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Women in Australian Mining 1997 to 2013 – a Generation of Change

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DISCLAIMER

This report has been prepared to assist the minerals industry with the future development of policies and initiatives aimed at addressing workforce diversity in the industry. While this document has been prepared with care, the University of Queensland and funding agencies accept no liability for any decisions or actions taken by individuals or organisations on the basis of this document. Funding support, research cooperation and information from the mining industry and the Australian Research Council do not imply their endorsement of, or influence on, the views expressed herein.

RECOMMENDED CITATION

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EXECUTIVE SUMMARY

Study aims and design

This report draws heavily on the Women in Mining Longitudinal study which tracked, and reinterviewed, forty-one women and men who participated in the 1997 Women in Mining study by the Australian Institute of Mining and Metallurgy (AusIMM) (Pattenden, 1998). The Longitudinal study was funded under the Australian Research Council Linkage Grant Scheme, with the support of six industry partners: Queensland Resources Council; Minerals Council of Australia, The Australasian Institute of Mining and Metallurgy, Rio Tinto; BHP Billiton; Glencore Copper (formerly Xstrata Copper). The intention of the study was to explore the shifting conditions and experience of gender diversity in the mining industry and the changes that have taken place over the 15 years since the 1997 report.

Mining is a cyclical industry characterised by peaks and troughs driven by commodity cycles, market conditions, and the finite nature of ore bodies. The 15 years between 1997 and 2012 have seen the extremes of these cycles: from the lows of the late 1990s, through the hyper-development of the commodities super-cycle which drove industry expansion at an unprecedented scale, and now back to trough conditions.

Fifteen years also represents a generation in career terms. Technical professionals who were at entry-level in 1997, and who have remained in the industry, might realistically by now be expected to have reached mid-tier or even executive-levels, particularly given the accelerated career opportunities and impetus of the super-cycle.

The key questions which drove this research project were: What became of the careers of the 1997 cohort? What themes come through their career narratives that point to change, or lack of change, in the diversity profile of the industry? And what can we learn from the last 15 years that point towards future actions to help sustain women's participation as the industry enters a period of contraction?

The study utilised longitudinal career data drawn from 41 tracked participants from the 1997 cohort, supplemented by a workforce survey, and analysis of aggregate trends over time in female participation in the mining industry.

Key Findings

The research findings presented here provide several positive indicators of change in the mining industry:

- Significantly more respondents who completed the 2012 survey had a positive view of the mining industry as an EEO employer than was the case in 1997. This shift was particularly marked amongst female respondents.

- Fewer women in 2012 spoke of harassment and discrimination in a contemporaneous sense, an outcome that may reflect the cohort profile. Persistent sexual harassment in the workplace now seems less prevalent than in the past.

- Most of the women in the 2012 cohort study were still working in the industry and, of these, most had moved into more senior roles since 1997, including to managerial or executive roles in around half of the cases. (The employment status of the remaining 70 participants from the 1997 study who could not be tracked is unknown).

- Over the last decade there has been a sustained increase in female participation in the coal sector, albeit from a very low base.

The report also highlights the scale of the remaining challenges which must be addressed if gender equality in the mining workforce is to be achieved. Indeed, the persistence of some of these challenges raise the question of what does gender equality in this industry look like?

- The patterns identified in the cohort study support the observations of many industry diversity specialists, and anecdotal evidence reported in other industry labour studies, that female career trajectories in mining tend to be significantly different from those of their male counterparts. Specifically, they point to higher attrition rates, slower or more limited career progression to management ranks, and a greater outflow of females towards consulting, self-employment, or other industries that provide increased opportunity for part-time or flexible work conditions.

- There was very little change between 1997 and 2012 in patterns of primary care giving for children; for example, there has been almost no change in the rate of uptake of paternity leave by men in the industry. This is consistent with broader patterns of low uptake of paternity leave in other industries and persistent asymmetrical responsibility for child care across the community, with women bearing the greater responsibility, factors that are widely recognised as drivers of gender inequality in the workplace.

- Many professionals working in the industry, male and female alike, still see the industry as not supportive of employees with family responsibilities.

- There remained a sense amongst many of the women interviewed in 2012 that they needed to 'prove their worth' to the industry.

- Female participation rates in the metals sector have fluctuated at around 15 per cent between 2005 and 2014, with no sign of upward movement.

- Coal appears to have achieved greater sustained improvement in gender representation in its workforce, particularly during the years of the commodity boom; however this improvement was from a low base in the early part of the last decade.

- There is indicative evidence that women have been disproportionally affected by downturns in the economic cycle, particularly in the metals sector.

The next 15 years

There are strong external drivers for the mining industry to continue to improve its performance in relation to gender equity and address issues of female under-representation. These drivers include rising societal expectations, increased scrutiny from government and other actors, and changing labour market dynamics.

Arguably, however, the era of 'quick wins' is over. With the "heat" going out of the market and the slowing of the development of new mines, it is conceivable that the net gains of the last 15 years will stall or possibly even regress. Future progress will depend on companies taking action on a range of fronts, including through the formalization of gender commitments. Meeting such targets will require substantial and concerted action in the investment, development, and mentoring of women in the workforce.

Adopting policies and procedures that formally commit an organisation to gender diversity is only the first step – organisations also need to enquire into the efficacy of these processes. For example, in cases where there is evidence of a lack of uptake of paternity leave relative to maternity leave, the question of why that may be the case and the implications need to be explored. Policy on its own does not equate to changed or improved conditions. Only sustained action will lead to change.

Much also depends on the ability, awareness, and will of managers to accommodate changing circumstances. This requires continuing investment in the skills/competence of leaders to enable them to build high performing teams that are characterised by diversity.

Changing the culture and workforce composition of existing mining operations is difficult, and is likely to be an incremental rather than transformative process. However, the establishment of new mines presents significant opportunities to configure workforces differently and create a workplace culture and environment which is more likely to attract and retain female employees. The industry needs to grasp these opportunities when they are presented.

Technological innovation in the industry will also provide an opportunity to provide more off-site career opportunities for women and to implement more flexible working arrangements. For example, if mineral processing and/or logistic control centres can be located in a city or near an established regional centre, this should make it easier for women (and men) with professional capability in these areas to stay engaged in the workforce, instead of being faced with the choice of having to travel to remote mines and endure significant periods of separation from their families.

THE STUDY

SETTING THE SCENE

In 1997 the first substantive study of women's participation in the Australian minerals industry was undertaken by the Australasian Institute of Mining and Metallurgy (AusIMM) (Pattenden, 1998). The decade of the 1990s in Australia was a period of labour market reform and structural adjustment that gave rise to enterprise bargaining and individualised contracts on a mass scale (Briggs and Buchanan 2000). The mining industry, following decades of labour conflict and turmoil, embraced the spirit of change as it sought to shift the industry's workforce culture away from the entrenched divisions, closed employment pathways, and inflexible work practices of the past to one that was more cooperative, adaptive, and inclusive. It was in this context that questions of "diversity" and "women" fell under the spotlight of the industry's change agenda. Mining was in the mood for self-reflection.

The AusIMM, the leading representative body for the industry's technical professions, commissioned the 1997 study in order to understand why the mining workforce had such persistently low participation rates of women. In line with the AusIMM mission, the study focused on the technical professions of engineering, metallurgy, and geology. These were fields that during the 1980s and 1990s had experienced increasing rates of female participation at the tertiary level, but had failed to translate these trends into substantive and sustained change in the mining workforce. (There had been some increase during that period but this had plateaued at around 10 to 11 per cent). The 1997 study sought to understand the attractors and enablers that brought women into the industry and, once there, the detractors and barriers that caused them to leave.

The 1997 study supported ten key findings:

- **FINDING 1:** Many graduates (specifically geology graduates) receive little or no exposure to the mining industry during their tertiary study.
- **FINDING 2:** The reality of modern mining is very poorly represented in the general community and many misconceptions based on out-dated practice prevail.
- **FINDING 3:** Harassment and discrimination remain a significant problem within the minerals industry across professions.
- **FINDING 4:** EEO policies and procedures are frequently poorly promulgated throughout organisations. Once in place, organisations fail to monitor their effectiveness.
- **FINDING 5:** Mentor relationships are generally regarded positively by mining professionals as being of tangible benefit to career progress.

- **FINDING 6:** Young female professionals are disadvantaged in the assignation of mentor relationships due to the reluctance and lack of skill/competence of many senior males to mentor females.

- **FINDING 7:** Expressions of paternalism within mentor relationships are detrimental to that relationship and can inhibit the professional development of the mentee.

- **FINDING 8:** There are differentials in performance standards between male and female mining professionals. Many females believe they must consistently out-perform their male peers in order to be regarded equally with those male peers, while having less margin for error.

- **FINDING 9:** Equity in performance standards are probably not well reflected in remuneration.

- **FINDING 10:** Females are frequently excluded from critical networking opportunities that take place during work-related social activities. When actually participating in social activities females are often subjugated to dominant male behaviour.

In the period since the AusIMM study was published, there have been several "game changers" that, at first blush, have had a transformative effect on the industry's culture, labour trends and workforce composition.

- The industry has experienced both the **peaks and troughs** of economic expansion and contraction from the lean years of the late 1990s, through the mining "super cycle", and now back to leaner (or perhaps more typical) conditions.
- A more **innovative approach is now being taken to labour sourcing.** The industry, in its push to meet the rising demand for labour during the super cycle, made a much greater effort to tap into avenues of labour supply from communities and populations that have traditionally been considered marginal – women, Indigenous Australians, and regional centres not previously used as feeder communities for industry labour.
- **Fly-in-fly-out, drive-in drive out** workforce arrangements, once the domain of remote operations, have become the norm in many parts of the industry. This has been a response both to the cost of providing local housing and amenities and to market demands from a new generation of workers reluctant to relocate to remote communities.
- There has been an increase in **networking, peer support and lobby groups** advocating for women's employment in mining, as a result of increasing mobilization of women in the industry. This has been supported by companies and industry bodies for whom labour force diversification has become a strategic priority.
- Also relevant has been the **culture change effects of sustainability thinking,** a mantra widely adopted following publication of the landmark "Breaking New Ground" (MMSD, 2002) report and the founding of the International Council on Mining and Metals (ICMM). Central to this has been recognition by leading companies that "business as usual" thinking will no longer suffice in an environment of increasing social and governmental expectations of industry performance.

During the super-cycle the mining workforce almost doubled, an outcome that required substantial investment and effort by the industry to grow the labour pool and broaden the appeal of mining to a wider population. This helped to weaken the structural and cultural impediments that have traditionally inhibited the participation of women and other non-traditional sources of labour in the sector. However, while the number of women working in the industry has changed substantially, in proportional terms the improvement in the participation rate has been fairly modest from around 11 per cent in 1997 (a period of industry contraction) to around 14 to 15 per cent at the height of the commodities super-cycle.

With the industry now entering a potentially extended period of austerity and contraction, the challenge will be to ensure that the gender and diversity "wins" of the last decade or so are not lost. For the last decade much of the imperative for increasing the participation of women has come from the industry's need to meet its expanding labour force requirements. As this internal driver weakens, the imperative for sustained growth in women's participation will likely come from other, potentially external, drivers such as changing societal expectations and threats to the industry's social licence to operate.

ABOUT THIS STUDY

In 2010, a research team based at the University of Queensland was successful in securing funding from the ARC Linkage Grant Scheme to repeat the 1997 survey and also follow-up with a sub-set of women and men who had participated in that study. This research was undertaken with the support of six industry partners: Queensland Resources Council; Minerals Council of Australia, The Australasian Institute of Mining and Metallurgy, Rio Tinto; BHP Billiton; and Glencore Copper (formerly Xstrata Copper).

The key questions that drove this research project were:

- What became of the careers of the 1997 cohort?
- What themes from their career narratives pointed to change, or lack of change, in the diversity profile of the industry?
- What can we learn from the intervening 15 years that point towards future actions to help sustain women's participation as the industry enters a period of contraction?

The study focused primarily on the experience of women working in professional roles, rather than the broader female workforce, although there was some analysis of data on aggregate trends over time in female participation in the mining industry workforce as a whole.

In addition to undertaking a large-scale survey of industry professionals in 2012, the study revisited many of the participants of the 1997 AusIMM study to understand what has become of these individuals and the careers that they aspired to achieve. Fifteen years represents a generation in career terms. People who were in entry-level but industry-critical technical roles in 1997, and who

have remained in the industry, might realistically be expected to have reached mid-tier or even executive-levels some 15 years later, particularly given the accelerated career opportunities and impetus of the super-cycle. By looking at career outcomes through the lens of a single cohort, the project was able to explore some of the critical issues of diversity and women's employment in mining and interrogate what had changed, what had not changed, and what lessons can be drawn from 15 years of hard won experience.

METHODOLOGY

Three data collection approaches were used:

Table 1: Research method - data collection approaches

	Data type	Purpose	Sample
1	Primary data – longitudinal interviews with a tracked-sample of the 1997 study	Career journeys and outcomes over the intervening 15 year period	41
2	On-line workforce survey of mining professionals	Perceptions of study themes amongst contemporary mining professionals. Themes: career progression, breaks, mobility, decision-making, mentors, and perceptions of organisational and industry culture.	671
3	Structured interviews with organisational and institutional representatives such as human resources and diversity managers	Industry perspective of the history and future of diversity and mining	14

Longitudinal interviews

The 1997 study cohort comprised 158 participants, 68 per cent of whom were women. Of the 158, 111 were classified as working in the technical professions of engineering, geology, metallurgy, or the environmental sciences. The remaining 47 were in non-technical professions such as human resources or other support functions.

The 2012 study focused on tracing the technical professionals from the original cohort, both those still working in the industry and those who had undertaken full, or partial, separation from the industry. Of 111 technical professionals in the 1997 study, 41 participants were re-interviewed in 2012, representing 37 per cent of the 1997 study cohort (Table 2). Thirty-three of the 41 were women.

A variety of methods were adopted to optimise outreach and track as many 1997 participants as possible. These included advertising in industry journals and magazines, disseminating notices via industry partner websites, word-of-mouth and, the most fruitful avenue, social and professional networking media such as Linked-in and Facebook. Overall the tracking exercise was aided by the

comparatively small scale of the industry's labour force which, at 239,100, represents just 2 per cent of the total Australian labour force[1]. This relatively small number, coupled with the tendency of industry professionals to remain connected and networked with former colleagues, aided the tracking exercise.

At project commencement, a 40 per cent follow-up was targeted with the aim of achieving an approximately similar female to male ratio. The final sample of 37 per cent was close to target, however at 4:1 the ratio was significantly weighted in favour of females. This may reflect that the male participants in 1997 tended to be older than the females, so a sizable proportion may have retired. The distribution of participants by primary qualification may be found below (Figure 1).

Efforts to trace participants commenced in late 2011 and continued throughout 2012 and 2013, with substantive data collection taking place in 2012. Once located, the 1997 participants were provided with information on the current study[2] and were formally invited to participate in a follow-up interview. All of those contacted, bar one male, agreed to be reinterviewed.

Table 2: Career progression participants - comparison of 1997 and 2012 samples

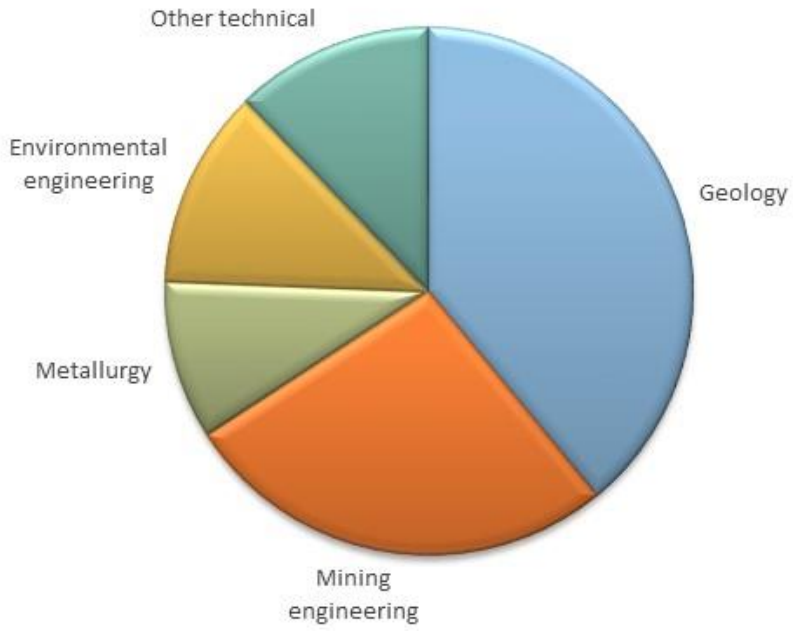
	1997		2012	
	Number	Per cent	Number	Per cent
Total sample in technical professions*	111			
Total tracked			41	37%
Females	*78*	*70%*	*33*	*80%*
Males	*33*	*30%*	*8*	*20%*

** Total sample 1997 = n:158. Remaining 47 comprised professions such as human resources, non-technical management, and other support or subsidiary functions*

[1] ABS, 2011. The 2011 labour force participation rate used here represents the mining industry labour profile at the time of commencement of participant tracking.

[2] This research was undertaken in accordance with the University of Queensland guidelines for ethical research.

Figure 1: 2012 study participants by profession



Workforce survey

The 1997 workforce survey was paper-based with a randomised distribution of 500 predominantly AusIMM members (male and female). The 2012 survey, in contrast, was conducted entirely on-line with respondents 'self-nominating'. The survey link was disseminated via a variety of mechanisms such as the AusIMM membership website, mining media and publications, and industry partner websites and internal newsletters.

Table 3: On-line workforce survey – comparison of 1997 and 2012 samples

	1997		2012	
	Number	Per cent	Number	Per cent
Total	*178*		*681*	
Females	*106*	*60%*	*484*	*71%*
Males	*72*	*40%*	*187*	*28%*

Despite the gap of 15 years and the differences in distribution method, the survey demographics display broadly similar characteristics and patterns across the two time periods. The main points of difference are:

- A higher proportion of respondents to the 2012 survey were women (71% compared to 60% in 1997) (Table 3);

- The 2012 sample was somewhat older than the 1997 sample, for both male and female respondents (Table 4);
- A greater proportion of female respondents in the 2012 survey had children, which may, in part, be because this sample was somewhat older (Table 4).

While the demographic characteristics of the two survey samples were broadly similar, we cannot discount the possibility that the different approaches used to obtaining respondents *may* have had some impact on the results[3].

Table 4: Women in Mining survey respondent demographics 1997 and 2012

	1997		2012	
	Females	Males	Females	Males
Age				
<25	*18% (n:19)*	*3% (n:2)*	*11% (n:55)*	*7% (n:13)*
25-35	*51% (n:54)*	*35% (n:25)*	*40% (n:194)*	*28% (n:52)*
36-45	*19% (n:20)*	*35% (n:25)*	*28% (n:135)*	*24% (n:44)*
46-55	*6% (n:6)*	*13% (n:9)*	*18% (n:88)*	*27% (n:51)*
56+	*7% (n:7)*	*15% (n:11)*	*2% (n:11)*	*14% (n:27)*
Marital status				
Married	*40% (n:42)*	*76% (n:55)*	*45% (n:215)*	*73% (n:136)*
De facto	*20% (n:21)*	*8% (n:6)*	*25% (n:120)*	*12% (n:22)*
Single	*38% (n:40)*	*14% (n:10)*	*24% (n:118)*	*12% (n:22)*
Divorced or separated	*2% (n: 2)*	*0% (n: 0)*	*6% (n:28)*	*4% (n:7)*
*No response or other**	*1% (n:1)*	*1% (n:1)*	*1% (n:3)*	*0% (n:0)*
Respondents with children				
Yes	*23% (n:24)*	*68% (n:49)*	*37% (n:179)*	*72% (n:134)*

* The category "widowed" was not an option in 1997.

Organisational and institutional interviews

Of the 14 organisational/ institutional interviews conducted, nine were with human resource or other specialists with oversight or responsibility for gender diversity practice within their organisations. The remaining five interviews were with individuals from other technical backgrounds but who have other experience or representation in respect to diversity practice in the industry. Feedback from these interviews informs the thematic discussion in this report.

Analysis of secondary data

The primary research undertaken for this study has been supplemented by analysis of secondary source material such as labour force statistics and industry-based literature and reports. Australian

[3] On-line surveys rely on people to self-select, which means that those who are more interested in the topic – and may potentially have stronger views – tend to be more likely to respond. A random mail-out survey, by contrast, goes to the interested and disinterested alike (although it is still the case that those with an interest in the topic will generally more likely to complete and return the survey) . For these reasons, caution has been exercised in making direct comparisons between the findings of the two surveys.

Bureau of Statistics material, in particular, was used to contextualise changes in labour force participation rates for the period covered. This included close analysis of two major industry sectors – metal ore and coal – to explore the implications of the peaks and troughs of the commodities super-cycle for both the absolute number of women employed and their proportional representation in the workforce.

REPORT STRUCTURE

The remainder of this report focuses on what has changed – and what has not - in industry conditions over the 15 years since the AusIMM study, and explores the factors that have influenced career-decisions and outcomes. This discussion is structured around the four change themes of:

- Booms, busts, and a changing industry
- Normalising the workplace – balancing career and family
- Succeeding on merit – compliance, tokenism, and the battle for recognition
- The rules of the game – discrimination and harassment.

The discussion draws heavily on the qualitative interviews and career narratives from the 1997/2012 cohort, the survey data, and analysis of secondary material. Quotations from the qualitative interviews are used to illustrate differences and similarities between 1997 and 2012. The majority of interview quotes are from women. Where the respondent is male, this is noted in the quotation citation. The report concludes with a discussion of some of the lessons learned from the past 15 years: what has worked and what has not worked, and where to from here.

1997 – 2013: A GENERATION OF CHANGE

BOOMS, BUSTS, AND A CHANGING SOCIETY

Context

The commodities boom of 2006 – 2012 had significant labour market implications. With the exception of the Global Financial Crisis (2008 – 2009), which proved to be little more than a blip of uncertainty for the Industry, mining powered through these years in a once in a generation growth cycle. Talk of the boom became passé – this was the "new normal".

Under pressure-cooker conditions, shortages in skilled labour became one of the top strategic challenges facing the industry in Australia and internationally (MCA, 2010, Deloitte, 2010). With some studies projecting a decade long labour shortage (CME, 2011), the labour supply challenge cut across all occupational categories (Skillsinfo, 2011), threatening growth and contributing to escalating industry costs.

One of the solutions to the industry's workforce needs lay in opening up new labour pipelines amongst populations that the industry had traditionally struggled to attract – Indigenous[4] people and women (MIHRC, 2011). If ever there was a period of opportunity to address some of the known systemic barriers to employment and attrition for women, this was it. The industry responded by elevating employment diversity to the level of strategic business priority – appointing diversity managers, implementing innovative recruitment drives, hosting prestigious award and scholarship programs, and in some cases adjusting operational work patterns to open employment pathways for women.

So what have been the outcomes of this period for women's employment?

Over the 15 year period covered by this study, female participation rates in mining rose from around 11 per cent in 1997 to 15 per cent in 2012; an improvement, but still far below female participation in the overall workforce (around 46 per cent). Closer examination of two of the major commodity sectors – metal ore and coal, which together make up over half of the total industry employment – is revealing (Figures 2 and 3).

- Over the period of the commodities super-cycle, the coal sector experienced the greatest overall diversity change, almost doubling its female participation rate from just 6 per cent in 2005 to 11 per cent in 2014. This relatively rapid increase partly reflected the low starting point relative to the industry as a whole and the metals sector in particular, but there was also evidence of a structural shift. It is likely that much of the increase in female

[4] This study does not specifically address issues of Aboriginal women's employment because Aboriginal women as a category were not participants in the original 1997 study. Aboriginal women's participation in the industry has been examined elsewhere (MCA, 2007).

employment in coal came from new mines which have deliberately been set up with a different staffing model, rather than the result of significant changes to the workforce composition of established mines. For example, women make up around one-quarter of the workforce at the new BHP Billiton Mitsubishi Alliance Caval Ridge and Daunia operations in central Queensland.[5]

- Over the same period, the metals sector remained reasonably static, hovering around the 13 to 15 per cent for most of this period.
- The high watermark for metals was in 2006, pre-dating the global financial crisis (GFC), when the sector reached 18 per cent female participation.
- The impact of the GFC was more severe for females working in metals than for men, with a drop from 16 to 13 per cent between 2008 and 2009. (Note that a similar drop in female participation occurred in 2006 and 2007). In the coal sector, on the other hand, it appears that males were more severely impacted by the GFC than females.
- Although women in coal appeared to fare better in the GFC than their counterparts in metals, this was from a much smaller base (see Appendix A). Also, as noted above, it is likely that many of the additional women employed in coal over the last decade or so have been in new operations, whereas the mines that were closed or put on care and maintenance during the GFC were mostly older operations.
- By 2010 both metals and coal had recovered from the GFC, with female participation rates at 16 and 8 per cent respectively. However, although recovery in female participation was fast for metals, the sector did not return to its pre-GFC high of 18 per cent.
- Fluctuations in female participation rates, particularly in the metals sector, suggest that while women do relatively well during periods when the industry is buoyant, they also are more severely impacted during downturns (Figure 4).

There are several caveats to be applied when reviewing macro-statistics. Principally these figures do not differentiate technical professionals from other categories, nor do they distinguish location (corporate or operational), hierarchy, or category (part-time/ full-time/casual). The scale of change in female participation rates, both positive and negative, may be an outcome of the types of roles that make up a large proportion of female employment in the industry; that is, roles that are not critical to production such as clerical and administration, and the professional support functions of human resources, accounting, and community relations[6].

[5] Women in Resources National Awards http://www.wirna.org.au/cms/page.asp?ID=29

[6] It should also be noted that the annual ABS data presented here is collected from surveys of employers, rather than being census-based (which provides a direct head count). Some year-to-year fluctuations may therefore be partly due to sampling error.

Significantly, these figures tend to support anecdotal information that overall women working in the mining industry are more negatively impacted than men during downturns (although, as noted, this appears to vary between sectors). The counter to this is that women appear to do better than men, relatively speaking, during upturns. The critical question here is whether the fluctuations in employment that are an outcome of the cyclical nature of the resources sector are differentially experienced by males and females and, if they are, what are the long-term consequences of these differentials to women's participation in the industry? One likely explanation is that during periods of contraction, support roles tend to be the first to go along with part-time, casual, or maternity leave positions. Also, there may still be some parts of the industry where 'last-on first-off' rules continue to apply. By and large, these factors work to the disadvantage of women.

Organizational: *During the boom times, if you had two arms, two legs, you could get a job in the coal industry. It didn't matter if you were male or female (Organizational, # 10)*

Organisational: *We've tried to get traction on this topic for, I think, beyond compliance, in terms of just complying with the laws around equal opportunity for maybe 15 years now. But I think we've had quite a few false starts. We've got a fairly chequered past under its various guises of equal opportunity, affirmative action, all those kinds of things…[up until about five years ago] there's maybe been policies and policy statements and some quick wins or a little bit of progress but I don't think it's been sustained. After a year or two that's … fizzled out…. [But the boom was] a catalyst that I think forced the industry to get more open minded and creative in widening the talent pool that they chose to access. That's simply because we're struggling to get the skills and experience that we needed from the traditional talent pools (Organisational, # 14).*

Organizational: *While I would … say there are some examples of some really quite innovative practice around a range of different diversity elements, they're probably happening by accident, rather than good design and good diversity and inclusion practice… I think [the downturn] has impacted on women's employment… this goes to the core of diversity not being embedded in an organisation … there should be a diversity lens applied to [the redundancy] process… Certainly I think that some organisations have – in terms of their representation of women – suffered. Because of the number of redundancies that they've had, and the number of those redundancies that have actually impacted on women. So the representation overall is impacted, because when the industry cuts numbers, women are disproportionally affected (Organizational, # 8)*

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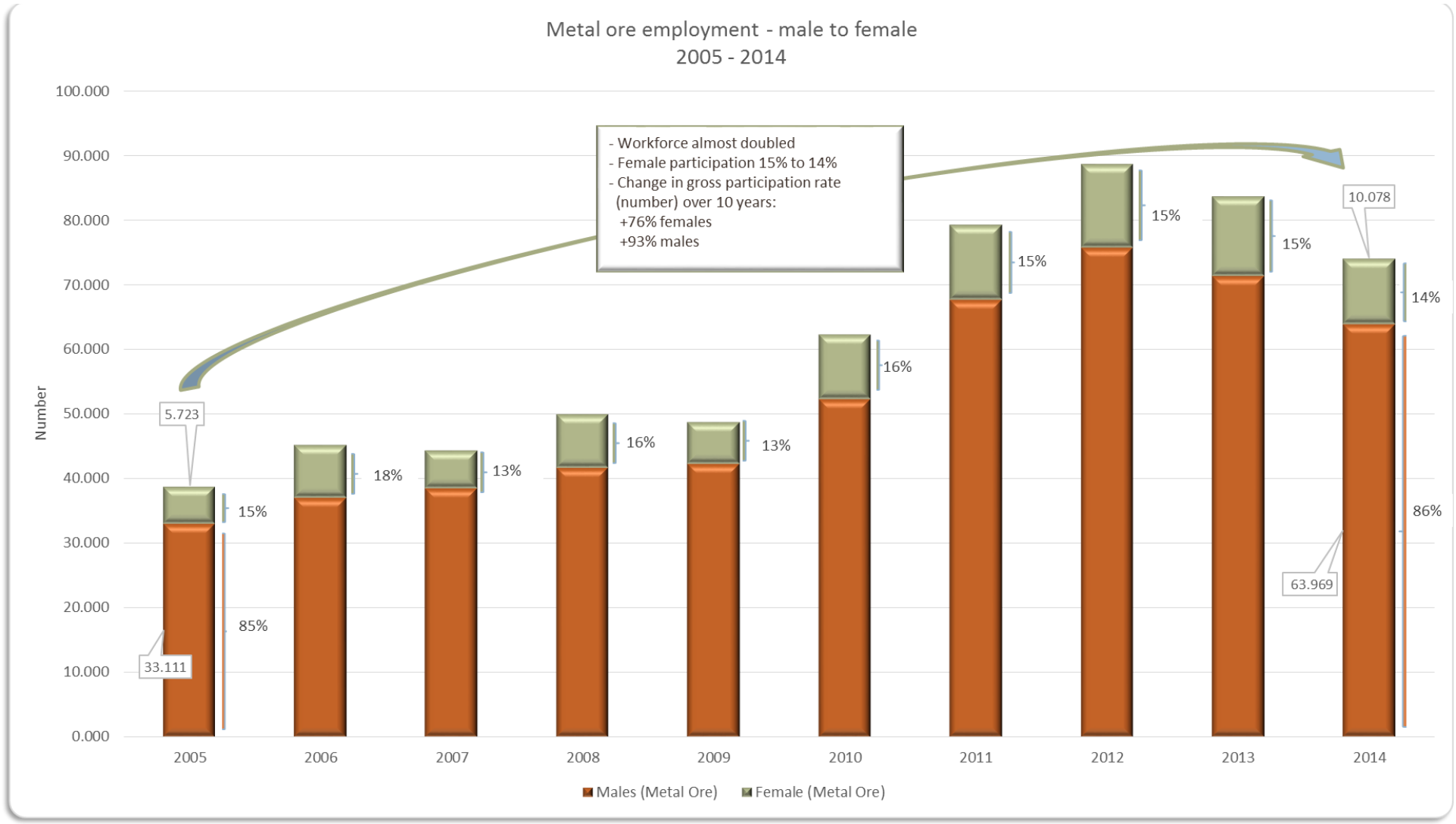
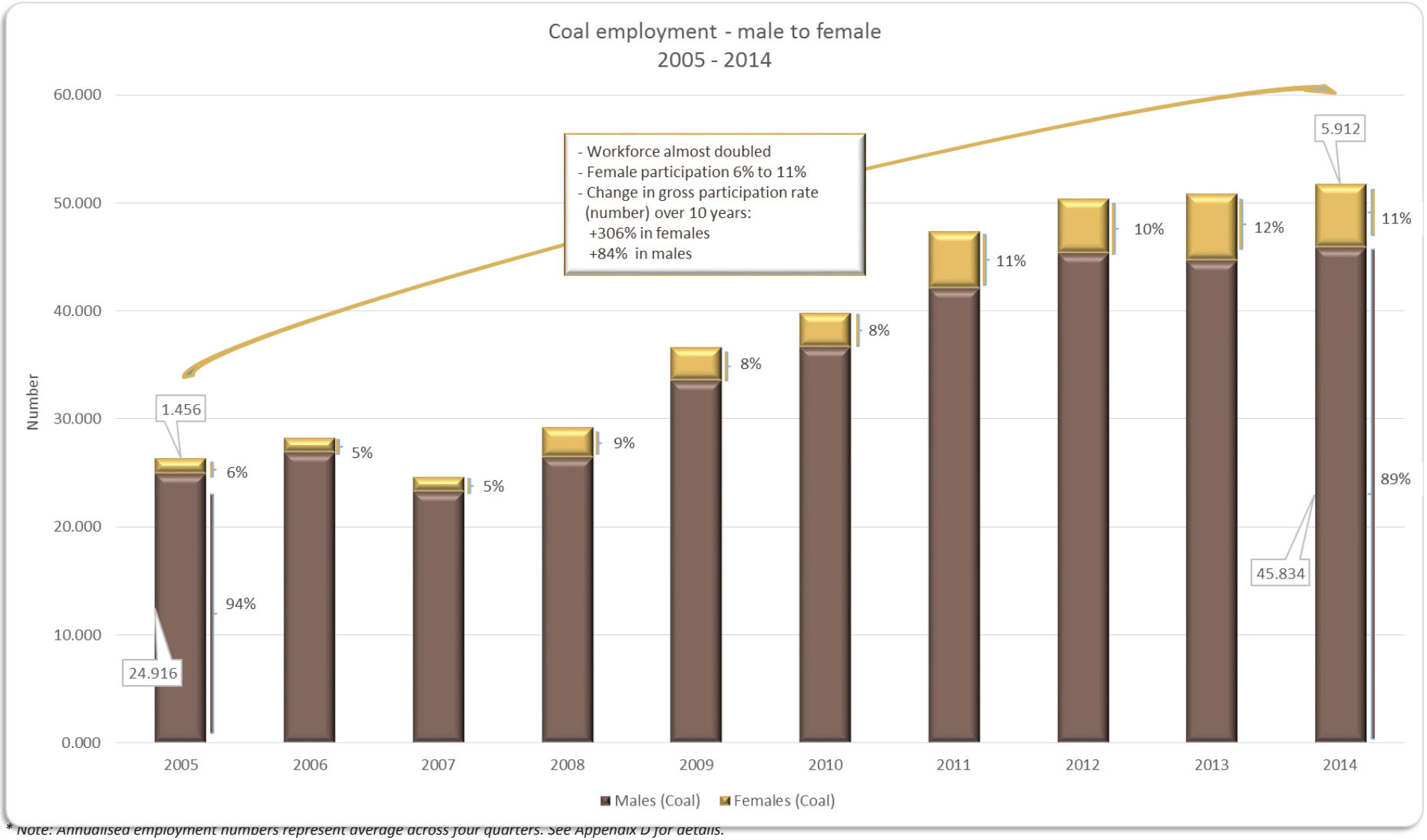
*Figure 2: Year on year change in male and female employment participation – metal ore 2005-2014**



** Note: Annualised employment numbers represent average across four quarters. See Appendix D for details.*
Source: ABS Labour Force Australia, Detailed Quarterly, August 2014

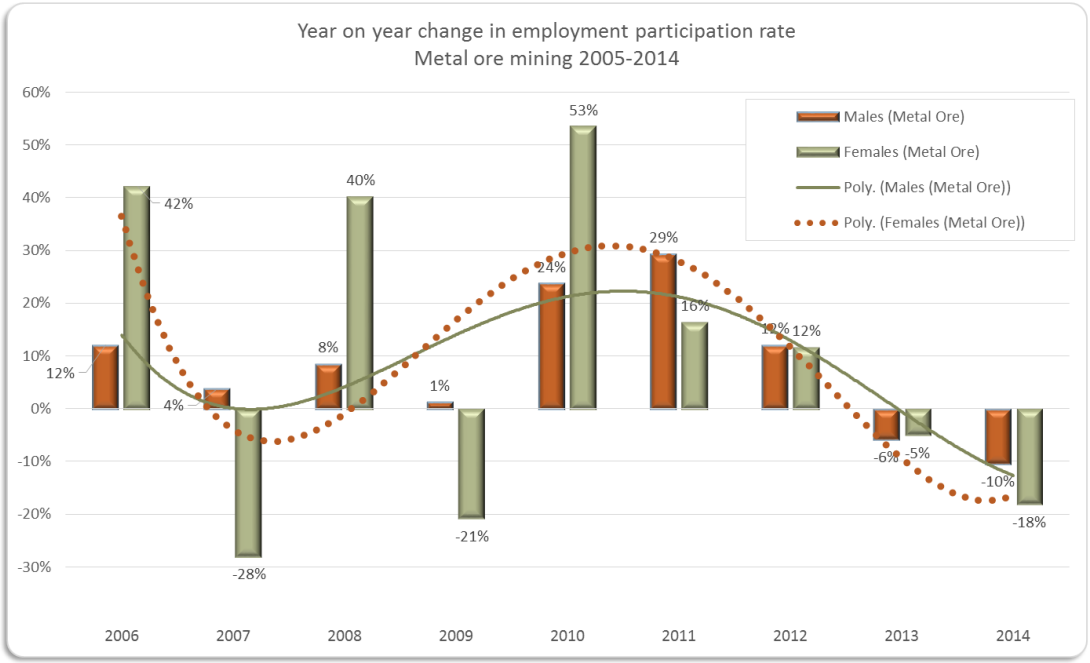
*Figure 3: Year on year change in male and female employment participation – coal 2005-2014**

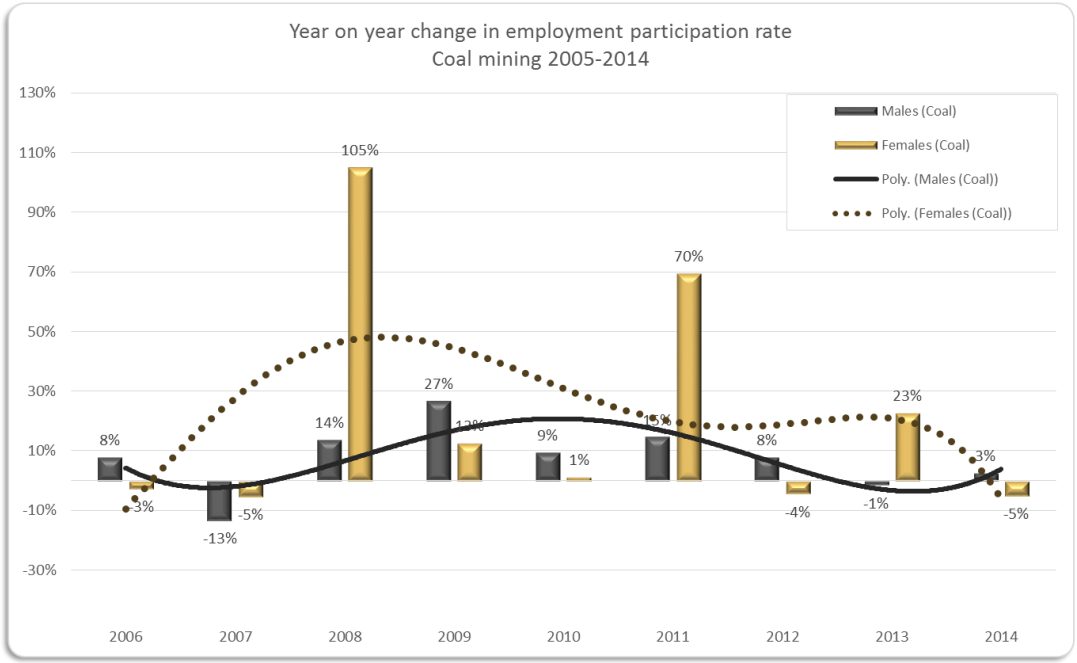


* *Note: Annualised employment numbers represent average across four quarters. See Appendix D for details.*

Source: ABS Labour Force Australia, Detailed Quarterly, August 2014

*Figure 4: Comparison of female to male employment - metal ore and coal - 2005 – 2014**





** Note: Annualised employment numbers represent average across four quarters. See Appendix D for details.*
Source: ABS Labour Force Australia, Detailed Quarterly, August 2014

THE COHORT STUDY: TRACKING CAREER MOBILITY

Tracking original study participants posed some methodological challenges. Over a time interval as lengthy as 15 years, it is highly likely that there will have been changes of surname from marital status, cases of out-migration, changes to career direction resulting in exit from the industry, and possibly even some deaths. Also, while the names and place of work of the original cohort were on record, no further contact details such as home address were collected in 1997, further exacerbating the tracking challenges.

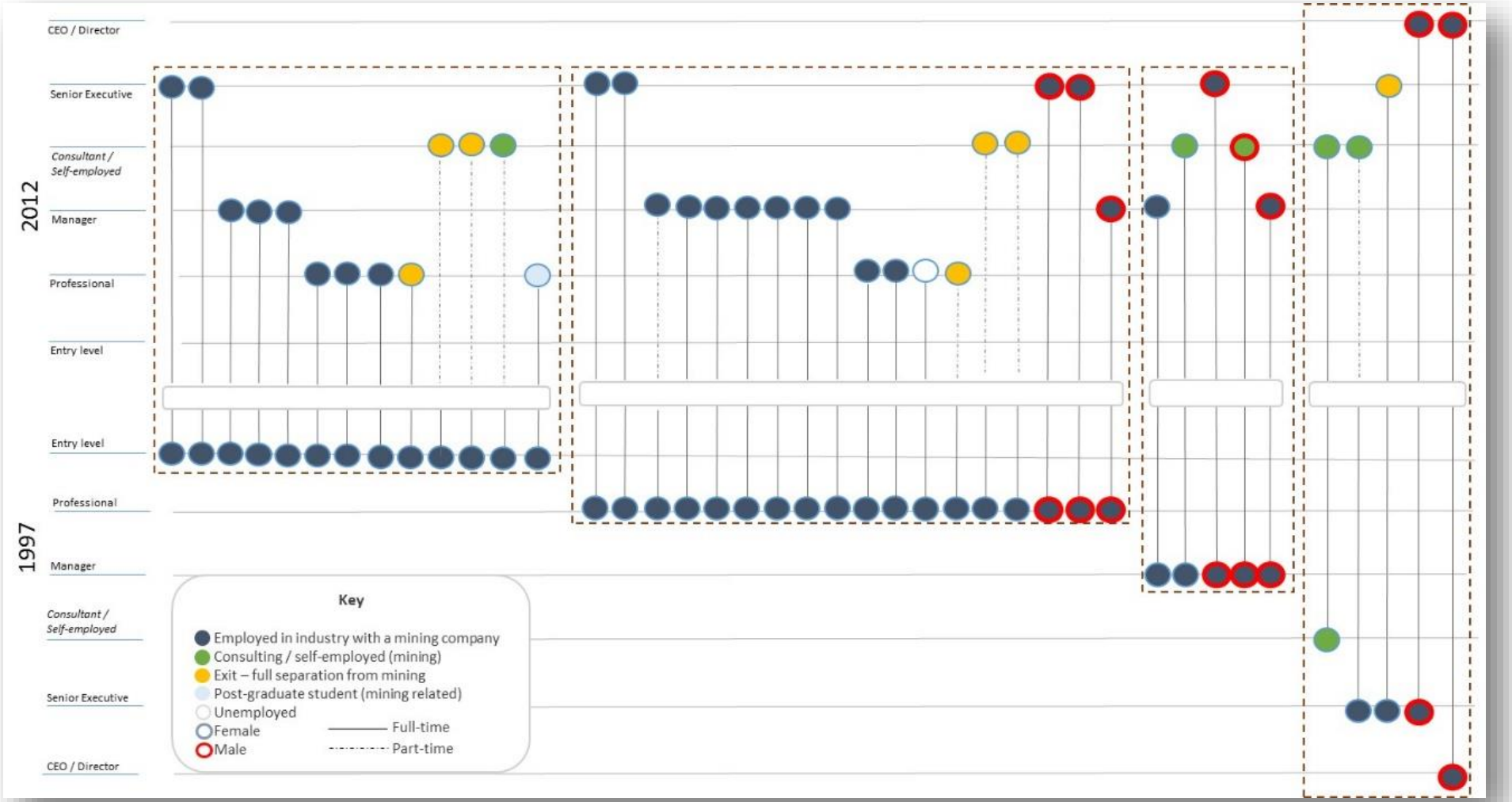
Figure 5 shows the 2012 study cohort by their 1997 career level and their 2012 career outcomes[7]. It can be observed that:

- Of the 41 tracked participants, 17 per cent had experienced full employment separation from the industry. All of these are female.
- Of the nine participants who were consultants or self-employed in 2012, all bar one was female.
- Of the eight participants who were working part-time in 2012, all were female.
- Of the 13 participants (all female) who were at entry or early career level in 1997, 23 per cent had subsequently left the industry. Of those who remained in the industry, all had experienced some career progression over that period.
- Of the 28 women who were collectively at entry or profession level in 1997, four had progressed to senior executive level, compared to two of the three males in the same category.
- Of the total cohort of women (n: 33), only four (12 per cent) held a senior executive level position in 2012. This compares to five of the eight males (63 per cent), although two of these were already at senior executive or CEO level when interviewed in 1997.
- Of the four women who were at manager or senior executive level in 1997, only one was still employed by a mining company in 2015. Of the five males in the same category, all bar one had remained employed by a mining company.

[7] Study cohort employment level categorisations.

Employment level	Characteristics
Entry level	University student, graduate, or early career with 1-2 years of experience
Professional	3 or more years of experience with limited supervisory responsibilities
Manager	Managerial position with supervisory responsibilities such as department or section manager
Consultant / self-employed	Mining or non-mining function, may be sole operator or engaged by an established consulting practice
Senior executive or CEO/Director	Senior managerial role with designated leadership functions such as asset manager or company director.

Figure 5: 2012 study cohort career outcomes



Given the small size of the cohort, and the paucity of male participants, care must be taken in generalising from these data. Nevertheless, the patterns identified support the observations of many industry diversity specialists, and anecdotal evidence reported in other industry labour studies, that female career trajectories tend to be significantly different from those of their male counterparts. Specifically, they point to higher attrition rates, slower or more limited career progression to management ranks, and a greater outflow of females towards consulting, self-employment, or other industries that provide increased opportunity for part-time or flexible work conditions.

The cogency of these observations is also borne out by the individual career narratives of the study participants. The career stories of the 41 women and men who took part in this study offer a deep-dive into a single set of career experiences and observations of industry and individual change over a 15 year time period. The remaining sections of this report draw from these career narratives.

NORMALISING THE WORKPLACE – BALANCING CAREER AND FAMILY

Much has been made over the years of the significance of the geographic and operating conditions of mining and the impact of these conditions on work-life balance, child rearing and support, and family dynamics. The norms of mining – twelve hour shifts, intensive work schedules, remote locations, fly-in-fly-out, separation from family, limited community services, workplace mobility and relocation – distinguish the sector from most other industries. These are the perennial structural characteristics of mining: as present in 2012 as they were in 1997.

Changing employment conditions such as flexible work practices or tele-commuting have gone some way toward mitigating work/family pressures. However the nature of the industry and the pragmatics of managing complex and remote mining operations tend to constrain adaptation. This is sometimes compounded by entrenched thinking around what is or is not possible. For example, there are a handful of high profile women in the industry who appear to have met the work/family nexus head on and have carved stellar mining careers. But these women remain relatively uncommon and their success should not deflect from the challenges that continue to constrain the career pathways of many women in the industry on a daily basis.

The challenge of balancing career and family is not unique to women – many men share the journey and share the struggle. But what is different between men and women is the scale of the impact, and the persistence of the conditions that may limit their options or cause

2012: *By its nature it is a harsh industry and people have to accept that they can't change the geographical location of mines (#3-2012)*

2012: *I knew that with three children and my husband away all the time with work that I really was not going to have the opportunity to work in geology again at that stage… I've felt disappointed about not continuing. I certainly enjoyed a lot of aspects about [working as a geologist], but when it comes to having a family…it becomes very challenging to be able to balance everything. Particularly when you've got a partner who is also in that field- there is a lot of travel (#19-2012)*

2012: *In operational and real business roles and technical roles…not too many of the women had a family and kids. It's very demanding. The job is really, really demanding. (#25 -2012)*

2012: *We made the decision [not to have children]. But I think every woman has to make that decision for herself….In my job, which is a 24-hour, seven day a week operational. I've got calls on weekends, I go to work on weekends, I get calls at night, I work very long hours, et cetera -it would be impractical of me to think that I could become a mum and a GM at the same time.... (#17-2012)*

2012: *I think working on two shifts [day and night] was something that was introduced as a measure in really bad times, to cut costs. It then started to feed into these rosters of flying in and flying out. They work when you've got a short mine life and, over that, you're probably likely to turn your workforce over how many times. My understanding is that the turnover in workforce now is never, ever been higher. The more the industry belongs to the mainstream economy and society, the more it will be attractive to women and to all participants - men and women. (#16-2012)*

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them to question the long-term viability of their chosen professions. Men are far less likely to have to struggle with the decision of when and whether to have children, knowing that the timing of that decision may signal career wind-down. For many women, on the other hand, this is a life reality, and for women in mining this reality becomes acute when confronted by what it is to work and thrive in this industry. So, while individual men may struggle, women struggle as a group. And while individual women succeed, that success often involves life choices that men do not face, or at least not to the same extent.

These observations and challenges are borne out by this research, which suggests that, in 15 years, there has been very little change in patterns of primary care giving for children. For example, a comparison of career breaks of women and men from the 1997 and 2012 survey shows almost no change in patterns of uptake of paternity leave by men in the industry (Figure 6). This is despite presumably easier access to carer leave and a maturing industry and workplace culture that, in theory, should be more accepting of male care giving than it was in 1997.

Patterns of asymmetrical responsibility for child care between men and women extend beyond the initial uptake of maternity/paternity leave. In the 2012 survey (Table 5), 46 per cent of males, compared with just 12 per cent of females, indicate that their children are cared for by their partner, while 13 per cent of males, compared to less than one per cent of females, indicate shared carer responsibility with their partner. Further, patterns of female carer responsibilities suggest that women tend to have a more networked approach to care giving with grandparents and relatives playing substantial roles[8].

The survey demographics (Table 4 above) indicate that across the two time periods, male professionals in the industry are far more likely than females to have children. Even taking into account the differential age distribution of respondents, the difference in ratio of males to females with children is substantial.

Not all of these patterns are unique to the mining industry – the low uptake of paternity leave is a global trend. Low rates of paternity leave utilisation is a persistent negative indicator that the balance of child care responsibilities, with associated career disruption, is overwhelmingly borne by women and that these patterns continue to drive gender inequality in the workplace (ILM, 2014; Joanneum Research, 2014, Eurofound, 2015; Commonwealth of Australia 2004).

[8] Note: the question of caring for children was not asked in the 1997 survey.

Why men don't take paternity leave

Recent research in the United Kingdom indicates 96% of new mothers take more than the statutory two weeks off work after the birth of a child compared with less than 10% of men who took more than two weeks paternity leave (ILM, 2014).

The principal factors influencing lack of uptake of parental and paternity leave by fathers include:
- lack of information about the leave available,
- leave compensation and pay disparities (money),
- availability and flexibility of childcare facilities,
- prevailing family organisation models, and
- the extent to which workers fear isolation from the labour market when taking leave.
(Commonwealth of Australia, 2004; Eurofound, 2014).

Figure 6: Uptake of maternity/paternity leave - 1997 and 2012 survey

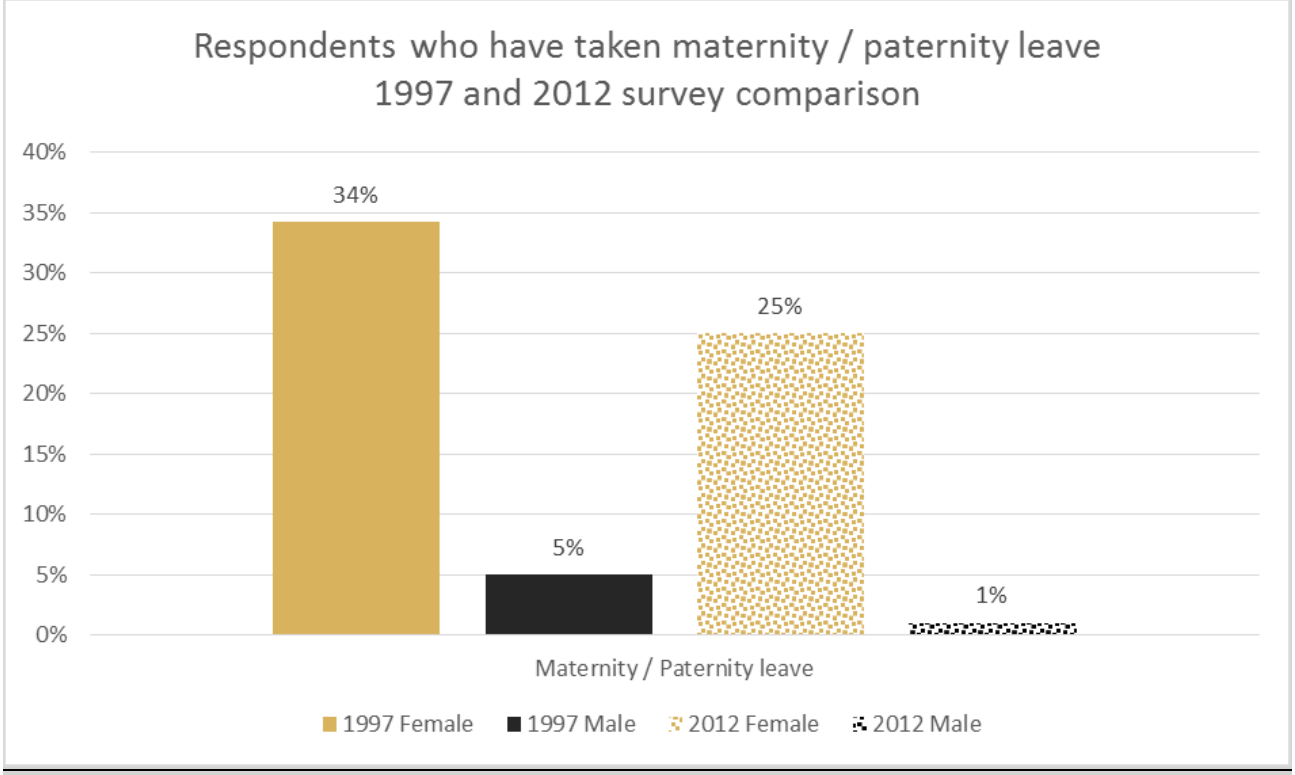

Table 5: Patterns of care giving - males and females 2012

Caring for children	Females	Males
Me	23%	0.4%
Partner	12%	46%
Childcare	12%	10%
School care	11%	0.02%
Grandparents/relatives	10%	0.05%
Equal me/partner	0.08%	13%
Paid sitter	0.06%	0.09%
Friend/neighbour	0.02%	0%

For the majority of women in this study, balancing the demands of working in mining with family has been one of the most critical influencers on career outcomes. The life choices of whether and when to have children, and when to privilege one career over another in a dual-career household, has for many proven to be a crossroad. Whether this marks an exit point, the beginning of a battle to find and maintain flexible work, a shift into consulting or self-employment, or continued career progression within a company, depends on a range of factors including the extent of formal and familial support that women are able to access.

Spousal and family support within the household is critical. But equally critical is the preparedness of organisations to offer flexibility and create a supportive environment. Findings from the 2012 survey are concerning in this regard, as they indicate that a significant proportion of respondents, male and female alike, still see the industry as not supportive of employees with family responsibilities. In particular:

- 53 per cent of males and 56 per cent of females agreed or strongly agreed with the statement that '*to turn down a promotion or transfer for family-related reasons will seriously hurt one's career progress';* and

- 48 per cent of men and 53 per cent of women agreed or strongly agreed that '*to be viewed favourably by supervisors and management, employees must constantly put their jobs ahead of their families or personal lives'*Also relevant is the finding that 60 per cent of female respondents agreed or strongly agreed that in the mining industry employees who take leave for family reasons are seen as less committed to their jobs,

2012 *One of the … areas that I find challenging and I don't know what the solution is - in [my team] at one stage there were probably about 10 in the mid-tier… about six women and four men… At any one point in time, about five of those six women were either on maternity leave, about to have a baby. The life stages were between about 28 and 38. They didn't want to travel. That put an unfair load on the fellows because they also had young families. This is really tough … balancing your workforce. You can't just say, well I'm going to do this job but I'm not going to travel, when it's part and parcel of what the job's about… those guys have just as much right to be at home with their families as those women but it wasn't recognized nearly well enough. I think that is something that really has to be managed fairly carefully… [I supervised a woman with children who…] was very definitely playing second fiddle to somebody else's career and that meant that she was the one who always dropped a bundle and wouldn't travel and wouldn't do this and that and the other… If you want to work in this industry and let's be realistic, the head offices might be in capital cities but the businesses that earn all the money aren't… the business doesn't owe you a living, you owe the business the responsibility of doing the job (#25-2012).*

I think it's a rare thing indeed. (#10 -2012)

Organisational: *[Companies] are making [flexible work practices] a workplace issue, not a women's issue. So flexible working arrangements have become a very, very big thing and they realise that it was flexibility, not just for the women but for the men also because they've realised that if you allow men flexibility that gives the women flexibility as well… Gender diversity isn't just about filling job vacancies; it's about your corporate image – your corporate reputation (Organisational # 3)*

Organizational: *… We have four men working at one of our sites where they're fly-in-fly-out. We provide them the opportunity to actually job share two roles… rather than having two weeks off, they have a longer period off before they then return to site which helps them manage their work and family commitments. It kind of happened… it's been the right timing, the right people… rather than it being driven from the top down, and that commitment resulting in some structured approach to it…. In terms of job share, it makes me very excited. Because we have men that want it, so it's much easier – it's a no-brainer. The men want it, so we'll do it. Whereas had we had the request from women, I suspect we wouldn't have had the same response [from management] (Organisational #8).*

whereas only 25 per cent of the males took this view. Clearly, companies need to be doing more – both symbolically and practically - to reassure female employees on this point.

There may be some practical limits to what organisations can implement, given the constraints of some operational environments (for example, remote FIFO operations) but these should not simply be accepted as givens. Instead, there needs to be a conscious focus on identifying the scope for, and limits to, flexibility, and on nurturing a more supportive environment. This includes enquiry into the efficacy of policies and procedures designed to promote work/family balance and shared parental responsibilities, and reflecting on the organisational and supervisory culture that is the filter through which such policies and procedures are applied.

Transformational technology: beyond tele-commuting

In the mining industry within Australia (iron ore in particular) we are likely to see a significant reduction in the future in on-site roles, as greater use is made autonomous and remote control vehicles and other equipment, and control functions for multiple operations are centralised in cities (e.g. Perth and Brisbane) and regional centres (e.g. Orange in New South Wales). This will reduce the need for people to be based on site and, in theory at least, ought to allow for more flexibility in shift and roster structures. The increased focus on 'big data' analytics is also creating demand for a new class of professionals, with competencies that are more like those traditionally associated with the IT industry.

These changes in how the business of mining is conducted have the potential to alter the culture of the industry, by reducing the numerical dominance of traditional miners. There should also be more opportunities for female professionals working in areas such as IT, logistics and mineral processing control, because there will be less need to move to remote areas to secure work and, as indicated, greater scope to implement flexible work arrangements (see McNab and Garcia-Vasquez 2011).

SUCCEEDING ON MERIT – COMPLIANCE, TOKENISM, THE BATTLE FOR RECOGNITION

In 1997 the marginalisation of women in the industry was pervasive and underpinned much of the discourse and experience of the meaning of being a women in mining. For many of the women who entered the industry in the 1980s and early 90s, getting past the first hurdle of gaining a job interview was a struggle in itself, often requiring them to obscure their gender just to get through the door.

Even after they were hired, it was not uncommon for professional technical women to find themselves having to account for their presence in the workplace, and battling assumptions that their jobs were a tokenistic outcome of the push for corporate compliance with the fledgling Equal Opportunity Employment laws. The possibility that they had earned the right to be there by merit was often obscured by a culture that persisted in framing mining as a man's world.

The professional technical women of the 1980s and 1990s were the vanguard of industry diversity. Being in the extreme minority was the norm, be it at university, operations, corporate, or management. The experience of many of these women was binary – they were in or out – and often walked a line between visibility or blending in, social and professional isolation or unwelcome attention, taking a stand against discrimination and risking their careers or passively absorbing the experience by opting to change employer. There was very little subtlety in the 1990s and these women were the agents of change who were often seen as unwelcome competitors in the tight labour conditions of the period.

The performance bar was set high for women. They were expected, by unspoken rules among their colleagues and superiors, to work harder and

1997: *It's a hard battle for women, it's a bloody hard battle because they've got to work harder than anybody else to prove themselves and in most cases they do that and they work better than anybody else (#35-1997, male)*

1997: *…women … are not going to drink with the boss because that's the way to the top. You know, they reject that sort of philosophy...Some people will genuinely be promoted on their merits, amazing as it might sound, but I'd almost say it was the exception rather than the rule, in my experience anyway (#3 - 1997)*

2012: *… You just get to a point where you think well, I've been fighting this battle for so many years and I won it, won it and won it. Then when you move to a new job you've got to start all over again with exactly the same issues. So you think –what am I knocking myself out for? There wasn't just a glass ceiling. There was also a glass floor because every young mining engineer that came in underneath you sort of was always continually challenging - not accepting that you had the authority to control their work and the experience et cetera to do it (#2-2012).*

2012: *… It's fine until you move up the ladder and, suddenly, the fellows realise that she could actually be my boss…. My other perception of mining companies taking on women is that they will take on women from accounting, women from law, not women who would challenge them and be smarter than them at their own game. That's the way it has worked for the past - the past five years there might've been a bit of a move away from that. (#16-2012)*

2012: *I think you've just got to keep moving forward and just recognising that … doesn't matter what colour, shape or size…. The fact is that we've got all nationalities working in the mining industry through Australia now so it's become a lot more tolerant and a lot more open to everything (#2-2012).*

be better than their male counterparts just to see men with less experience and less qualifications pass them by on the career ladder. And every time they changed their workplace, the game of establishing legitimacy and worth began again. To succeed often required alignment with the prevailing activities and values of a masculine culture, such as taking an interest in sport or drinking with the 'right people', an anachronistic approach to success that left many women, and no doubt some men, in the career wilderness. Cases of women succeeding on merit were the exception rather than the rule, and the aggressive self-promotion that seemed the norm for 'getting on' was a poor fit for many newcomers.

The early days were indeed challenging for many women in the industry, notwithstanding pockets of support and innovation, and the handful of male diversity champions. Interviews with the 2012 cohort point to significant signs of progress and acceptance weaving through their career narratives. Evidence of the transformative effect of the super-cycle is present, with diversification an inevitable outcome of expanding workforces and the influx of a new generation of worker.

However, many of the descriptions of change are measured and cautious. There is still a sense that many women feel they need to "prove their worth" within a company; that their presence is tokenistic rather than earned. Echoes of the 1990s approach to securing promotion – talking yourself up, connecting with supervisors and decision makers around topics such as sport, displaying "appropriate" aggression – remain, tactics that continue to favour men over women, and privilege culture and networking over skills and capability. The prevailing sense is that, despite all of the change and effort, mining remains a male-dominated industry where women, particularly in the upper ranks, are the exception rather than the rule.

Organizational: *What I noticed happening was you'd get quite a lot of young women who would hang in for about seven years…. After about four or five years, you expect your first obvious seniority move and [they] suddenly see … their peers – the guys – get it…. [The women are] doing their work very competently – because I do still believe the average woman has to be more competent than the average guy… you'll be doing the work competently and you're very reliable. But the guys can be less reliable and they'll get put up more senior. This happens at about five years and you think, well I'll get mine next. Six years, it's still not happening. By the seventh year, it's becoming painfully obvious that you're being left there to do the job because you're reliable and you're not getting the recognition or the pay and the guys are getting the seniority. At about seven years, a lot of the young women … they're bright enough to say, well I've really given this a good shot, I know I can do it well. But I can also see that I'm just never going to get a fair go and stuff it. I'm going to go (Organizational, # 11)*

2012: *[Management] expect people to be very aggressive and to sell themselves, talk themselves up and beat their own drum and stand around the hallways and talk about the rugby [some women are] just not interested in any of that [so they are] definitely being held back. (#36-2012, male).*

2012: *I do think that, if companies are really serious about [gender equality] then we've got to do a number of things. First of all, if you have a male and a female come for a job, a senior position and they're both good, they should take the female. So there should be some form of positive discrimination… I think that to make it work for a woman, regrettably, one has to be more self-sufficient than a man because there isn't a great deal of support (#34-2012 male).*

2012*: Well nominally everyone is keen to have one or two [women] in their ranks regardless of their competence to do the job or not. That I think is a very sad thing. I've always been a great believer in people being appointed based on their own level of competence and their ability to do the job regardless of what sex they are (#3-2012).*

THE RULES OF THE GAME – DISCRIMINATION AND HARASSMENT

One of the findings of the 1997 study was the perception of endemic discrimination against women in the industry. In many of the career interviews women spoke of a culture of entrenched harassment and discrimination, and tactics of silence and tacit compliance adopted in order to avoid confronting a system they believed unable or unwilling to listen. To confront the system was to risk being branded a trouble-maker – a career limiting label best avoided. So for the most part problems in the 1990s were dismissed as personality differences and the women stepped aside – they chose to move on.

Comparison of results from the 1997 and the 2012 surveys indicates some improvement in perceptions of the industry's performance in equality of employment (Figure 7). In 1997 only 29 per cent of female respondents believed the industry to be an EEO employer, compared with 54 per cent in 2012. However, while these findings are encouraging, they also mean that almost half (45 per cent) of the 2012 female respondents still believed either that the industry is not an EEO employer, or they are reserving judgement.

The proportion of male respondents with a positive view of the industry's performance as an EEO employer also increased between 1997 and 2012, although from a much higher base (54% in 1997, compared to 29% for women).

Overall, there is evidence of a growing converge in opinion between male and female respondents in how they view the industry's EEO performance. Whereas men were more than twice as likely as women to rate the industry favourably in the 1997 survey, they were only 1.3 times more likely in 2012. This convergence is attributable primarily to the proportionally greater shift in how women now view the industry.

1997: *[I was] warned to not get into a routine and watch where I was going and make sure people knew where I was. They'd obviously had problems with women working [at that site] before. So you know, I never had any problems, but … it was a bit of a shock to the system … to be sat down on your first week and sort of be warned by managers about that. (#26-1997)*

1997: *[My friend] asked about being put on as an operator in the plant and the gentleman who was interviewing her told her that the policy was not to put women on as operators because heaven knows what might happen behind the bore mill on night shift and she was just aghast. (#3-1997)*

1997: There is a certain level of, I guess that what some people would call harassment, it happens every day and….[sometimes] it's not clear what the boundaries are….I mean you are supposed to discuss any problems with your immediate senior, and he was involved, and then if you can't talk to him, you are supposed to talk to your superintendent, and he was also involved. What could I do? I mean how many times does stuff like that have to happen? … they obviously think that that sort of thing is acceptable…all they'd say to me would be: 'Right, if you are uncomfortable we'll transfer you." They'd never transferred him. I don't want to transfer, I like my job. (#24-1997)

1997: *… I've known a few people who have made claims against people, and the people involved have been disciplined, but the way that [the complainants have been] treated by the other staff members after that has been really bad… A lot of people have told me that it's a very small industry, and if you make a complaint about somebody, no matter how right you may be in that complaint, that you'll be tarnished, for want of a better way of describing it." (#36-1997)*

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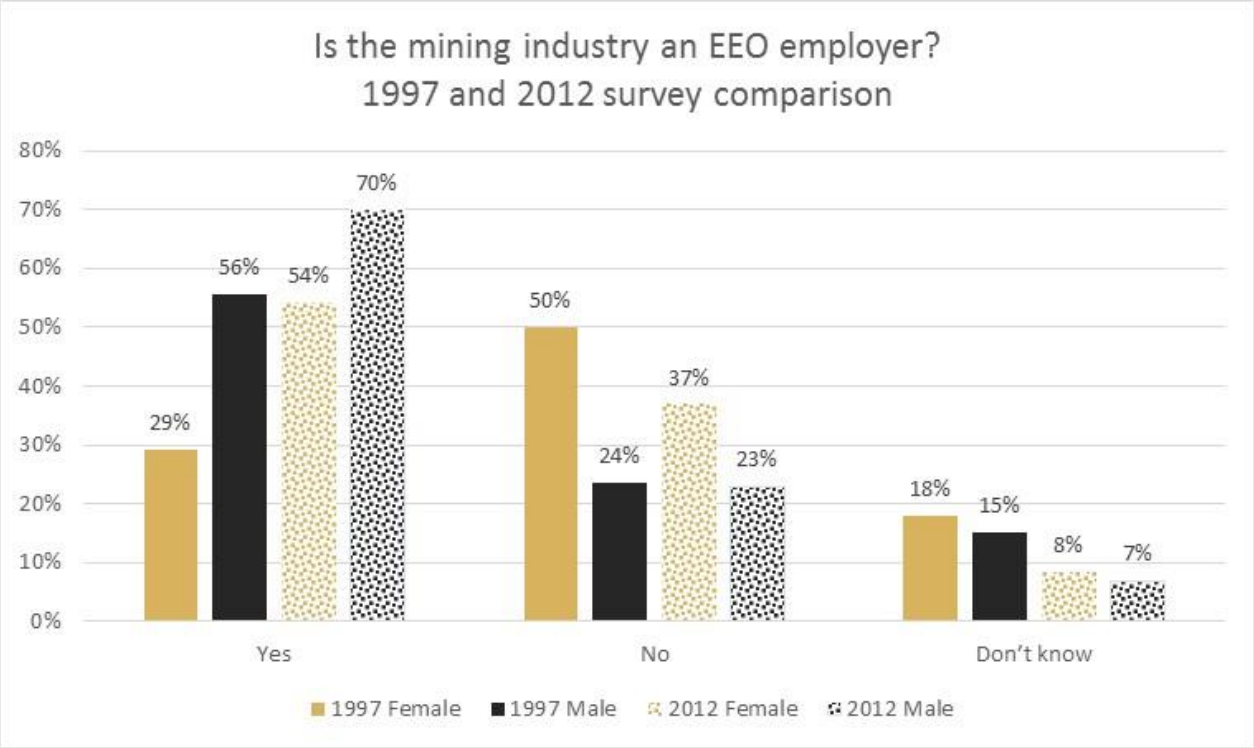
Figure 7: Mining as an EEO employer - comparison of 1997 and 2012 survey results



		Total respondents	Yes		No		Don't know		No response
1997	Female	106	31	29%	53	50%	19	18%	3% (n:3)
	Male	72	40	56%	17	24%	11	15%	5% (n:4)
2012	Female	484	263	54%	179	37%	41	8%	0.2% (n:1)
	Male	187	131	70%	43	23%	13	7%	0% (n:0)

So how far has the industry's performance as an EEO employer actually moved in the 15 years since 1997? It is now generally accepted that the discrimination of the type found in 1997 is less prevalent than it once was. Few of the women in the longitudinal cohort in 2012 spoke of harassment and discrimination in a contemporaneous sense. For all intents and purposes the overt discrimination that seemed almost endemic in 1997, such as exclusion from job interviews because of ones gender, or persistent sexual harassment in the workplace, seems to be a thing mostly of the past (although this finding may partly reflect the age and demographic of the cohort for this study).

In 2012 the discourse from those who remain in the industry was more likely to reflect the equalising impulse arising from the commodities boom and an industry thirsty for highly sought after technical professionals. Production pressures, organisational expansion, escalating costs and salaries, and intense competition for resources (human and ore) all contributed to a marked shift in employment and cultural conditions.

2012: *I've been either incredibly lucky or again the fact that from a reputation for delivery point of view that actually just completely nullifies [discrimination] for anybody. Because … conversations just take place based on facts around delivery. So it's one of the messages actually that I try to give women, and particularly young women, a lot. Because sometimes a lot of the next generation after myself expects certain opportunities to be presented because they may be a minority group. I always say to people you just need to be very, very good at your job and the issue of gender in my experience just cancels itself out. Becomes a non-event (#17-12)*

2012: *I think part of [the experience of discrimination] is company culture….with the way that I get treated or invited or not invited to meetings or the way that people will comment. It's a very subtle thing now. Much more subtle than it ever used to be. Was kind of easier in a way when you're younger that it's much more overt (#24-12)*

2012: *I think there is still some ways to go because - this one's a really funny little thing that you will think is not very important but I think it still is a little bit of an indication that there's still some mindset that has to change. When we're writing feasibility - when we're writing studies, they still put in the heading manning, not personnel…. You just get to a point where you think well, I've been fighting this battle for so many years and I won it, won it and won it. Then when you move to a new job you've got to start all over again with exactly the same issues. So you think, what am I knocking myself out for? (#2-12)*

WHERE TO FROM HERE?

LESSONS LEARNED FROM A GENERATION OF CHANGE

The research presented in this report provides several positive indicators of change in the mining industry:

- Significantly more respondents who completed the 2012 survey had a positive view of the mining industry as an EEO employer than was the case in 1997. This shift was particularly marked amongst female respondents.
- Compared with 1997, fewer women interviewed in 2012 spoke of harassment and discrimination in a contemporaneous sense, an outcome that may partly reflect the cohort profile. Persistent sexual harassment in the workplace seems less prevalent than in the past.
- Most of the women in the 2012 cohort study were still working in the industry and, of these, most had moved into more senior roles since 1997, including to managerial or executive roles in around half of the cases. (Although this finding may be, in part, an artefact of the study design, as it was likely to be easier to locate women still working in the industry than those who had left it).
- From 2005 to 2014 there was a sustained increase in female participation in the coal sector, in both absolute and proportional terms, albeit from a very low base.

At the same time, the report has highlighted the scale of the remaining challenges which must be addressed if full gender equality in the mining workforce is to be achieved.

- Female professionals remain significantly more likely to experience career disruptions than men and are still more likely to exit the industry, or to shift to consulting, self-employment, or other industries that provide increased opportunity for part-time or flexible work conditions.
- There was very little change between 1997 and 2012 in patterns of primary care giving for children; for example, there was almost no change in the rate of uptake of paternity leave by men in the industry.
- Many professionals working in the industry, male and female alike, still see the industry as not supportive of employees with family responsibilities.

- There was still a sense amongst many of the women interviewed in 2012 that they needed to 'prove their worth' within a company.
- Female participation rates in the metals sector fluctuated at around 15 per cent between 2005 and 2014, with no sign of upward movement.
- There is indicative evidence that, particularly in the metals sector, women have been disproportionally affected by downturns in the economic cycle. Further research is required to investigate why this is the case and, more importantly, what might be done about it.

THE NEXT 15 YEARS – CONCLUDING OBSERVATIONS

There are strong external drivers for the mining industry to continue to improve its performance in relation to gender equity and address issues of female under-representation. These drivers include rising societal expectations, increased scrutiny from government and other actors, and changing labour market dynamics.

Arguably, though, the era of 'quick wins' is over. With the "heat" going out of the market and the slowing of the development of new mining operations (which this report has posited has likely been an important source of growth in women's employment in sectors such as coal) it is conceivable that the net gains of the last 15 years will stall or possibly even regress. Further progress will depend on companies taking action on a range of fronts, including through the formalisation of gender commitment. For example, organisations are increasingly adopting the language of "targets" in the effort to achieve gender diversity, such as the QRC's 20 percent by 2020 (QRC, 2006) and the Australian Institute of Company Directors target of 30 percent female board membership by 2018 (AICD, 2015). Meeting such targets will require substantial and concerted action in the investment, development, and mentoring of women in the workforce.

Putting in place policies and procedures that formally commit an organisation to gender diversity is only the first step. Organisations also need to enquire into the efficacy of these policies and procedures. For example, if there is evidence of a lack of uptake of paternity leave relative to maternity leave, the question of why that may be the case and the implications need to be explored. Policy on its own does not equate with changed or improved conditions. Only sustained action equates with change.

Much also depends on the ability, awareness, and will of managers to accommodate changing circumstances. This requires continuing investment in the skills/competence of leaders to enable them to build high performing teams that are characterised by diversity.

Changing the culture and workforce composition of existing mining operations is difficult, and is likely to be an incremental rather than transformative process. However, the establishment of new mines, on the other hand, presents significant opportunities to configure workforces differently and

create a workplace culture and environment which is more likely to attract and retain female employees. This has already been demonstrated by companies such as BHP Billiton – Mitsubishi Alliance, which have established new coal mines in Central Queensland where close to a quarter of the workforce is female – a ratio far higher than the industry average. The industry needs to grasp these opportunities when they are presented.

Looking to the future, technological innovation in the industry will also provide an opportunity to provide more off-site career opportunities for women and to implement more flexible working arrangements. For example, if mineral processing and/or logistic control centres can be located in a city or near an established regional centre, this should make it easier for women (and men) with professional capability in these areas to stay engaged in the workforce, instead of being faced with the choice of having to travel to remote mines and endure significant periods of separation from their families.

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APPENDIX A: GROSS EMPLOYMENT MALE TO FEMALE 2005 TO 2014

Figure 8: Metal ore and coal participation rates males and females (quarterly average annualised) 2005-2014

Metal ore (annualised av 2005 - 2014)

	Total Metal ore		Percentage Split	
	Males	Females	Males	Females
2005	33.111	5.723	85%	15%
2006	37.113	8.131	82%	18%
2007	38.521	5.854	87%	13%
2008	41.782	8.202	84%	16%
2009	42.306	6.499	87%	13%
2010	52.333	9.973	84%	16%
2011	67.669	11.603	85%	15%
2012	75.807	12.947	85%	15%
2013	71.438	12.301	85%	15%
2014	63.969	10.078	86%	14%

	% change in employment numbers	
2005	-	-
2006	12%	42%
2007	4%	-28%
2008	8%	40%
2009	1%	-21%
2010	24%	53%
2011	29%	16%
2012	12%	12%
2013	-6%	-5%
2014	-10%	-18%

Coal (annualised av 2005 - 2014)

	Total Coal		Percentage Split	
	Males	Females	Males	Females
2005	24.916	1.456	94%	6%
2006	26.861	1.416	95%	5%
2007	23.280	1.340	95%	5%
2008	26.466	2.750	91%	9%
2009	33.529	3.095	92%	8%
2010	36.684	3.135	92%	8%
2011	42.067	5.315	89%	11%
2012	45.339	5.077	90%	10%
2013	44.664	6.230	88%	12%
2014	45.834	5.912	89%	11%

	% change in employment numbers	
2005	-	-
2006	8%	-3%
2007	-13%	-5%
2008	14%	105%
2009	27%	13%
2010	9%	1%
2011	15%	70%
2012	8%	-4%
2013	-1%	23%
2014	3%	-5%

Source: ABS, 2015. Labour Force, Australia, Detailed, Quarterly. Table 6 Employed Persons by Industry Subdivision and Sex. Cat. 6291.0.55.003 Australian Bureau of Statistics, Commonwealth of Australia

METALS

		Data			
Year2	Year	Sum of Employed Total ; Metal Ore Mining ; Males ;	Sum of Employed Total ; Metal Ore Mining ; Females ;	Sum of Employed Total ; Metal Ore Mining ; Males ;	Sum of Employed Total ; Metal Ore Mining ; Females ;
1/02/2005	Feb-2005	31.2362969	3.8922243		
1/05/2005	May-2005	35.5657912	4.51599		
1/08/2005	Aug-2005	34.2838137	5.5699789		
1/11/2005	Nov-2005	31.3593291	8.9143503	33.111308	5.723136
1/02/2006	Feb-2006	30.8666928	8.1984314		
1/05/2006	May-2006	38.6179577	9.2357631		
1/08/2006	Aug-2006	39.6296163	7.3884736		
1/11/2006	Nov-2006	39.3373853	7.7025803	37.112913	8.131312
1/02/2007	Feb-2007	40.4653796	6.6941322		
1/05/2007	May-2007	37.8662587	5.4625542		
1/08/2007	Aug-2007	38.3530489	5.7466686		
1/11/2007	Nov-2007	37.4010345	5.5107186	38.521430	5.853518
1/02/2008	Feb-2008	37.4060861	4.8658478		
1/05/2008	May-2008	46.3285215	10.4564558		
1/08/2008	Aug-2008	44.6157676	8.6842181		
1/11/2008	Nov-2008	38.7757306	8.8027441	41.781526	8.202316
1/02/2009	Feb-2009	41.0294977	6.891734		
1/05/2009	May-2009	44.8196269	6.0307746		
1/08/2009	Aug-2009	40.1325696	5.5366692		
1/11/2009	Nov-2009	43.2415776	7.5359978	42.305818	6.498794
2010-14 (Aug	Feb-2010	51.1645997	6.8875547		
	May-2010	49.6140662	10.1705853		
	Aug-2010	51.2293019	9.7649347		
	Nov-2010	57.3248219	13.0705431	52.333197	9.973404
	Feb-2011	60.710648	11.4942723		
	May-2011	68.9092478	12.7590733		
	Aug-2011	65.204492	10.3069507		
	Nov-2011	75.852972	11.8499528	67.669340	11.602562
	Feb-2012	68.7854379	13.7863719		
	May-2012	74.7190998	14.2323617		
	Aug-2012	82.9276056	13.4749172		
	Nov-2012	76.7960292	10.2952616	75.807043	12.947228
	Feb-2013	65.4035322	9.4410896		
	May-2013	69.3939319	11.6335196		
	Aug-2013	73.5821653	13.6089952		
	Nov-2013	77.3705595	14.5212084	71.437547	12.301203
	Feb-2014	76.9258081	13.6062365		
	May-2014	60.133993	8.540999		
	Aug-2014	54.8461872	8.0875348	63.968663	10.078257
Grand Total		2032.226482	355.1686693		

Source: ABS, 2015. Labour Force, Australia, Detailed, Quarterly. Table 6 Employed Persons by Industry Subdivision and Sex. Cat. 6291.0.55.003 Australian Bureau of Statistics, Commonwealth of Australia

COAL

		Data			
Year2	Year	Sum of Employed Total ; Coal Mining ; Males ;	Sum of Employed Total ; Coal Mining ; Females ;	Sum of Employed Total ; Coal Mining ; Males ;	Sum of Employed Total ; Coal Mining ; Females ;
1/02/2005	Feb-2005	21.929451	2.097944		
1/05/2005	May-2005	26.029971	0.908452		
1/08/2005	Aug-2005	25.893562	1.441582		
1/11/2005	Nov-2005	25.811492	1.374634	24.916119	1.455653
1/02/2006	Feb-2006	25.642440	1.475344		
1/05/2006	May-2006	27.404665	1.540106		
1/08/2006	Aug-2006	27.323120	1.325802		
1/11/2006	Nov-2006	27.075096	1.321565	26.861330	1.415704
1/02/2007	Feb-2007	24.456508	1.095407		
1/05/2007	May-2007	21.622952	1.556672		
1/08/2007	Aug-2007	23.292253	1.293719		
1/11/2007	Nov-2007	23.747990	1.413936	23.279926	1.339934
1/02/2008	Feb-2008	22.913061	1.517587		
1/05/2008	May-2008	27.277597	1.704148		
1/08/2008	Aug-2008	30.329966	2.980465		
1/11/2008	Nov-2008	25.344570	4.796930	26.466298	2.749782
1/02/2009	Feb-2009	32.235517	2.784503		
1/05/2009	May-2009	28.095443	4.309670		
1/08/2009	Aug-2009	37.243061	2.367079		
1/11/2009	Nov-2009	36.540320	2.920042	33.528585	3.095323
2010-14 (Aug	Feb-2010	35.816347	2.805494		
	May-2010	32.813353	3.179774		
	Aug-2010	38.301338	3.738912		
	Nov-2010	39.806309	2.814093	36.684337	3.134568
	Feb-2011	40.120050	4.664532		
	May-2011	44.272062	3.290217		
	Aug-2011	44.779452	6.238250		
	Nov-2011	39.097793	7.065569	42.067339	5.314642
	Feb-2012	45.314373	5.703805		
	May-2012	55.327875	5.007630		
	Aug-2012	43.026749	3.958367		
	Nov-2012	37.685780	5.637066	45.338694	5.076717
	Feb-2013	40.979484	3.751526		
	May-2013	40.458719	6.706645		
	Aug-2013	46.483501	5.850898		
	Nov-2013	50.733152	8.612594	44.663714	6.230416
	Feb-2014	49.636849	7.262240		
	May-2014	53.046851	6.142644		
	Aug-2014	34.817671	4.331920	45.833790	5.912268
Grand Total		1352.726741	136.9877617		

Source: ABS, 2015. Labour Force, Australia, Detailed, Quarterly. Table 6 Employed Persons by Industry Subdivision and Sex. Cat. 6291.0.55.003 Australian Bureau of Statistics, Commonwealth of Australia