonetheless, the future of the coal industry in the Colliie region looks secure, with coal-fired power generation still a major component in Western Australia's power supply industry.

Construction of a 300 megawatt coal fired power station at Colliie has commenced with the power station expected to be operational in 1999. Development of the Western Collieries Premier open cut mine for dedicated supply to the new power station has commenced and Premier Pit 1 is producing coal, with Pit 4 expected to be developed in 1997. Production from Griffin's A\$60 million Ewington II open cut mine project is expected to commence in October/November 1996.

These developments should counter the reduction in production capacity associated with the closure of Colliie's underground mining operations in 1994. While salt production increased by 3.9%, its value fell by 0.6% to A\$154 million in 1995/96.



3. EXPLORATION AND CAPITAL EXPENDITURE

Mineral Exploration

In 1995/96, mineral exploration in Western Australia increased by 4.8% to A\$520 million.

The State continues to attract the majority of Australia's mineral exploration expenditure, accounting for just over 54% of the nation's total.

Gold continues to dominate State exploration statistics accounting for 71% of total exploration expenditure. While gold exploration expenditure remains at historically high levels, it nonetheless fell by 3.1% to A\$368 million in 1995/96.

Base metals exploration increased by around 51% to A\$89 million in 1995/96. The rise in base metal exploration effort is in part due to an increased exploration effort by the State's nickel producers. Base metals' share of the State's total mineral exploration expenditure increased to 17% in 1995/96, up from 12% in 1994/95.

Diamond exploration expenditure fell by 4.0% to A\$34 million in 1995/96. Diamond exploration in the north of Australia entered an important phase in the 1995/96 with a number of companies apparently on the verge of defining commercial resources. Investors are watching keenly as the Cambridge Gulf offshore project and the Bulgurri prospect in Western Australia are more thoroughly assessed. Future diamond exploration effort will increasingly depend on a commercial diamond deposit being discovered.

Iron ore exploration rose by 39% to A\$13.6 million in 1995/96. The high level of interest in this sector is being fuelled by Asia's higher demand for steel. The iron ore exploration effort has identified potentially developable finds at Homestead and Mount Margaret, north of the Brockman operation. Mineral sands exploration expenditure increased by 29% to A\$5.3 million in 1995/96. Western Australia continues to account for more than half Australia's mineral sands exploration effort.

Petroleum Exploration

Due to a lack of official State petroleum exploration figures, in the past the Department of Minerals and Energy made its own forecasts. The ABS has now published official State petroleum exploration expenditure figures. ABS data also takes into account petroleum exploration expenditure in the Zone Of Cooperation Area B.

ABS data suggests that in 1995/96, the State's petroleum exploration effort fell by 7.7% to A\$319 million. The 1995/96 outcome maintains the State's petroleum exploration expenditure at around average 1990s levels, with the State still accounting for a significant proportion (44%) of Australia's petroleum exploration expenditure.

As in 1994/95, in 1995/96 petroleum exploration activity was concentrated to the North West Shelf, with some interest in the Bonaparte Basin.

ABS data suggest offshore drilling and 2D seismic activity, Australia wide, is taking place at near-record levels. With onshore operations at relatively low levels a number of programs have been implemented in Western Australia to encourage onshore petroleum exploration. In 1995/96 a major re-evaluation of the hydrocarbon potential of the onshore Western Australian Canning, Officer and Savory Basins was commenced by the Geological Survey Division of the Department of Minerals and Energy.

Mining Investment

In 1995/96, the State's mining capital investment expenditure increased by 3.1% to A\$4,173 million. This outcome follows growth of about 43% in 1992/93, 22% in 1993/94 and 12% in 1994/95. Western Australia accounted for 58% of Australia's new 1995/96 mining capital expenditure.

With more than A\$30,000 million worth of resource projects in Western Australia either under construction, committed, under consideration or listed as possible, the State's mining investment outlook is extremely positive. Importantly around half of Australia's investment in proposed mining and downstream processing projects is in Western Australia.

4. EMPLOYMENT IN THE MINERALS AND PETROLEUM INDUSTRY

General

In September 1996 there was some public debate as to the impact of the State's mining industry, including the take-up of downstream processing opportunities, on the State's unemployment rate. It was felt, in some quarters, that the employment effects of the State's burgeoning mining and petroleum industry have been relatively minor.

Industry specific employment statistics are generally unreliable as they are grouped around occupations rather than who the work is being undertaken for. This is also made more difficult by a definitive trend in the mining industry towards the contracting out of work. As an illustration the ABS would generally categorise workers contracted by a mining company from a transport company as transport workers.

A recent study by Western Australia's Economic Research Centre (1995) has provided an indication of the employment linkages between the mining industry and the rest of the economy. The study concludes that Western Australia's mining and mineral processing industries are important generators of business for other sectors of the economy and are among the best economy wide creators of employment and personal income. On average it estimated that for each 100 additional people employed in the mining industry roughly 300 jobs are created in other parts of the economy.

This suggests that currently the State's mining industry is responsible, directly and indirectly, for around one fifth of the State's employment.

Nonetheless, the estimates in the study largely deal with the operational stage of a mining project and as is well known the mining industry, given its capital intensive nature and high productivity levels, is not directly a significant employer in the economy. The construction stage of a mining project usually employs significantly more persons. As discussed in Section 1.2, 1995/96 employment levels in the State's construction workforce remained steady, despite a fall in

housing activity, because of a substantial rise in engineering activity. The increase in engineering activity, which amongst other things is attributed to developments in the State's resources sector, negated the adverse impact of a depressed housing market on the State's construction workforce.

Given that growth in the State's economy over 1995/96 has been uneven, and for the housing sector has remained depressed, the contribution of the resources sector to employment, in an economy wide sense, has been disguised.

The reason for this whole debate is that the State's average unemployment rate has remained unchanged in 1995/96. It is the Department of Minerals and Energy's view that the mining and petroleum industry will continue to make a substantial contribution to the State's employment. This view is strengthened given that growth of 6% to 9% per annum to 2000/01 is forecast for the State's mining and petroleum industry. In addition, with a number of projects currently under construction, or to commence construction by 2000, and recognising that, in general, a mining project's construction workforce is significantly higher than its operational workforce, employment generated by the State's mining industry to 2000 will be even higher.

1995/96 Mining and Petroleum Industry Employment Outcomes

The Department of Mineral and Energy's official employment statistics are compiled from industry returns and include contracted mining labour who work on the mine site.

In 1995/96 employment in the State's mineral and petroleum industry increased by around 9.3% to about 41,760 persons.

While the increase is large, this is in part due to improved data collection which captures the increasing trend towards the use of contract labour in the State's mining industry. The data now reflects more fully State mining industry employment levels.

In addition, DME's data also captures workers in those mining industry sectors that are considered by the ABS as manufacturing. Official 1995/96 DME mining employment statistics are more than

10,000 persons higher than published ABS employment statistics for Western Australia. In particular, employment growth was significant in the base metals, mineral sands, iron ore and nickel industries. The number of people employed in the State's petroleum industry increased by around 2.7% to about 1,165 persons.

All sectors of the State's mining and petroleum industries recorded an increase in employment, with the exception of coal, diamonds and salt.

1995 - 96 STATISTICS DIGEST

TABLE 1		QUANTITY AND VALUE OF MINERALS AND PETROLEUM				
		1994-95			1995-96	
COMMODITY	Mineral	UNIT	QUANTITY	VALUE (\$A)	QUANTITY	VALUE (\$A)
BASE METALS						
	Copper Metal	t	29,203 (r)	76,534,777 (r)	22,794	64,000,264
	Lead Metal	t	21,098 (r)	9,204,496 (r)	13,465	7,805,555
	Zinc Metal	t	132,850 (r)	95,841,711 (r)	94,474	62,202,452
TOTAL BASE METALS				181,580,984 (r)		134,008,271
BAUXITE-ALUMINA						
	Alumina	t	7,906,987	1,684,604,310 (r)	8,232,135	1,918,337,128
	Gallium	kg	0	0	1,411	26,885,053
TOTAL BAUXITE-ALUMINA				1684604310 (r)		1,945,222,181
CLAYS						
	Attapulgit	t	18,796	4,662,524	19,753	4,096,240
	Clay Shale	t	13,921	169,475 (r)	21,175	259,212
	Fire Clay	t	31,778	38,134	127,813	258,976
	Kaolin	t	4,225	250,392	3,363	173,565
	White Clay	t	61,599	615,990	10,885	108,850
TOTAL CLAYS				5,736,515 (r)		4,896,843
	COAL	t	5,863,747	274,745,803 (r)	5,897,443	270,359,539
CONSTRUCTION MATERIALS						
	Aggregate	t	328,940	1,876,744	556,743	3,487,810
	Gravel	t	145,017 (r)	739,570 (r)	177,597	1,019,434
	Rock	t	47,001	692,168	261,652	1,711,061
	Sand	t	1,927,572 (r)	9,090,488 (r)	1,353,346	5,968,708
	Sandstone	t	92	21,823	0	0
TOTAL CONSTRUCTION MATERIALS				12,420,793 (r)		12,187,013
	DIAMOND	ct	23,931,476	480,031,071 (r)	33,731,994	531,368,488
	DIATOMITE	t	9,636	77,062	0	0
DIMENSION STONE						
	Black Granite	t	571	171,408	0	0
	Granite	t	0	0	40	12,000
	Jasper	t	0	0	25	9,016
TOTAL DIMENSION STONE				171,408		21,016
GEM & SEMI-PRECIOUS STONE						
	Agate	kg	17,380	14,812	0	0
	Chrysoprase	kg	236,990 (r)	1,395,607 (r)	2,053	20,020
	Jasper	kg	0	0	39,220	47,136
	Malachite	kg	5,561	19,639	0	0
	Variscite	kg	441	3,996	25,700	33,314
TOTAL GEM & SEMI-PRECIOUS STONE				1,434,054 (r)		100,470
	GOLD	kg	187,848 (r)	3,132,866,624 (r)	205,806 (e)	3,403,379,080 (e)
	GYPSUM	t	229,617 (r)	2,658,560 (r)	252,910	2,451,768
HEAVY MINERAL SANDS						
	Garnet	t	71,070	6,752,553	83,655	7,948,288
	Ilmenite	t	987,018	89,648,027	1,101,515	111,179,482
	Upgraded Ilmenite (a)	t	396,275	184,625,545	408,521	199,569,466
	Leucoxene	t	19,243	7,730,200	21,776	10,556,319
	Monazite	t	300	82,525	0	0
	Rutile	t	107,782	56,131,247	119,140	75,058,683
	Zircon	t	477,052	129,771,749	486,898	181,210,326
TOTAL HEAVY MINERAL SANDS				474,741,846		585,522,564
INDUSTRIAL PEGMATITE MINERALS						
	Felspar	t	52,515	1,933,436	61,469	2,245,827

1995 - 96 STATISTICS DIGEST

TABLE 1 (Cont) QUANTITY AND VALUE OF MINERALS AND PETROLEUM

COMMODITY/Mineral	UNIT	QUANTITY	VALUE (\$A)	QUANTITY	VALUE (\$A)
		1994-95		1995-96	
IRON ORE					
Domestic	t	6,628,986	152,208,376	6,328,119	149,565,656
Exported	t	126,498,792	2,642,098,607	126,571,650	2,774,492,764
TOTAL IRON ORE		133,127,778	2,794,306,983	132,899,769	2,924,058,420
LIMESAND-LIMESTONE-DOLOMITE					
Dolomite	t	3,950	39,500	7,342	62,040
Limesand-Limestone	t	2,195,221 (r)	14,653,307 (r)	2,612,334	17,508,415
TOTAL LIMESAND-LIMESTONE-DOLOMITE			14,692,807		17,570,455
MANGANESE ORE	t	71,912 (r)	8,842,461 (r)	336,275	41,284,848
NICKEL INDUSTRY					
Cobalt by-product	t	786 (r)	48,072,829 (r)	870	66,688,908
Concentrate	t	729,442 (r)	897,118,281 (r)	761,919	1,097,336,297
Palladium by-product	kg	514 (r)	3,100,988 (r)	558	2,703,172
Platinum by-product	kg	121 (r)	1,412,150 (r)	87	1,995,309
TOTAL NICKEL INDUSTRY			949,704,248 (r)		1,168,723,686
PEAT	t	960	66,992	547	40,748
PETROLEUM					
Condensate	kl	2,634,932	398,338,386	4,648,827	685,743,146
Crude Oil	kl	9,901,184	1,559,650,770	9,646,943	1,535,525,476
LNG	Btu 10 ⁶	356,107,625	1,262,512,586	379,788,312	1,350,915,501
LPG - Butane	t	0	0	100,241	22,708,772
LPG - Propane	t	0	0	87,016	19,732,974
Natural Gas	000m ³	5,366,201	445,714,284	6,309,564	454,763,779
TOTAL PETROLEUM			3,666,216,026		4,069,389,648
PIGMENTS					
Red Oxide	t	0	0	6,000	164,250
SALT	t	7,176,351 (r)	155,144,299 (r)	7,453,699	154,217,940
SILICA-SILICA SAND	t	82,046	820,477	81,479	814,785
Silica	t	532,439	4,658,336	660,373	6,439,983
Silica Sand	t		5,478,813		7,254,768
SILVER	kg	57,912 (r)	12,231,206 (r)	42,590	9,292,982
TALC	t	112,724 (r)	8,517,234 (r)	161,412	13,029,931
TIN-TANTALUM-LITHIUM					
Spodumene	t	71,875 (r)	11,561,445	105,324	13,445,325
Tantalite	t	379 (r)	31,839,882	447	33,018,287
Tin Metal	t	457	3,109,397	403	3,227,809
TOTAL TIN-TANTALUM-LITHIUM			46,510,724		49,691,421
TOTAL VALUE			13,914,714,258 (r)		15,346,482,157 (e)

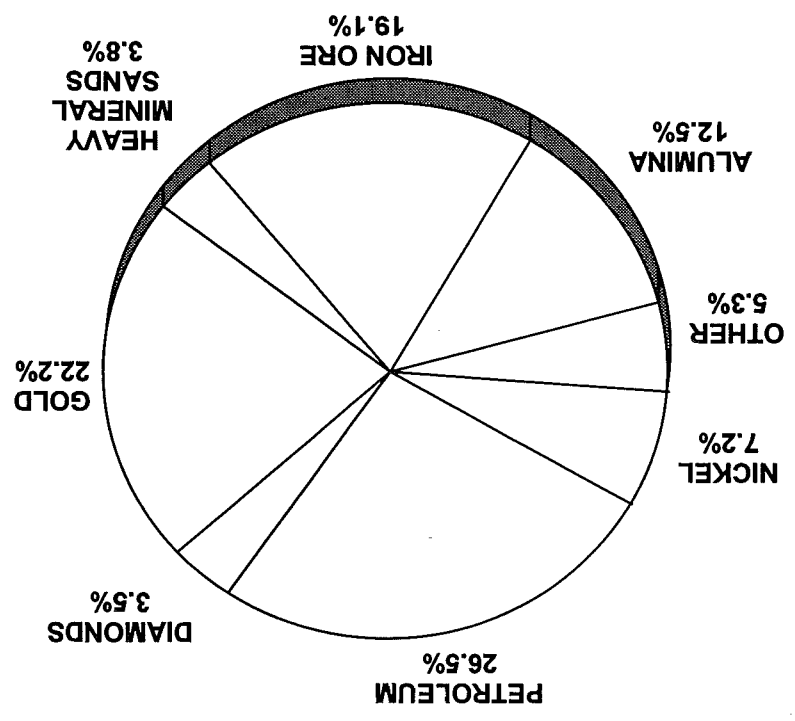
Note: Quantities used in this table only apply to Minerals and Petroleum covered by the Mining Act 1978, the Petroleum Act 1967, the Petroleum (Submerged Lands) Act 1982 and relevant State Agreement Acts. (a) Also known as synthetic rutile (e) Estimate (r) Revised from previous edition

**TABLE 2
QUANTITY AND VALUE OF SELECTED MAJOR COMMODITIES**

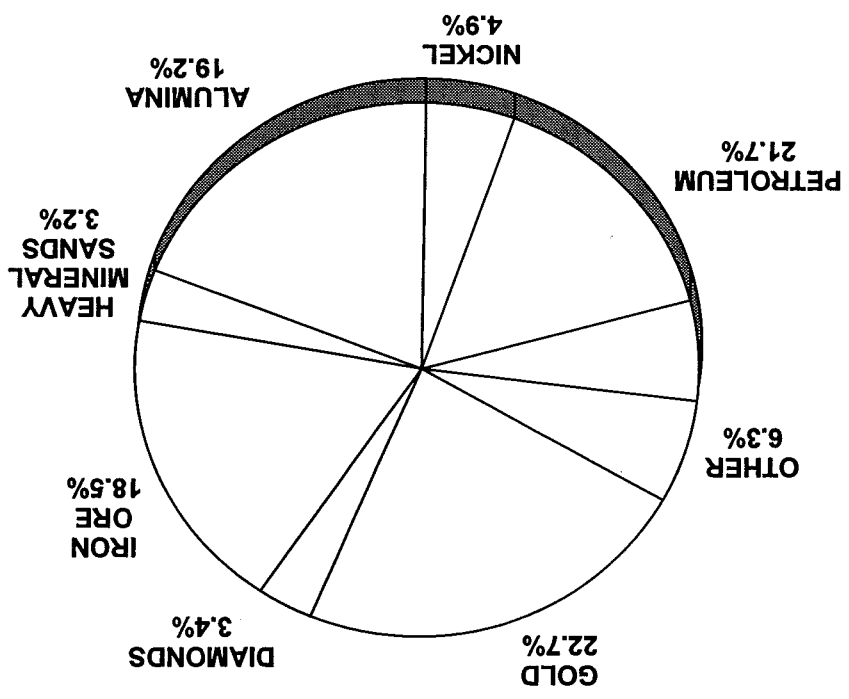
Unit	1986-87		1987-88		1988-89		1989-90		1990-91		1991-92		1992-93		1993-94		1994-95		1995-96		
	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M	
ALUMINA	Mt	5.73	1,090.88	6.06	1,183.00	6.17	1,619.23	6.65	2,335.70	6.80	2,099.13	7.13	1,758.15	7.55	1,818.12	7.83	1,784.32	7.91	1,684.60	8.23	1,918.34
BASE METALS																					
copper	kt	3.52	4.11	2.70	5.94	13.08	31.37	14.98	23.92	12.00	20.35	12.02	17.44	22.92	27.44	32.46	40.26	29.20	76.54	22.79	64.00
lead	kt	0.00	0.00	0.00	0.00	2.43	0.92	13.17	7.61	12.48	5.99	21.68	7.30	22.30	6.65	21.11	4.98	21.10	9.20	13.47	7.81
zinc	kt	0.00	0.00	4.06	2.81	28.80	26.79	45.88	59.76	75.20	76.39	142.92	125.58	127.96	104.11	136.39	79.54	132.85	95.84	94.47	62.20
COAL	Mt	3.80	141.74	3.70	150.97	3.80	161.24	4.16	183.70	5.22	232.92	5.49	243.54	5.43	244.77	5.15	236.29	5.86	274.75	5.90	270.36
DIAMOND	M ct	32.16	284.09	30.22	248.20	36.47	354.75	33.85	413.58	29.96	435.73	47.49	564.77	24.83	519.98	28.86	476.75	23.93	480.03	33.73	531.37
GOLD	tonnes	64.91	1,300.08	90.55	1,843.77	130.57	2,072.69	161.79	2,596.45	181.17	2,762.82	182.04	2,689.92	179.80	2,894.19	193.89	3,420.06	187.85	3,132.87	205.81	3,403.38
HEAVY MINERAL SANDS																					
ilmenite	Mt	1.04	57.84	0.95	63.93	0.87	67.18	1.07	89.61	0.97	85.48	0.97	83.15	0.99	81.66	1.07	92.32	0.99	89.65	1.10	111.18
synthetic rutile	kt	61.18	22.90	195.50	70.00	227.98	95.47	284.11	131.11	263.41	131.71	305.12	153.12	361.42	168.55	332.99	153.94	396.28	184.63	408.52	199.57
rutile	kt	82.46	46.09	85.08	51.17	100.48	62.49	82.23	58.54	65.45	49.60	47.47	26.88	75.93	42.14	68.93	35.76	107.78	56.13	119.14	75.06
zircon	kt	310.58	56.30	366.05	97.15	340.14	151.61	300.26	175.19	208.42	100.80	226.93	61.11	302.46	49.19	349.13	63.10	477.05	129.77	486.90	181.21
IRON ORE	Mt	78.03	1,792.92	95.18	1,867.17	100.42	1,790.45	106.27	2,248.03	107.67	2,648.69	111.64	2,953.27	111.73	2,991.14	119.69	2,865.16	133.13	2,794.31	132.90	2,924.06
NICKEL	kt	48.90	274.79	43.01	391.75	38.26	633.84	47.83	585.97	54.49	595.88	50.17	489.51	53.27	472.17	61.11	458.62	92.99	897.12	103.30	1,097.34
PETROLEUM PRODUCTS																					
condensate	Gl	0.51	76.46	1.14	169.91	1.15	141.80	1.60	235.65	1.87	370.95	2.00	338.98	2.00	363.04	2.35	348.71	2.64	398.34	4.65	685.74
crude oil	Gl	1.57	262.84	1.93	304.36	2.20	269.86	3.96	601.47	5.14	1,054.06	5.43	941.29	4.54	855.69	5.33	815.33	9.90	1,559.65	9.65	1,535.53
lng	btu 10 ¹²	0.00	0.00	0.00	0.00	0.00	0.00	104.17	336.09	184.93	836.40	219.70	846.33	254.47	1,025.06	296.36	1,015.68	356.11	1,262.51	379.79	1,350.92
lpg - butane	kt	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.24	22.71
lpg - propane	kt	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	87.02	19.73
natural gas	Gms	3.20	277.99	3.63	320.50	3.64	284.64	3.85	356.85	3.61	379.23	3.77	349.26	3.96	407.02	4.46	413.37	5.37	445.71	6.31	454.76
SALT	Mt	5.05	107.38	5.53	107.17	6.02	106.71	5.93	124.11	6.41	136.97	6.93	153.14	6.63	158.38	6.25	151.31	7.18	155.14	7.45	154.22
OTHER			59.41		67.85		87.77		101.60		129.86		206.44		162.34		175.54		187.93		277.01
TOTAL			5,855.84		6,945.64		7,958.81		10,662.93		12,152.93		12,009.19		12,331.62		12,631.04		13,914.71		15,346.48

Source: DME

Figure 0.1



1995-96 TOTAL : \$15,346 MILLION



1990-91 TOTAL : \$12,153 MILLION
COMPARATIVE VALUE OF PRODUCTION

1995 - 96 STATISTICS DIGEST

TABLE 3 QUANTITY & VALUE OF MINERALS AND PETROLEUM BY LOCAL GOVERNMENT AREA					
MINERAL PRODUCER	LOCAL GOVERNMENT AREA	QUANTITY TONNES	METALLIC CONTENT	VALUE \$A	Ref.
BASE METALS			Cu Tonnes		
Copper By-Product	Coolgardie		5,195.255	10,163,503	(a),(b)
			Cu %		
Copper Concentrates	East Pilbara	7,572	13.03	1,955,800	
	Yalgoo	27,802	20.46	13,227,311	
		35,374		15,183,111	(a)
			Cu Tonnes		
Copper Cathode	East Pilbara		10,924.083	38,653,650	(a)
Total Copper				64,000,264	
			Pb %		
Lead	Derby-West Kimberley	16,892	79.71	7,805,555	(a)
			Zn %		
Zinc	Derby-West Kimberley	86,573	61.52	35,234,604	
	Yalgoo	99,286	41.51	26,967,848	
		185,859		62,202,452	(a)
TOTAL BASE METALS				134,008,271	
BAUXITE - ALUMINA					
Alumina	Boddington	1,706,148		398,371,768	
	Murray	3,104,659		724,208,153	
	Serpentine-Jarrahdale	1,826,682		424,677,695	
	Waroona	1,594,646		371,079,513	
		8,232,135		1,918,337,128	(c)
			Ga kg		
Gallium	Murray		1,411	26,885,053	(j)
TOTAL BAUXITE - ALUMINA				1,945,222,181	
CLAYS					
Attapulgit	Mullewa	19,753		4,096,240	(a)
Clay Shale	Collie	21,175		259,212	(a)
Fire Clay	Chittering	115,813		138,976	
	Northam	12,000		120,000	
		127,813		258,976	(d)
Kaolin	Bridgetown-Greenbushes	3,363		173,565	(d)
White Clay	Swan	10,885		108,850	(d)
TOTAL CLAYS		182,989		4,896,843	
COAL		5,897,443		270,359,539	(e)
CONSTRUCTION MATERIALS					
Aggregate	Ashburton	135		810	
	Broome	12,238		184,492	
	Collie	220		1,760	
	Exmouth	8,167		69,231	
	Kalgoorlie-Boulder	296,898		1,797,007	
	Port Hedland Town	163,934		983,604	
	Roebourne	34,861		209,166	
	Wyndham-East Kimberley	40,290		241,740	
		556,743		3,487,810	

TABLE 3 (Cont) QUANTITY & VALUE OF MINERALS AND PETROLEUM BY LOCAL GOVERNMENT AREA			
MINERAL	LOCAL	QUANTITY	METALLIC
PRODUCER	GOVERNMENT AREA	TONNES	CONTENT
VALUE	Ref.	\$A	
CONSTRUCTION MATERIALS (Cont)			
Gravel	Brome	9,320	43,876
	Coolgardie	71,635	428,014
	Kalgoorlie-Boulder	2,286	15,855
	Port Hedland Town	740	4,440
	Shark Bay	590	2,950
	Swan	85,007	510,043
	Wynndham-East Kimberley	8,019	14,256
Rock	Brome	22,673	318,116
	East Pilbara	37,295	261,065
	Exmouth	66	462
	Port Hedland Town	201,498	1,130,218
	Shark Bay	120	1,200
	Ashburton	5,114	60,454
	Brome	32,334	175,211
	Canning	975	1,463
	Collie	30,354	182,126
	Coolgardie	85,282	460,561
Coorow	4,833	24,165	
Dandaragan	2,760	15,560	
Derby-West Kimberley	6,170	43,188	
East Pilbara	4,118	24,708	
Gingin	8,341	50,043	
Kalgoorlie-Boulder	34,338	197,194	
Leonora	5,856	29,280	
Meekatharra	22,990	134,924	
Menzies	1,100	5,500	
Northam	5,958	17,874	
Port Hedland Town	54,809	311,801	
Roebourne	11,495	78,940	
Shark Bay	250	1,250	
Wanneroo	1,025,803	4,103,212	
Wynndham-East Kimberley	6,600	33,000	
Yligam	3,866	18,254	
TOTAL CONSTRUCTION MATERIALS			
		1,353,346	5,968,708
TOTAL DIMENSION STONE			
		40	12,000
	Derby-West Kimberley		
	Port Hedland Town	25	9,016
TOTAL DIMENSION STONE			
			21,016 (d)
DIAMOND			
		Carats	531,368,488 (a)
TOTAL CONSTRUCTION MATERIALS			
			12,187,013 (d)

1995 - 96 STATISTICS DIGEST

TABLE 3 (Cont) QUANTITY & VALUE OF MINERALS AND PETROLEUM BY LOCAL GOVERNMENT AREA

MINERAL PRODUCER	LOCAL GOVERNMENT AREA	QUANTITY TONNES	METALLIC CONTENT	VALUE \$A	Ref.
GEM & SEMI-PRECIOUS STONE		kg			
Chrysoprase		2,053		20,020	
Jasper		kg			
	Meekatharra	24,600		15,012	
	Port Hedland Town	14,620		32,124	
		39,220		47,136	
Variscite	Meekatharra	25,700		33,314	
TOTAL GEM & SEMI-PRECIOUS STONE				100,470	(e)
			Au kg		
GOLD	Boddington		14,242.689	235,385,187	
	Coolgardie		30,154.747	498,929,477	
	Cue		10,774.280	178,356,711	
	Dundas		4,163.525	68,708,436	
	East Pilbara		12,779.284	211,445,856	
	Halls Creek		1,023.203	16,735,356	
	Kalg.-Boulder		41,430.286	685,611,608	
	Katanning		238.146	3,903,114	
	Laverton		10,122.590	167,533,500	
	Leonora		28,161.455	464,839,864	
	Meekatharra		15,706.731	259,743,465	
	Menzies		2,425.191	40,111,256	
	Mt Magnet		4,184.178	69,311,192	
	Sandstone		4,561.044	75,525,364	
	Wiluna		9,236.374	152,284,012	
	Yalgoo		2,450.914	40,684,148	
	Yilgarn		14,151.047	234,270,534	
			205,805.684	3,403,379,080	(f)
GYPSUM	Dalwallinu	5,561		1,269,289	(d)(e)
	Dandaragan	7,730		77,304	(e)
	Dundas	3,391		20,348	(e)
	Esperance	5,499		32,994	(e)
	Koorda	150		1,500	(e)
	Lake Grace	65,344		370,627	(e)
	Mukinbudin	7,000		28,000	(e)
	Nungarin	39,281		235,686	(e)
	Ravensthorpe	6,153		36,918	(e)
	Wyalkatchem	53,651		321,902	(e)
	Yilgarn	7,150		57,200	(e)
		252,910		2,451,768	
HEAVY MINERAL SANDS					
Garnet Sand	Bunbury City	47		5,640	(g)
	Northampton	83,608		7,942,648	(e)
		83,655		7,948,288	

1995 - 96 STATISTICS DIGEST

TABLE 3 QUANTITY & VALUE OF MINERALS AND PETROLEUM BY LOCAL GOVERNMENT AREA

MINERAL	LOCAL	QUANTITY	METALLIC	VALUE	Ref.
PRODUCER	GOVERNMENT AREA	TONNES	CONTENT	\$A	
HEAVY MINERAL SANDS (Cont)					
Ilmenite	Bunbury City	407,942	55.60	45,926,850	
	Capel	394,083	54.36	39,532,078	
	Carmamah	258,662	59.14	22,071,347	
	Dandaragan	40,828	60.00	3,649,207	
Upgraded Ilmenite	Capel	188,496	92.00	92,228,852	(a)
	Carmamah	156,887	92.00	77,202,930	
	Dandaragan	63,138	92.00	30,137,684	
Leucosene	Bunbury City	4,909	5.823	3,546,044	(a)
	Capel	10,855	9.986	5,785,435	
	Dandaragan	6,012	5.497	1,224,840	
Rutile	Bunbury City	8,323	7.788	5,784,408	(a)
	Carmamah	89,487	84.788	56,069,027	
	Dandaragan	21,330	20.476	13,205,248	
Zircon	Bunbury City	27,642	17.967	14,648,844	(a)
	Capel	152,740	99.458	32,215,301	
	Carmamah	251,824	164.199	111,047,717	
	Dandaragan	54,692	35.694	23,298,464	
TOTAL HEAVY MINERAL SANDS					
(a)					
585,522,564					
INDUSTRIAL PEGMATITE MINERALS					
Felspar	Mukinbudin	3,055		74,549	
	Port Hedland Town	58,414		2,171,278	(h)
(h)					
2,245,827					
IRON ORE					
Domestic Ore	East Pilbara	6,328,119	63.77	149,565,656	
	Fe%				
Exported Ore	Ashburton	73,415,231	61.36	1,542,848,433	
	Derby-West Kimberley	595,746	65.80	12,749,603	
	East Pilbara	50,933,306	62.55	1,186,145,431	
	Yilgarn	1,627,367	63.88	32,749,297	
(a)					
126,571,650					
TOTAL IRON ORE					
(a)					
2,774,492,764					
2,924,058,420					
LIMESAND - LIMESTONE-DOLOMITE					
Dolomite	Lake Grace	7,106		56,848	
	Yilgarn	236		5,192	
(a)					
7,342					

1995 - 96 STATISTICS DIGEST

TABLE 3 QUANTITY & VALUE OF MINERALS AND PETROLEUM BY LOCAL GOVERNMENT AREA					
MINERAL PRODUCER	LOCAL GOVERNMENT AREA	QUANTITY TONNES	METALLIC CONTENT	VALUE \$A	Ref.
LIMESAND - LIMESTONE-DOLOMITE (Cont)					
Limesand - Limestone	Cockburn	1,949,420		10,020,750	
	Dandaragan	13,771		195,447	
	Dundas	58,367		875,503	
	Gingin	105,284		1,237,357	
	Irwin	20,712		83,082	
	Kwinana	125,274		1,252,744	
	Roebourne	210		6,300	
	Shark Bay	757		64,397	
	Wanneroo	338,539		3,772,835	
		<u>2,612,334</u>		<u>17,508,415</u>	
TOTAL LIMESAND-LIMESTONE-DOLOMITE		2,619,676		17,570,455	(d)
MANGANESE ORE		336,275	Mn %	41,284,848	(a)
NICKEL INDUSTRY			Co Tonnes		
Cobalt By-Product	Coolgardie		870.402	66,688,908	(a),(b)
			Ni %		
Nickel Concentrates	Coolgardie	269,639	12.29	355,703,861	
	Kalgoorlie-Boulder	28,826	12.27	37,796,228	
	Leonora	231,165	12.03	295,205,176	
	Wiluna	159,648	18.74	317,805,762	
	Yilgarn	72,641	12.25	90,825,270	
		<u>761,919</u>		<u>1,097,336,297</u>	(i)
			Pd kg		
Palladium By-Product	Coolgardie		557.594	2,703,172	(a),(b)
			Pt kg		
Platinum By-Product	Coolgardie		86.530	1,995,309	(a),(b)
PEAT		547		40,748	(d)
PETROLEUM			Kilolitres		
Condensate	Carnamah	250		21,117	(d)
	Irwin	4,774		369,281	(d)
	Roebourne	4,643,803		685,352,748	(a)
		<u>4,648,827</u>		<u>685,743,146</u>	
			Kilolitres		
Crude Oil	Ashburton	5,304,638		863,398,891	
	Derby-West Kimberley	20,079		2,627,257	
	Irwin	22,613		2,898,864	
	Roebourne	4,299,613		666,600,464	
		<u>9,646,943</u>		<u>1,535,525,476</u>	(a)
			Btu 10⁶		
Liquified Natural Gas		379,788,312		1,350,915,501	(j)
			Tonnes		
L.P.G. - Butane		100,241		22,708,772	(j)
			Tonnes		
L.P.G. - Propane		87,016		19,732,974	(j)

1995 - 96 STATISTICS DIGEST

TABLE 4		ROYALTY RECEIPTS			
		1994-95	1995-96	1995-96 GROWTH	
COMMODITY	Mineral	\$A	\$A	\$A	%
BASE METALS					
	Copper	2,151,997.61	3,463,455.98	1,311,458.37	61
	Lead	40,1294.28	493,943.34	92,649.06	23
	Zinc	3,470,203.54	4,782,128.66	1,311,925.12	38
	TOTAL BASE METALS	6,023,495.43	8,739,527.98	2,716,032.55	45
BAUXITE-ALUMINA					
	Alumina	27,484,829.44	30,194,089.45	2,709,260.01	10
CLAYS					
		291,379.61	257,328.05	(34,051.56)	(12)
COAL					
		12,923,045.50	13,511,198.52	588,153.02	5
CONSTRUCTION MATERIALS					
	Aggregate	69,003.60	198,515.16	129,511.56	188
	Gravel	43,715.35	53,084.25	9,368.90	21
	Rock	27,357.37	70,415.90	43,058.53	157
	Sand	576,977.16	434,362.40	(142,614.76)	(25)
	Sandstone	0.00	46.18	46.18	n.ap.
	TOTAL CONSTRUCTION MATERIALS	717,053.48	756,423.89	39,370.41	5
DIAMOND					
		28,551,513.50	37,972,556.70	9,421,043.20	33
DIATOMITE					
		3,745.53	107.56	(3,637.97)	(97)
DIMENSION STONE					
		512.14	32.50	(479.64)	(94)
GEM & SEMI-PRECIOUS STONE					
		57,478.83	49,842.84	(7,635.99)	(13)
GOLD					
		386,544.26	366,367.69	(20,176.57)	(5)
GYPSUM					
		61,371.73	66,663.02	5,291.29	9
HEAVY MINERAL SANDS					
	Garnet	331,992.54	439,343.02	107,350.48	32
	Ilmenite	4,856,638.42	8,048,706.83	3,192,068.41	66
	Leucoxene	250,969.30	472,720.26	221,750.96	88
	Monazite	35,733.75	0.00	(35,733.75)	(100)
	Rutile	2,115,219.56	4,252,401.87	2,137,182.31	101
	Zircon	4,279,428.13	9,521,232.21	5,241,804.08	122
	TOTAL HEAVY MINERAL SANDS	11,869,981.70	22,734,404.19	10,864,422.49	92
INDUSTRIAL PEGMATITE MINERALS					
	Feldspar	108,262.35	102,669.84	(5,592.51)	(5)
IRON ORE					
		138,971,476.08	156,284,784.27	17,313,308.19	12
LIMESAND-LIMESTONE-DOLOMITE					
	Dolomite	0.00	3,387.60	3,387.60	n.ap.
	Limesand-Limestone	236,595.01	279,597.60	43,002.59	18
	TOTAL LIMESAND-LIMESTONE-DOLOMITE	236,595.01	282,985.20	46,390.19	20
MANGANESE					
		357,783.70	1,091,637.78	733,854.08	205

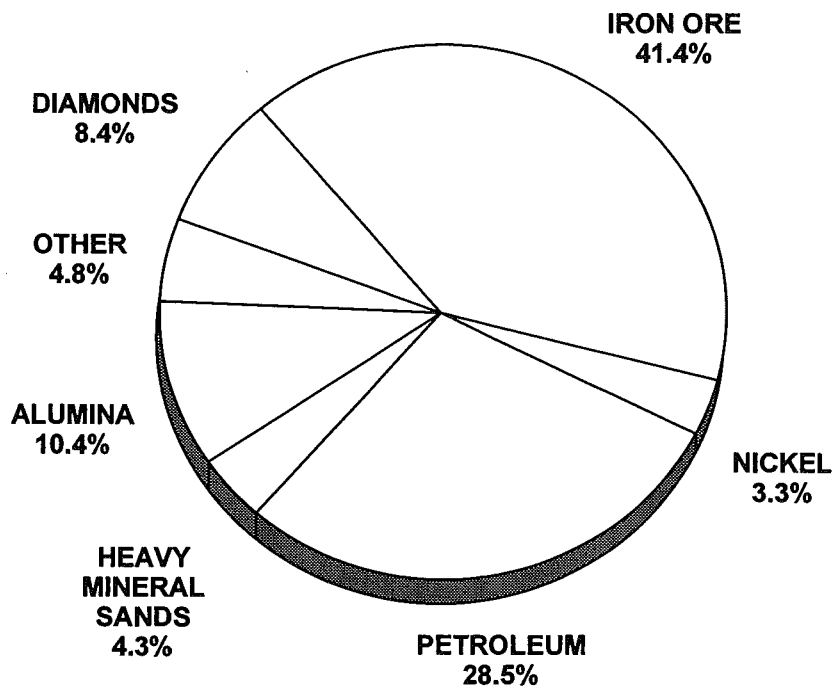
1995 - 96 STATISTICS DIGEST

ROYALTY RECEIPTS

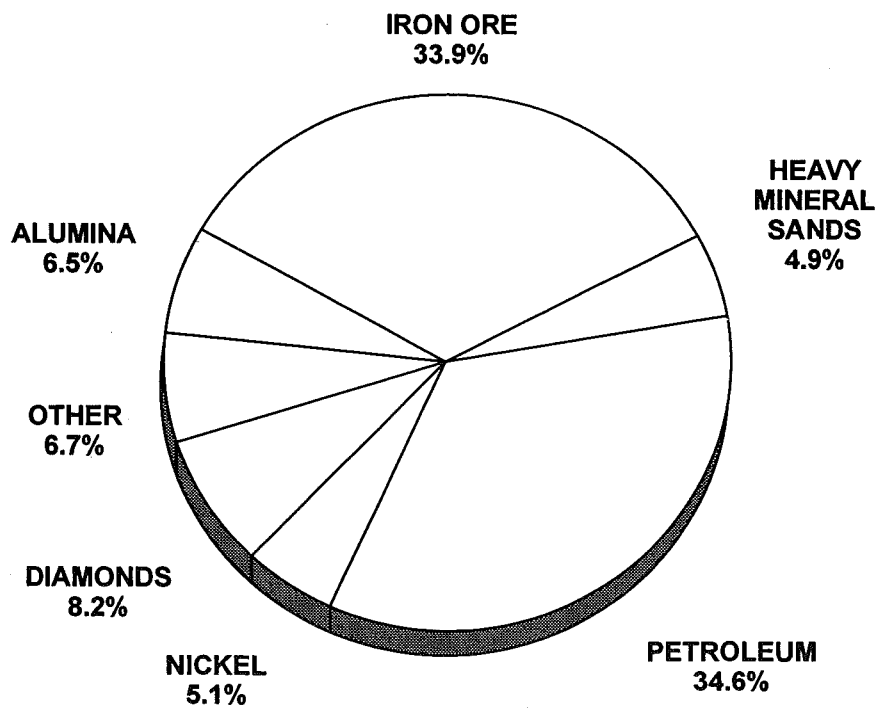
TABLE 4 (Cont)

COMMODITY/Mineral	\$	\$	\$	%
	1994-95	1995-96	1995-96	GROWTH
NICKEL INDUSTRY				
Cobalt by-product	1,034,277.00	1,507,524.26	473,247.26	46
Nickel	17,680,335.11	23,648,999.13	5,968,664.02	34
Palladium by-product	66,577.55	71,393.02	4,815.47	7
Platinum by-product	29,588.08	68,149.04	38,560.96	130
TOTAL NICKEL INDUSTRY	18,810,777.74	25,296,065.45	6,485,287.71	34
PEAT	2,033.25	1,706.21	(327.04)	(16)
PETROLEUM				
Condensate	10,320,097.61	22,827,106.48	12,507,008.87	121
Liquefied Natural Gas	35,094,125.79	63,245,146.82	28,151,021.03	80
LPG-Butane	0.00	377,287.55	377,287.55	n.ap.
LPG-Propane	0.00	358,106.18	358,106.18	n.ap.
Natural gas	14,506,869.12	21,790,765.54	7,283,896.42	50
Oil	53,815,903.76	50,806,813.45	(3,009,090.31)	(6)
TOTAL PETROLEUM	113,736,996.28	159,405,226.02	45,668,229.74	40
PIGMENTS				
Red Oxide	0.00	8,212.50	8,212.50	n.ap.
SALT	1,545,680.88	1,655,125.38	109,444.50	7
SILICA SAND	292,861.21	311,927.28	19,066.07	7
SILVER	262,109.62	228,259.47	(33,850.15)	(13)
TALC	32,078.00	78,826.00	46,748.00	146
TIN-TANTALUM-LITHIUM				
Spodumene	552,496.96	704,631.40	152,134.44	28
Tantalite	710,723.76	949,972.44	239,248.68	34
Tin	58,709.19	94,792.90	36,083.71	61
TOTAL TIN-TANTALUM-LITHIUM	1,321,929.91	1,749,396.74	427,466.83	32
TOTAL ROYALTY RECEIPTS	364,049,535.18	461,145,364.53	97,095,829.35	27
IRON ORE ADDITIONAL RENTAL	26,435,373.32	24,817,325.80	(1,618,047.52)	(6)
TOTAL REVENUE	390,484,908.50	485,962,690.33	95,477,781.83	24

**COMPARATIVE ROYALTY RECEIPTS
1990-91 TOTAL : \$324.4 MILLION**



1995-96 TOTAL : \$461.1 MILLION



Source: DME

Figure 0.2

1995 - 96 STATISTICS DIGEST

TABLE 5 PERSONS EMPLOYED IN THE W.A. MINERALS & PETROLEUM INDUSTRIES AS AT JUNE 30, 1996

MINERAL/Company	PROJECT	1994-95	1995-96
BASE METALS			
Murchison Zinc Co. Pty Ltd	Golden Grove	261	305
Western Metals NL	Cadjebut	153	240
Western Mining Corporation Ltd	Nifty	129	226
TOTAL BASE METALS		543	771
BAUXITE - ALUMINA			
Alcoa of Australia Ltd	Del Park-Huntley - Pinjarra	1,773	1,735
Australian Fused Materials Pty Ltd	Jarrhdale/Kwinana	1,818	1,701
	Wagerup/Willow Dale	930	1,199
	East Rockingham	61	66
Worsley Alumina Pty Ltd	Boddington/Worsley	1,238	1,198
TOTAL BAUXITE - ALUMINA		5,820	5,899
COAL			
Griffin Coal Mining Co. Ltd	Muja	367	362
Western Collieries Ltd	Central Services	28	21
	Western #5	362	359
TOTAL COAL		757	742
DIAMOND			
Argyle Diamond Mines Pty Ltd	Lake Argyle	1,195	1,137
Posidon Ltd	Bow River	119	0
TOTAL DIAMOND		1,314	1,137
GOLD			
Australian Resources & Mining Co. NL	Gidgee	109	211
	Mt McLure	191	128
Aztec Mining Co Ltd	Bounty	314	261
Burnine Ltd	Copperhead	116	76
Central Norseman Gold Corp. NL	Central Norseman	277	295
Consolidated Gold Mines Ltd	Bannockburn	2	118
Coolgardie Gold NL	Greenfield	115	316
Dominion Mining Ltd	Meekatharra	138	0
	Mt Morgans	254	233
Eagle Mining Corp. NL	Nimay	0	148
Goldfan Ltd	Three Mile Hill	197	316
Great Central Mines NL	Bronzewing	237	231
	Jundee	0	216
Hampton Australia Ltd	Jubilee	134	206
Hedges Gold Pty Ltd	Hedges	89	92
Kalgoorlie Consolidated Gold Mines Pty Ltd	Kalgoorlie	1,405	1,325
	Reedy	153	123
Gold Mines of Australia Ltd	Youanmi	93	116
Meitza Mining NL	Orient Well	90	115
Mining Corporation of Australia Ltd	Mt Pleasant	86	183
Mt Edon Gold Mines (Australia) NL	Nevoria	109	97
	Tarmoola	137	255
Newcrest Mining Ltd	Gimlet South	191	99
	New Celebration	264	260
	Telfer	783	727
Oricle Resources Ltd	Mt Gibson	140	88
Pancontinental Pty Ltd	Kundana	200	175
	Paddington	364	287
	Peak Hill	84	108
Peko Gold Ltd	Kanowna Belle	149	180

1995 - 96 STATISTICS DIGEST

TABLE 5 (CONT) PERSONS EMPLOYED IN THE W.A. MINERALS & PETROLEUM INDUSTRIES AS AT JUNE 30, 1996

MINERAL/Company	PROJECT	1994-95	1995-96	
GOLD (Cont)				
Perilya Mines NL	Fortnum	123	101	
Placer Pacific Pty Ltd	Granny Smith	326	400	
Plutonic Operations Ltd	Bellevue	109	113	
	Darlot	109	155	
	Lawlers	158	172	
	Plutonic	313	554	
	Poseidon Ltd	Big Bell	292	313
		Golden Crown	135	147
		Kaltails	114	80
Precious Metals Australia	Palm Springs	0	96	
Resolute Samantha Ltd	Bullabulling	0	130	
	Chalice	74	122	
	Higginsville	194	169	
	Marymia	55	98	
	Sons of Gwalia NL	Barnicoat	84	0
	Sons of Gwalia	175	105	
	Marvel Loch	269	241	
St. Barbara Mines Ltd	Meekatharra	309	368	
Western Mining Corporation Ltd	Emu	196	384	
	Kambalda/St. Ives	910	919	
	Hill 50	339	203	
	Westgold Resources NL	Tuckabianna	130	56
	Wiluna Mines Ltd	Wiluna	248	392
Worsley Alumina Pty Ltd	Boddington	667	434	
Yilgarn Star Pty Ltd	Yilgarn Star	196	195	
All Other Operators		1,064	906	
TOTAL GOLD		13,010	13,838	
HEAVY MINERAL SANDS				
Cable Sands Pty Ltd	Bunbury	285	284	
Mineral Deposits Ltd	Beenup	46	258	
	Capel	213	191	
	Eneabba	320	614	
	Narngulu	258	215	
	TiWest Pty Ltd	Chandala-Muceha	197	176
	Cooljarloo	122	128	
Westralian Sands Ltd	Capel	396	568	
All Other Operators		51	62	
TOTAL HEAVY MINERAL SANDS		1,888	2,496	
IRON ORE				
BHP Iron Ore (Goldsworthy) Ltd	Yarrie	152	160	
BHP Iron Ore (Jimblebar) Ltd	Jimblebar	74	73	
	Nimingarra/Port Hedland	321	411	
	BHP Iron Ore Ltd	Newman/Port Hedland	2,775 (r)	3,355
	Yandicoogina	159	409	
Hamersley Iron Pty Ltd	Brockman	121	113	
	Dampier	1,236	1,199	
	Hismelt - Kwinana	91	125	
	Marandoo	154	194	
	Paraburdoo	611	731	
	Tom Price	849	921	
	Kooyanobbing Iron Pty Ltd	Cockatoo Island	32	47
	Kooyanobbing	31	27	

1995 - 96 STATISTICS DIGEST

TABLE 5 (CONT) PERSONS EMPLOYED IN THE W.A. MINERALS & PETROLEUM INDUSTRIES AS AT JUNE 30, 1996

MINERAL/Company	PROJECT	1994-95	1995-96
IRON ORE (Cont)			
IRON ORE (Cont)			
Robe River Mining Co. Pty Ltd		742	795
TOTAL IRON ORE		7,348 (r)	8,560
NICKEL			
Mining Project Investors Pty Ltd		0	32
Outokumpu Australia Ltd		242	271
Western Mining Corporation Ltd		442	694
Kambalda/Blair		1,214	1,400
Kwinana Refinery		520	499
Leinster		1,826	683
Mt Keith		434	1,602
TOTAL NICKEL		4,678	5,181
PETROLEUM PRODUCTS			
Ampolx Ltd		14	61
Apache Energy Ltd		123	125
BHP Petroleum (Australia) Pty Ltd		51	53
Discovery Petroleum Ltd		15	18
West Aust Petroleum Pty Ltd		261	254
Western Mining Corp. Ltd		32	33
Woodside Offshore Pet. Pty Ltd		630	613
All Other Operators		8	8
TOTAL PETROLEUM PRODUCTS		1,134	1,165
SALT			
Cargill Salt Co.	Port Hedland	114	114
Dampier Salt Ltd	Dampier	216	200
Shark Bay Salt JV	Lake Macleod	89	86
Other	Useless Loop	99	86
TOTAL SALT		524	492
ALL OTHER MATERIALS (including Rock Quarries)		1,182	1,479
TOTAL		38,198 (r)	41,760

(SOURCE: AXIAT REPORTING SYSTEM, MINING OPERATIONS DIVISION)

1995 - 96 STATISTICS DIGEST

TABLE 6 **PRINCIPAL MINERAL & PETROLEUM PRODUCERS 1995 - 96**
Address, Telephone Number: Project

BASE METALS

Copper

Murchison Zinc Co. Pty Ltd, c/o Normandy Mining Ltd, 100 Hutt Street, Adelaide, S.A., (08) 303 1700: Golden Grove.

Newcrest Mining Ltd, 600 St Kilda Road, Melbourne Vic, 3004, (03) 9522 5333: Telfer.

Western Mining Corp. Ltd, 168 Greenhill Road, Parkside 5063, (08) 372 7200: Nifty.

Lead - Zinc

Murchison Zinc Co. Pty Ltd, c/o Normandy Mining Ltd, 100 Hutt Street, Adelaide 5000, S.A., (08) 303 1700: Golden Grove.

Westmet Metals Zinc NL, 263 Adelaide Terrace, Perth 6000, (09) 221 2555: Cadjebut.

BAUXITE - ALUMINA

Alumina

Alcoa of Australia (WA) Ltd, cnr Davey & Marmion Streets Booragoon 6154, (09) 316 5111: Del Park, Jarrahdale, Willowdale.

Worsley Alumina Pty Ltd, PO Box 344, Boddington WA 6225, (097) 34 8311: Boddington.

CLAY

Attapulgitite

Mallina Holdings Ltd, 249 Stirling Highway, Claremont 6010, (09) 384 7077: Lake Nerramyne.

Clay Shale

Western Collieries Ltd, 40 The Esplanade, Perth 6000, (09) 327 4511: Collie.

Kaolin

Gwalia Consolidated Ltd, PMB 16, West Perth 6872, (09) 481 1988: Greenbushes.

White Clay

Metro Brick, Locked Bag 100, Midland 6056, (09) 250 2111: Middle Swan.

COAL

Griffin Coal Mining Co. Ltd, 28 The Esplanade, Perth 6000, (09) 325 8155: Collie.

Western Collieries Ltd, 40 The Esplanade, Perth 6000, (09) 327 4511: Collie.

CONSTRUCTION MATERIALS

Aggregate

The Readymix Group (WA), 75 Canning Highway, Victoria Park 6100, (09) 472 2000: Boodarrie, Boulder, Oscar Range.

Gravel

Vinci and Sons Pty Ltd, Lot 3 Pickering Brook Road, Pickering Brook 6076, (09) 293 8295: Pickering Brook.

Rock

County B.S., c/o Pioneer Concrete, 123 Burswood Road, Victoria Park 6100, (09) 311 8811: Yeeda Station.

TABLE 6 (Cont) PRINCIPAL MINERAL & PETROLEUM PRODUCERS 1995 - 96

Address, Telephone Number: Project

CONSTRUCTION MATERIALS (Cont)

Sand

Amatek Ltd, 1 Newburn Road, Kewdale 6104, (09) 353 3030: Gnanangarra, Jandakot.
 Pioneer Concrete, 123 Burswood Road, Victoria Park 6100, (09) 311 8811: Coolgardie.
 The Ready Mix Group (WA), 75 Canning Highway, Victoria Park 6100, (09) 472 2000: Comet Vale, Matiland, Nickol Bay, Pinnacles, Rocklea, Sandy Creek, Sullivan's Creek, Turner River, Warrawanda Creek, Widgiemootha.

DIAMOND

Argyle Diamond Mines, 2 Kings Park Road, West Perth 6005, (09) 482 1166: Argyle.

DIMENSION STONE

Black Granite

Fraser Range Granite NL, 164 Burswood Road, Victoria Park 6010, (09) 470 4487: Mt Malcolm.

Quartz Rock

Commercial Minerals Ltd, 26-28 Tomlinson Road, Welshpool 6106, (09) 362 1411: Mukinbudin.

GEM, SEMI-PRECIOUS & ORNAMENTAL STONE

Chrysoptase

Gembank Ltd, 26-28 King Street, Perth 6000, (09) 481 1401: Yerrilla.

GOLD

Abertoye Ltd, 525 Collins Street, Melbourne 3000, (03) 9270 6666: Bardoc - Davyhurst.
 Amalg Resources NL, 11 Keogh Way Kalgourlie, (090) 91 1422: Burbanks - Lady Robinson.
 Australasian Gold Mines NL, 47-79 Stirling Highway, Nedlands 6009, (09) 386 7211: Red White & Blue.
 Australian Gold Fields NL, 8 The Esplanade, Perth 6000, (09) 221 7300: Bannockburn.
 Australian Resources Ltd, 5 Mill Street, Perth 6000, (09) 481 1654: Gidgee, Mt McClure.
 Camelot Resources Ltd, 46-50 Kings Park Road, West Perth 6005, (09) 321 0616: Mt Gibson.
 Central Norseman Gold Corp. NL, PO Box 56, Norseman 6443, (090) 39 1101: Central Norseman.
 Copperfield Gold NL, 9 Havelock Street, West Perth 6005, (09) 321 0611: Jubilee.
 Croesus Mining NL, 39 Porter Street, Kalgourlie 6430, (090) 91 2222: Bindull.
 Eagle Mining Corporation NL, 1 Sleaf Road, Applecross 6153, (09) 316 3611: Nimary.
 Goldfields Ltd, 89 Burswood Road, Burswood 6100, (09) 4428100: Kundana, Paddington.
 Gold Mines of Australia Ltd, 161 Great Eastern Highway, Belmont 6104, (09) 277 9500: Reedy, Youanmi.
 Gold Mines of Coolgardie Pty Ltd, PMB 5, Coolgardie 6429, (090) 22 0222: Bayley's Reward - Greenfields, Three Mile Hill.
 Great Central Mines NL, 46 Kings Park Road, West Perth 6005, (09) 322 2044: Bronzewing, Jundee, Lady Bountiful Extended, Mt Pleasant - Golden kilometre.
 Hedges Gold Pty Ltd, Williams Road, Boddington 6390, (09) 538 4500: Hedges.

1995 - 96 STATISTICS DIGEST

TABLE 6 (Cont) PRINCIPAL MINERAL & PETROLEUM PRODUCERS 1995 - 96

Address, Telephone Number: Project

GOLD (Cont)

Herald Resources Ltd, 40 Kings Park Road, West Perth 6005, (09) 322 2788: Gum Creek - Montague, Sandstone.
Kalgoorlie Consolidated Gold Mines Pty Ltd, Private Bag 27, Kalgoorlie 6430, (090) 22 1100: Super Pit, Mt Charlotte, Mt Percy.
Lynas Gold NL, 40 Kings Park Road, West Perth 6005, (09) 322 2788: Lynas Find.
Melita Mining NL, 16 Altona Street, West Perth 6005, (09) 321 2400: Orient Well.
Mt Edon Gold Mines (Aust) NL, 30 Ledger Road, Balcatta 6021, (09) 345 1588: Tarmoola - King Of The Hills.
National Resources Exploration Ltd, 106 Briggs Street, Welshpool 6106, (09) 470 3555: Gullewa.
Newcrest Mining Ltd, 30 Terrace Road, East Perth 6004, (09) 270 7070: New Celebration, Ora Banda, Telfer.
North Ltd, 12 St Georges' Terrace, Perth 6000, (09) 268 3900: Kanowna Belle, Peak Hill.
Orion Resources NL, 16 Ogilvie Road, Mt Pleasant 6153, (09) 364 8355: Nevoria, Yilgarn Star.
Perilya Mines NL, 278 Stirling Highway, Claremont 6010, (09) 385 2400: Fortnum.
Placer Pacific Ltd, 1 Alfred Street, Sydney Cove 2000 (02) 256 3800: Granny Smith.
Plutonic Resources Ltd, 221 St Georges' Terrace, Perth 6000, (09) 324 1699: Darlot, Lawlers, Mt Morgans, Plutonic, Sir Samuel - Bellevue.
Posgold Ltd, 100 Hutt Street, Adelaide S.A., (08) 303 1700: Big Bell, Forrestania - Bounty, Golden Crown, Kaltails.
Precious Metals Australia Ltd, 37 St Georges' Terrace, Perth 6000, (09) 221 3711: Palm Springs.
Ramsgate Resources Ltd, 229 Stirling Highway, Claremont 6010, (09) 383 4321: Mt Monger - Randalls.
Resolute Samantha Ltd, 28 The Esplanade, Perth 6000, (09) 261 6100: Bullabulling, Chalice, Higginsville, Marymia Hill.
St Barbara Mines Ltd, 28 The Esplanade, Perth 6000, (09) 324 6350: Bluebird.
St Francis Mining NL, 45 Ventnor Avenue, West Perth 6005, (09) 321 8866: Grosmont - Norris.
Sons of Gwalia NL, 16 Parliament Place, West Perth 6005, (09) 263 5555: Barnicoat, Copperhead-Bullfinch, Marvel Loch-Southern Cross, Sons of Gwalia.
Tectonic Resources Ltd, 100 Hay Street, Subiaco 6008, (09) 388 3872: Mt Dimer.
Western Mining Corp. Ltd, 250 St Georges' Terrace, Perth 6000, (09) 442 2000: Emu-Leinster, Hill 50-Mt Magnet, Kambalda - St Ives.
Westgold Resources NL, 40 The Esplanade, Perth 6000, (09) 324 2877: Tuckabianna.
Wiluna Mines Ltd, 10 Ord Street West Perth 6005, (09) 481 2050: Wiluna.
Worsley Alumina Pty Ltd, PO Box 48, Boddington 6390, (098) 83 8260: Boddington.

GYPSUM

H.B. Brady & Co. Pty Ltd, PO Box 42, Bayswater 6053, (09) 279 4422: Lake Brown.
Lake Hillman Mining Pty Ltd, Kalannie 6468, (096) 66 2045: Lake Hillman.
Swan Portland Cement Ltd, Burswood Road, Rivervale 6103, (09) 361 8822: Lake Hillman.
Westdeen Holdings Pty Ltd, 7 Armstrong Road, Applecross 6153, (09) 364 4951: Lake Cowcowing.

HEAVY MINERAL SANDS

Garnet Sand

GMA Garnet Pty Ltd, PO Box 188, Geraldton 6530, (099) 23 3644: Port Gregory.

Ilmenite, Leucoxene, Rutile & Zircon

TABLE 6 (Cont) PRINCIPAL MINERAL & PETROLEUM PRODUCERS 1995 - 96

Address, Telephone Number: Project

HEAVY MINERAL SANDS (Cont)

Cable Sands (WA) Pty Ltd, PO Box 133, Bunbury 6230, (097) 21 4111: Busselton, Jangardup, Waroona.
 RGC Mineral Sands, PO Box 62, Geraldton 6530, (099) 568 822: Capel, Eneabba North, Eneabba West, Nangulu.
 TlWest Pty Ltd, 1 Brodie Hall Drive, Bentley 6102, (09) 365 1390: Cooljarloo, Chandala.
 Westralian Sands Ltd, PO Box 96, Capel 6271, (097) 27 2002: Yoganup, Yoganup Extended.

INDUSTRIAL PEGMATITE MINERALS

Felspar

Commercial Minerals Ltd, 26-28 Tomlinson Road, Welshpool 6106, (09) 362 1411: Mukinbudin, Pippingarra.

IRON ORE

BHP Iron Ore (Goldsworthy) Ltd, 200 St Georges' Terrace, Perth 6000, (09) 320 4444: Nimgarra, Yarie.
 BHP Iron Ore (Jimblebar) Ltd, 200 St Georges' Terrace, Perth 6000, (09) 320 4444: Jimblebar.
 BHP Iron Ore Ltd, 200 St Georges' Terrace, Perth 6000, (09) 320 4444: Newman, Yandicoogina.
 Channar Mining Pty Ltd, 152 Georges' Terrace, Perth 6000, (09) 327 2327: Channar.
 Hamersley Iron Pty Ltd, 152 Georges' Terrace, Perth 6000, (09) 327 2327: Brockman, Marandoo, Tom Price, Paraburdoo.
 Koolyanobbing Iron Pty Ltd, 56 Adelaide Terrace, Perth WA 6000, (09) 268 3388: Cockatoo Island, Koolyanobbing.
 Robe River Iron Associates, 12 St Georges' Terrace, Perth 6000, (09) 421 4747: Pannawonica.

LIMESAND - LIMESTONE

Cockburn Cement Ltd, Russell Road, East Munster 6166, (09) 411 1000: Cockburn Sound, Coogee.
 Limestone Building Blocks Co. Pty Ltd, Hopkins Road, Carabooda 6033, (09) 407 5005: Nowrup.
 Loongana Lime Pty Ltd, PO Box 808, Kalgoolie 6430, (090) 21 8055: Loongana.
 Swan Portland Cement Ltd, Burswood Road, Rivervale 6103, (09) 361 8822: Wanneroo.
 Westdean Holdings Pty Ltd, 7 Armstrong Road, Applecross 6153, (09) 364 4951: Dandaragan, Gingin, Irwin, Yanhep.

MANGANESE

Valiant Consolidated Ltd, 250 St Georges' Terrace, Perth 6000, (09) 321 3797: Mt Sydney, Pearara.

NICKEL

Outokumpu Australia Pty Ltd, 141 Burswood Road, Burswood 6100, (09) 472 3144: Forrestania
 Western Mining Corp. Ltd, 250 St Georges' Terrace, Perth 6000, (09) 442 2000: Blair, Carnilya Hill, Kambalda, Leinster, Mt Keith.

PETROLEUM

Ampolex Ltd, 250 St Georges' Terrace, Perth 6000, (09) 429 3200: Wandoo
 Apache Energy Ltd, 256 St Georges' Terrace, Perth WA 6000, (09) 422 7222: Campbell, Harriet, Rosette, Sinbad & Tanami.

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TABLE 6 (Cont) PRINCIPAL MINERAL & PETROLEUM PRODUCERS 1995 - 96

Address, Telephone Number: Project

PETROLEUM (Cont)

BHP Petroleum Pty Ltd, 152-158 St Georges' Terrace, Perth 6000, (09) 278 4800: Griffin
Boral Energy Resources Ltd, 60 Hindmarsh Square, Adelaide SA 5000, (08) 235 3737: Beharra Springs, Tubridgi.
Consolidated Gas Pty Ltd, 325 Churchill Avenue, Subiaco 6008, (09) 380 4920: Woodada.
Discovery Petroleum NL, 31 Ventnor Avenue, West Perth WA, 6005, (09) 480 4100: Mt Horner.
Santos Ltd, 39 Grenfell Street, Adelaide SA 5001, (08) 224 7162: Blina, Boundary, Lloyd, Sundown, West Terrace.
West Aust. Petroleum Pty Ltd (WAPET), QV1, 250 St Georges' Terrace, Perth 6000, (09) 263 6000: Barrow Island,
Cowle, Crest, Dongara, Mondara, Roller-Skate, Saladin, Yammaderry.
Western Mining Corp. Ltd, 250 St Georges' Terrace, Perth 6000, (09) 442 2000: Chervil, North Herald, South Pepper,
Airlie Island.
Woodside Offshore Pet. Pty Ltd, 1 Adelaide Terrace, Perth 6000, (09) 224 4111: Cossak/Wanaea, Goodwyn, North
Rankin.

SALT

Cargill Australia Ltd, PO Box 420, Port Hedland 6721, (091) 40 1255: Port Hedland.
Dampier Salt (Operations) Pty Ltd, 152-158 St Georges' Terrace, Perth 6000, (09) 327 2299: Dampier, Lake
Macleod.
Shark Bay Salt Joint Venture, 22 Mount Street, Perth 6000, (09) 322 4811: Useless Loop.
WA Salt Koolyanobbing Pty Ltd, Cockburn Road, Hamilton Hill 6163, (09) 430 5495: Lake Deborah East, Pink Lake.

SILICA - SILICA SAND

Silica

Simcoa Operations Pty Ltd, P.O Box 1389 , Bunbury 6231, (097) 912 588: Dalaroo.

Silica Sand

ACI Operations Pty Ltd, 35 Baille Road, Canning Vale 6155, (09) 455 1111: Lake Gnangara.
Amatek Ltd, 1 Newburn Road, Kewdale 6104, (09) 353 3030: Jandakot, Gnangara.
Boral Resources WA Ltd, 136-138 Gt Eastern Highway, South Guildford 6055, (09) 279 0000: Jandakot.
The Readymix Group (WA), 75 Canning Highway, Victoria Park 6100, (09) 472 2000: Jandakot.
Western Mining Corp. Ltd, 250 St Georges' Terrace, Perth 6000, (09) 442 2000: Mt Burgess.

TALC

Gwalia Minerals NL, PMB 16 , West Perth 6872, (09) 481 1988: Mt Seabrook.
Western Mining Corp. Ltd, PO Box 116, Three Springs 6519, (099) 54 5047: Three Springs.

TIN - TANTALUM - LITHIUM

Spodumene

Lithium Australia Ltd, PMB 16 , West Perth 6872, (09) 481 1988: Greenbushes.

Tantalite - Tin

Goldrim Mining Australia Ltd, 562 Pacific Highway, Belmont NSW 2280, (049) 477 288: Wodgina.
Gwalia Consolidated Ltd, PMB 16 , West Perth 6872, (09) 481 1988: Greenbushes.
Pan West Tantalum Pty Ltd, 1 Alfred Street, Sydney NSW 2000, (02) 934 8888: Wodgina.

ABBREVIATIONS, REFERENCES, UNITS AND CONVERSION FACTORS

As the document makes use of abbreviations and references, an explanation of each has been included below. A conversion table, relating the units by which various commodities are measured, has also been provided.

ABBREVIATIONS

cons	concentrates	f.o.t.	free on truck
f.o.b.	free on board	n.a.	not available
f.o.r.	free on rail	n.ap.	not applicable
A\$	Australian Dollar	US\$	United States Dollar
ABS	Australian Bureau of Statistics	GDP	Gross Domestic Product
AFR	Australian Financial Review	BMR	Bureau of Mineral Resources
CSO	Central Selling Organisation	HBI	Hot Briquetted Iron
DRI	Direct Reduced Iron	IMF	International Monetary Fund
RBA	Reserve Bank of Australia	¥	Japanese Yen
ABARE	Australian Bureau of Agricultural and Resource Economics		
Mbd	Million barrels per day		

REFERENCES

- (a) Estimated f.o.b value.
- (b) Metallic by-product of nickel mining.
- (c) Value based on the average Australian Value of Alumina as published by the ABS
- (d) Value at works.
- (e) Estimated ex-mine value.
- (f) Value based on monthly production and average gold price of that month as supplied by GoldCorp.
- (g) Estimated f.o.t value.
- (h) Estimated f.o.b value.
- (i) Estimated f.o.b value based on the current price of nickel containing products.
- (j) Delivered value.
- (k) Metallic by-product of copper mining.
- (r) Revised from previous edition.

UNITS AND CONVERSION FACTORS

Metric Unit	Symbol	Imperial Unit
1 gram	(g)	= 0.032151 troy (fine) ounce (oz)
1 kilogram	(kg)	= 2.204624 pounds (lbs)
1 tonne	(t)	= 1.10231 United States short ton (1 US short ton = 2,000 lbs)
1 tonne	(t)	= 0.98421 United Kingdom long ton (1 UK long ton = 2,240 lbs)
1 kilolitre	(kl)	= 6.28981 barrels (bbls)
1 kilolitre	(kl)	= 1 cubic metre (m ³)
1 cubic metre (m ³)	(m ³)	= 35.3147 cubic feet (ft ³)
gigajoule	GJ	million million British Thermal units (mmBTu)
1 kilojoule	(kJ)	= 0.94781 British Thermal Units (Btu)
1 gigajoule	(GJ)	= 0.94781 million British Thermal Units (Btu 10 ⁹)
1 petajoule	(PJ)	= 0.94781 million million British Thermal Units (Btu 10 ¹²)
kilo (k)	10 ³	
mega (M)	10 ⁶	
giga (G)	10 ⁹	
tera (T)	10 ¹²	
peta (P)	10 ¹⁵	