Gender aspects of mining: Western Australian experience

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Abstract

Mining does not only have negative impact on communities, livelihood, physical environment and overall sustainability but it also specifically and profoundly affects women. It is an expression of the dominance of patriarchal values and pursuit of material and monetary wealth from extracting resources from the ground. Fundamental problems associated with gender discrepancy and power negotiation have marginalised women as well as traditional owners of the land where mining operates. The Western Australian case study of the town of Leonora reveals a desert mining settlement where population numbers are declining in a period of mining boom. It has become "*a men's town*" where fly-in/fly-out mining operations florish offering limited opportunties to women and the local younger generation. The gender analysis based on ecofeminism and feminist political economy reveals the urgent need for the mining industry to transform itself in order to meet the imperatives of sustainability.

Additional keywords: desert, ecofeminism, Indigenous, Leonora, sustainability, women

Introduction

The Australian outback is unique with its spectacular sights and cultural richness. It is characterised by features that are fundamentally different to any other natural or social environment, such as climate variability, patchy human population, persistent traditional and local knowledge, low primary productivity, remoteness from markets and decision-making (Stafford Smith 2008; Stafford Smith *et al.* 2008).

In recent years, mining industry has been continuously growing in the Australian outback and rangelands. Factors of global and national significance, such as the demand for resources from China, have shaped this growth but have had limited benefits for the development and maintenance of local communities (Foran 2007). Western society's preoccupation with ripping off resources from the ground for monetary value has long been attacked from a range of perspectives, including environmental and ecological economics (*e.g.* Daly and Farley 2004; Tietenberg 2004). In some cases policy makers have tried to reconcile the demands of environmentalists and business. An example of this in Australia is the arrangement for multiple use of arid zones where nature conservation takes place along commercial activities such as exploration and mining (Cohen 1992). Even then inadequate attention is being paid as to how this affects the people who live on the land, including Indigenous people and women in particular.

Ecofeminist research (*e.g.* Merchant 2005 and Plumwood 2002) argues that there is a special link between women and the natural environment either on a spiritual level or in terms of the social construction of knowledge. Women are deeply affected by developments that are occurring on the land but despite this, their lived realities are rarely subject of investigation. Australian mining towns in the desert are no exception and the issues that are of concern to, or have an affect on women there often remain unnoticed.

This paper is an attempt to draw the attention to gender issues related to mining. Three categories of women are the focus of interest: women whose livelihoods are affected by mining, women who work in the mines and those who are miners' wives and partners. There can obviously be an overlap between these three categories but the main argument we present is that in the pursuit of economic prosperity, the gender impacts of mining should no longer be ignored. Mining has a long-established image as a display of human power and masculinity. It has generated enormous wealth but also negatively impacted on the traditional livelihoods of millions around the world. After a brief overview of some of the general aspects related to mining and gender, we use Western Australia and the Western Australian mining town of Leonora as a social and geographical location where these issues are further explored.

Mining as a display of masculinity

A few explanations of the terms used in this paper may be useful, particularly as gender research is still in its infancy and seldom presented in mainstream literature[1]. G*ender* is used to mean the culturally and historically developed concept which explains the power relationship between men and women (Connell 1987; Maharaj 1995) and the way it shapes the socioeconomic background of our society. *Masculinity* refers to the way in which patriarchal values, related to the "institutionalised male dominance over women and children in the family and the subordination of women in society in general" (Moore 1998: 1), have formed the understanding of science, technology, development and the presence of dominance. *Feminism* is a stream of thought which has grown as a way of recognising and responding to various forms of oppression that exist in everyday life and in the history of science, technology and society. It verbalises issues of domination, such as sexism, racism, classism, heterosexualism and so on, in various forms of feminism: liberal feminism, Marxist feminism, radical and socialist feminism (Marchand and Parpart 1995; Merchant 1996). In the context of this paper, feminism is also insightful in relation to Indigenous people.

Ecofeminism extends these forms of domination to nature. Its viewpoint is that unjustified domination of nature is a feminist issue (Warren 1996; Warren and Erkal 1997). Ecofeminism looks at the special connections between women and nature that have developed largely on the background of patriarchy. It argues that the patriarchal tradition often exacerbates dominance over the environment similarly to dominance over women. The special connection between women and nature is pointed out in the female representation of Mother Earth, in women's biological connection to the lunar circles and in their traditionally perceived role of childbearing and domestic chore

[1] For example, gender issues have not been previously analysed in *The Rangeland Journal*.

(providing food and water for the family), depending on the natural environment for their survival: “Women’s lives flowed into what they saw as the natural order of the universe” (Neithammer 1977: 1). What makes ecofeminism distinct are its viewpoint and theory according to which nature is a feminist issue.

The mining industry is an example of an industry that is entirely dependent on nature. On the other hand, this is probably also the best example of an area of display of masculinity and dominance, and this has fuelled the strong concerns expressed by ecofeminists. Natural resources, such as ores, minerals, precious stones or coal, and their exploitation facilitated through the development of technology and appropriate infrastructure, have provided employment and income for the male breadwinners for centuries. As an expression of human dominance over nature, mining has been reinforcing the patriarchal power relationships in society. Scott (2007) even argues that mining has contributed to a special type of masculinity – “one of multiple hegemonic masculinities that operate in different contexts to uphold the sex/gender system” in society. This mining driven masculinity has been important not only to men themselves but to the entire communities. It also embodies an ideology of white masculine economy primacy (Scott 2007) that completely ignores or overrules the connections to the land of women and Indigenous people.

A more recent concept emerged in the 1990s, which deals with the subject of women, nature and society, has been known as *feminist political ecology*. It reads gender as a meaning system that is produced not only through economic relations and cultural and social institutions, but also under negotiation as a result of ecologically based struggle (Wangari *et al.* 1996). From a sustainability point of view (Government of Western Australia 2003), gender allows for power relationships within society to be re-defined in order to achieve the right integration of economic, social and environmental imperatives. This theoretical approach is visualised in Figure 1: in the cross-section of the three circles is where gender is negotiated through the struggle for ecologically balanced society on the background of economic, cultural and social factors.

Against this setting, it is interesting to explore as to how gender is being negotiated in relation to the mining industry globally as well as using evidence from Western Australia.

Gender impacts and mining

For many years now, academics and activists as well as local communities around the world have been pointing out the numerous problems interrelated to economic progress and mining development. These problems are recognised in global campaigns such as *Women and Mining* (Oxfam 2008), which bases its findings on experience from countries around the South-East Asia and Australasia. The collective voices from workshops and conferences have come together to define the following major problems arising from the mining industry development and negotiation of gender relationships within communities (Oxfam 2008):

• Mining companies’ failure to consult with women when negotiating access to land, compensation and royalties disempowers women and may go against traditional

decision-making structures. Payments to men "on behalf of" families denies women direct financial benefits and encourages economic dependence on men;

• Due to environmental damage, loss of land or displacement linked to mining, women's traditional role to provide food and clean water for their families is undermined which subsequently leads to increased workload. In addition, it stimulates a shift from a subsistence to a cash-based economy, particularly with increased male employment in the mines, and can result in women's diminishing status within society;

• Mining contributes to increasing social and health problems with the decline of traditional mechanisms of social control, influx of a transient male workforce and lack of formal employment opportunities for women. Increased alcohol consumption, domestic violence, sexually-transmitted diseases and prostitution are some examples;

• Women mine workers face discrimination, limited choice in job opportunities, poor working conditions, low wages and unequal pay for equal work.

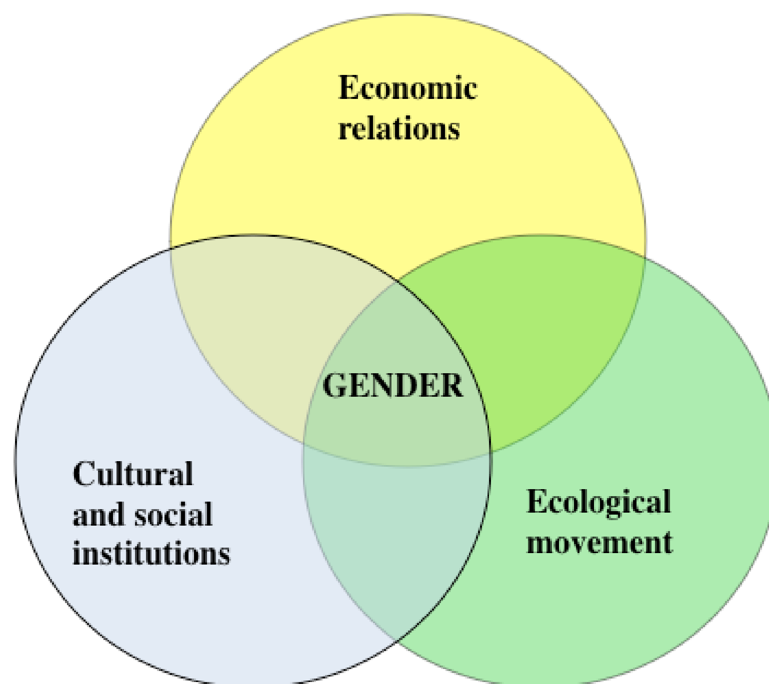

Figure 1. Negotiating gender relationships in society

According to the World Council for Sustainable Development's Mining, Minerals and Sustainable Development (MMSD) Project (2002: 212), "the impact of mining on women has been exacerbated by the failure to identify them as a distinct group of stakeholders in the planning and operation of mine sites and to establish trusted means of communication". A major difficulty in including women in any negotiations or decision-making is that consultation and communication happen mainly through community leaders who are predominantly male. Women are rarely vocal and their

interests tend to be subordinate to or subsumed into the wider goal of employment generation. The MMSD Project (2002) found difficult relationships between the mine management and the women living in the mining community in Zimbabwe, where the perceptions of poor communication by women were not shared by the mining authorities.

Another major aspect of mining operations that has attracted a lot of concern is the failure to recognise the spiritual and religious connections of Indigenous people, including women to their environment and land (Macdonald 2002). This is felt particularly strongly when people are being displaced, access to the land is being restricted and/or the health of the natural environment is being negatively affected.

Many of the above issues are relevant to Western Australian desert settlements today and resonate with the traditional owners of the land. Mining as a display of masculinity and patriarchy is easily seen as the central reason for the unsustainability of mining operations, irrespectively as to whether this takes place in the Goldfields (Kalgoorlie or Leonora), the Kimberley (in the Matsu Ranges) or the Pilbara (Port Headland or Newman) region. Within this framework, "patriarchy is treated as a holistic concept that simultaneously addresses the more localised unequal distribution of power embedded in gender relations and the wider relations of dominance and exploitation that sustain the industry" (Emberzon-Bain 1994: 46). The relations of domination apply to many, if not all aspects of mining: economy over environment, men over women, resource exploitation over its preservation, locals over immigrants, white people over indigenous populations and so on. These trends of domination are not new. They derive from the very stem of the patriarchal order embedded deeply not only in politics, decision-making bodies and governance, but are also present in everyday life, in the way we care for the land, in every-day struggle for sustainable livelihoods. Harcourt (1994) even poses the question as to how can mining be called development if it causes so much social and environmental damage.

According to the MMSD Project (2002: 212), "mining can provide an opportunity for reducing gender disparities through direct and indirect employment and through access to project services". The challenge however is how the relationships of power and dominance are being negotiated.

NGOs and gender problems in mining

There is a number of predominantly non-government organisations (NGOs) and agencies engaged in raising awareness of mining development impact on local communities, and especially focusing on the effect on Indigenous communities and women. In 2002 Oxfam Community Aid Abroad published a comprehensive anthology entitled *Tunnel Vision: Women, Mining and Communities* (Macdonald and Walker 2002) describing some of the fundamental challenges and perspectives on mining and communities. It outlines the entitlement and freedom to live in a clean environment and access to livelihoods not only as women's rights, but also as basic human rights, as first formulated in the Universal Declaration of Human Rights 1948. The 2007 Statement of the Pacific Region International Women and Mining Network Meeting stresses the United Nations Declaration on the Rights of Indigenous People (adopted in 2007), which emphasises the need for a free and informed consent to be

obtained from Indigenous people prior to any project affecting the land and other resources, particularly minerals and water (IWMN 2007). Such consent would require in many cases the explicit permission of Indigenous women as: “There are places where men cannot walk because women have ownership of the space” (Kopusar 2002: 14).

The International Women and Mining Network provides a platform for women displaced and affected by mining, who challenge the “exploitative global economics, policies and mining practices” and who collectively define their own perspectives on sustainable development (RIMM 2008). The 2004 IWMN statement reads that “mining has serious negative impacts on women’s lives, livelihoods, social and cultural status, physical and sexual rights, ecological spaces, access to and control over natural resources, legal and customary rights and traditional knowledge systems” (IWMN 2004). The organisation’s statement (RIMM 2008) recognises that the exploration of minerals and metals has been associated with serious, widespread and injurious social and environmental problems. Important documents which have been signed in relation to the negative effect of mining on Indigenous communities and especially women are the Indigenous People's Declaration on Extractive Industries from the Oxford Indigenous People's Workshop, the Kimberley Declaration of Indigenous People to the 2002 World Summit on Sustainable Development (IIPSSD 2002) and the International Labour Declaration Convention No.169 (OHCHR 2008).

There are examples of strong national organisations in countries that are being significantly affected by recent mining developments, such as India and China. Mines, Minerals and People (mm&P 2008) is an alliance of individuals, organisations and communities formed by over 100 grass-root groups, 20 different support organisations across 16 Indian states. Their recent statement draws the attention to the fact that people displacement induced by mining is happening now more than ever before, and as always women will be carrying a heavier burden. The Mines and Community website (MAC 2008) provides extensive information and reports on mining development across 152 countries focussing on the social and the environmental impacts of mining with a particular emphasis on women. A recent report points out that women are the ones bearing the brunt of mining in the Asia-Pacific: “It is the poor women, who have to scamper for food, face military atrocities and secure the whole family from environmental threats due to mining”[2].

Negotiating power relationships in relation to mining is an even bigger challenge for Indigenous women. Patricia Kopusar[3] (2002), a member of the Yorgum Aboriginal Family in Western Australia, talks emotionally and passionately about the problems Indigenous people in Australia face: no consultation of landowners, racist attitudes, no or very little compensation, pollution of rivers, desecration of sacred sites. As traditional landowners, Indigenous communities depend on the land for their survival, both culturally and economically. Women in particular who are perceived as being

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[2] Quote from Krushi for the Baguio press, shortly after the Seminar on Women and Mining at the Asian Institute of Management (AIM) in Baguio City in the Philippines, www.minesandcommunities.org/article.php?a=8739 (accessed 16 December 2008).

[3] Speaker at the Tunnel Vision: Mining, Women and Community organised by Oxfam Community Aid Abroad in 2002, Patricia Kopusar has been working in Aboriginal Health, including Yorgum, an Aboriginal family counselling service. She has been involved in evaluating educational programs for Aboriginal and Torres Strait Islander women.

close to nature by the various streams of feminism and especially ecofeminism, have an important connection to the land: from bringing up young children to food gathering and sharing of traditional knowledge. In contrast to the *terra nullius* concept adopted by the British Empire, for Australian Aboriginal people the land is comfort or shelter, abundant with life, and instead of having to be exploited and developed, needs to be preserved and cherished for what it is already there:

> If asked, Indigenous women will tell you that every tree has a meaning and a use, warmth and comfort, shelter and shade, healing and food. The land isn't empty. The bushes and trees are teeming with food for the children. The valleys, the mountains, the great boulders, the sky, the fire, the lighting, the thunder; every part of the land has a message for the people. (Kopusar 2002: 13)

This land offers a lot of richness but the mining development is predominantly interested in only one aspect of it, that is the generation of economic wealth from nature's resources.

Western Australian mining

Western Australia (WA) is regarded as a resource-rich state. Its mineral and petroleum industry is estimated at $53.1 billion; in 2007 represented 15% of the world's exploration and contributed a massive 86% (or $52.9 billion) towards the State's export (Department of Industry and Resources 2007). According to the Department of Industry and Resources' (2007) statistics, nickel, gold and iron ore are the largest contributors towards the increased value of WA mining representing respectively 30%, 19% and 10% of the State's exports. The strong demand for Western Australian minerals was triggered by China's continuous economic growth described as "economic prosperity" (Department of Industry and Resources 2007: 2).

Despite its enormous economic wealth, the Western Australian mining industry is strongly susceptible to the volatility in resource prices as demonstrated throughout the years, including the latest 2008 financial crisis[4]. Many mining operations in Western Australia are affected by this state of affairs and major projects are being put on hold. This situation however does not justify the lack of commitment to long-term sustainability by local mining operations. The resurgence of mineral prices in the future will allow mining companies to continue their economic profits, as it has been the case in the 1980s with the price of gold (Rola-Rubzen *et al.* 2008).

The boom and bust track record of mining adds another power dimension to this industry. Its economic prowess can easily be transformed into frailty when market demand for its products decreases. In times of boom, the industry expands job opportunities but when the bust comes, production slows down or stops, leaving many people feeling insecure. This clear cycle of ups and downs takes a heavy toll on communities (Doukas *et al.* 2008). From a community and women's point of view,

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[4] The price of nickel, for example, fell from $50,000/tonne in May 2007 to $18,000/tonne in August 2008 or a drop of 64% (Freed 2008) to $10,000/tonne in December 2008 or an 80% drop (newsvote.bbc.co.uk/2/shared/fds/hi/business/market_data/commodities/11662/twelve_month.stm, accessed 17 December 2008).

only a holistic understanding of the place of mining can protect the exploitation of the earth's environment and prevent the destruction of social fabrics within society.

The Western Australian mining industry needs to re-assess its *modus operandi* and its contribution to the functioning and future of desert settlements. An integrated balanced approach between economic potential, ecological protection and the development of social and cultural capacity could allow for the power relationships to be negotiated differently. The current approach exposes the weaknesses of an industry that has been driven predominantly by profit-making opportunities with very little responsibility towards the ecological and social dimensions of its existence. Below the economic surface, there are much more powerful social processes that take place and the display of masculinity equally affects nature and communities. By comparison to mining, Aboriginal people have had by far the longest and most enduring presence in the Australian desert (Brown *et al.* 2008) and have looked after its physical environment for millennia.

According to Doukas *et al.* (2008: n.p.), in periods of mining boom "(h)ost communities benefit from a jump in jobs, infusions of cash, and investment in infrastructure". This case is much more difficult to be argued in the case of Western Australia. The WA mining operations have some unique characteristics which add another layer of fragility and uncertainty when it comes to the role of gender relationships. This relates to its fly-in/fly-out (FIFO) practices.

Nearly 20 years after the introduction of the FIFO way of operating the majority of mines in Western Australia, it has become clear that bringing a labour force for shift work from the city to remote locations is exacerbating the complex gender relationships with respect to mining. According to the fly-in/fly-out jobs website, the mining work is "usually carried out by someone who lives in the city area and 'Fly's In' to the work site, carries out their roster and 'Fly's Out"[5]. In order to maintain efficient productivity, such sites operate 24 hours a day 7 days a week, with a roster of workers, engineers and other professionals who work long shifts (*e.g.* 12 hours) each day for a number of continuos days (*e.g.* 2-3 weeks) followed by an extended period of rest (*e.g.* 1 week) spent back in the city. According to Watts (2004: 26), a practical definition of the fly-in/fly-out phenomenon is: "Circumstances of work where the place of work is sufficiently isolated from the worker's place of residence to make daily commute impractical".

The Western Australian case study of Leonora discussed later in this paper is an example of a desert mining settlement which relies heavily on FIFO mining operations. What lessons can we learned from the experience of Western Australian mining desert settlements? How are gender relationships being negotiated? What are the effects from mining development?

Experience from Leonora, Western Australia

The mining sector in Australia overwhelming employs male workers. The latest census data shows a total of 106,896 employees, 90,833 or 85% of whom are male

[5] www.flyinflyout.com/about.htm

compared to only 16,063 or 15% female employees (ABS 2007a). The situation in Western Australia is no different – the share of male workers in the mining sector is 86% (or 15,135 male) compared to 14% (or 2,524) of female employees (ABS 2007c). Leonora is a township of just above 1400 people, 13% of whom are recognised of Indigenous Aboriginal decent. It is located in the Western Desert within the Goldfields-Esperance region of Western Australia, approximately 833 kilometres northeast of the state capital Perth, and 237 kilometres north of the city of Kalgoorlie (Rola-Rubzen *et al.* 2008). Mining provides the main employment opportunities in Leonora. In this small desert settlement, the total value of minerals and petroleum for 2007 alone is $2.7 billion (Department of Industry and Resources 2007). Out of 820 employed Leonora residents in 2006, 320 (or 38%) work in the mining industry with the share of female workers being slightly higher than the national and State averages at 18% (or 52 women compared to 259 men) (ABS 2007b). The influence of mining on Leonora is significant compared to its WA employment share of only 8% and national share of a meager 1%.

The total female labour force of Leonora is only 33% compared to 43% in WA and 46% nationally. The FIFO mining operations around Leonora further intensify male mining presence bringing more workers from the city, including a higher proportion of males. The 2001 Australian Census estimated that only 18% of the people employed with the mining industry in Leonora were local residents, the remaining 82% being FIFO workers (ABS 2003). As Leonora's population has been rapidly diminishing with an annual decrease of around 4% between 1996 and 2006 while minig operations have been expanding (Rola-Rubzen *et al.* 2008), the presence of the FIFO male workforce has been shaping the gender relationships creating a place which can be described as: (1) "*a men's town*"; (2) where "*people stay together but live apart*"; (3) where there are no working women with young children employed in mining (Lord 2008) and (4) where the "*16 to 20 year olds are a lost soul generation*"[6].

All of the above issues are deeply affecting women. Some of them can be looked at from an infrastructure perspective, others from organisational management, but discussions around these subjects do not account for the biases of patriarchal hierarchy established through years and centuries of exploitation and dominance of masculine values, such as economic profit over social and environmental development (Merchant 1996). There may be situations in really remote places where FIFO operations could be the only way to access resources; however in the case of Leonora where community already exists mining should be contributing to the sustainability of the desert settlement. The evidence from Leonora points to the opposite.

It's a men's town

Recent research carried out in Western Australia draws attention to women and their place in relation to the mining industry; to the fact that women are very connected to their communities and experience the need to come home every night to a place where they can raise their children and feel secure (Lord 2008; Watts 2004). While women are increasingly starting to take part in the mining workforce, the mine sites still

[6] The quotes in italics are from interviews with Leonora residents conducted by the authors in June 2008.

remain a masculine and uncomfortable work environment for them. A study carried out for the Minerals Council of Australia (Lord 2008) shows that FIFO often exacerbates the masculine cultures women struggle with and consequently their employment in the sector is much more likely to be short-term. Women surveyed reported that FIFO arrangements were inflexible and often lacked sensitivity to women's intrinsic needs. The survey shows that women will survive, at least for a period of time, but not thrive; so their full potential, skills and experience are lost to the sector. As with other desert mining settlements, this describes very well the situation in Leonora.

Another factor affecting gender relationships is that the FIFO practices by the mining companies in Leonora do not allow interaction with local residents, which in turn brings hostility, does not stimulate economic opportunities for local residents and triggers population decrease. The employees of the mining companies are not even visible to the people who live in Leonora: "*Where are they? You never see them! When they fly out they probably even bring back the toothpaste with them"*.

Mining development often remains disconnected from the social and environmental problems associated with it. For example, the opportunities for mothers to bear and raise their children in settlements located close to the mine sites remain poor due to lack of infrastructure development, limited opportunities for education (*e.g.* only a primary school) and limited commitment from the mining companies to community development. Thus the mine sites and the associated with them settlements remain largely masculine places, where a distinctive segregation exists between mineworkers, local residents and – in some cases like Leonora – tourists. Segregation between the different groups is so sharp that: mining camps are closed to outside visitors for meals, and the Leonora leisure is hired exclusively for mineworkers excluding any opportunity for interaction with local residents. Mineworkers in easily distinguishable work-provided vehicles populate the streets of Leonora and only local residents, both from Indigenous and non-Indigenous background, can be seen using the public spaces. The few pubs remain the rare points of contact confirming the fact that "*it's a men's town*".

This newly established artificially diverse environment between local residents and FIFO workers creates tensions on a local level in the town itself, in the families and in the lives of women and children. Fly-in/fly-out promotes the unstainable practice of bringing qualified personnel to a place which already has the potential to develop its own human resources. In doing so, it deprives the local communities from developing their own skills and building their own future. The obvious solution to the problem is for the mining industry to provide local training: "*The mining community needs to develop the human resources potential which is already here… It only makes sense to invest in your local resources, and the most important of those resources is the human capital*".

"*A men's town*" is not a place where people would want to live and work, now and in the future. These gender perspectives are important as women play essential role in building the sustainability of settlements and providing the most needed balance between nature, nurture and work. Women need to express their ways of life, to articulate their needs and to be at the heart of the decision-making processes in a mining settlement, including the negotiations of mining operations and the provision

of services. Aboriginal women in particular need to say what their community needs are and to express their cultural values if they are to be addressed. It is often the case, that because of their values and cultural norms, women are interested in satisfying not simply personal needs, but also the needs of the entire community. This means that if we are prepared to listen to them and to assist in solving problems associated with mining and women, we are already solving wider problems within the community.

For example, women who are not positive about future prospects for their children gaining employment with the mining companies, located some 50-60 kilometers from the settlement, are less likely to settle in the town. Therefore, lack of opportunities to find suitable employment may play an essential part in the unsustainability of desert settlements. Lack of opportunities does not necessarily mean lack of facilities as mining companies have well established training facilities for their staff, including FIFO workers, located near the mine sites, which could provide grounds for future training of local students. However, very little efforts are made in this direction. The dominance of mining masculinity and patriarchy is yet to be addressed.

Staying together, living apart

The very prime reason for workers to be employed in the mining industry is financial benefits (Clifford 2008; Sibbel 2008). The average age of Leonora mining workers is 36.5 years (36 for men and 38 for women, ABS 2007b). For those of them who are in a relationship, deciding for a lifestyle of flying-in/flying-out also means a commitment to staying together and living apart. The most common FIFO roster is 14/7 (14 working days followed by 7 days of holiday). As a rule, the partner and any children are based in the city and see the person who works in the mine every fortnight for a week.

Money is more attractive to men, than it is for women (Lord 2008), as is career advancement (Watts 2004). Therefore the mine sites remain largely a case of display of masculinity and alienation. One of the revealing recommendations coming from the report *Best of Both Worlds?* by Watts (2004: 116) is: "Particular attention should be given to Valentine's Day and Christmas as opportunities to enable workers with partners living a long distance away, to maintain and enhance personal contact". In fact, Watts herself has engaged in selling Valentine's cards to FIFO workers in mining camps in order to remind and encourage them to communicate with their loved ones in the city.

Another common trend with the expansion of the fly-in/fly-out practice is the increasing number of children from mixed race on the streets of Leonora, which is indicative of the social impacts of mining on the host community. Wives of FIFO workers also report greater family dysfunction compared to non-FIFO partners (Bradbury 2008). Children in FIFO families miss the opportunities to spend time, share thoughts and activities with their fathers and as one of them says: "I miss my father from the bottom of my heart" (Bradbury 2008).

Children and partners rarely visit the mine sites. By comparison with other desert mining settlements, Leonora offers a more inviting environment for visitors as it is also a tourist town. The mining camps however do not provide any hospitality or sense of homeliness. In fact, FIFO workers are discouraged from developing a sense

of belonging to the place. Computer programs generate a new room number each time the workers return from the period of rest and any personal belongings are kept in storage during this time. This lifestyle encourages loneliness and isolation, abandonment of parental and partner responsibilities, guilt at leaving the loved ones, family dysfunction, sense of grief and loss, depression and possible substance abuse (Watts 2004). Some of the positive experiences quoted by FIFO workers in Watts (2004) in many ways reaffirm the difficulties of "*staying together, living apart*": growth of personal independence and freedom, bonding and mateship, strengthening of coping skills.

No working women with young children in mining

Lord (2008) makes the observation that desert settlements associated with the mining industry are an unwelcoming place for women with young children. This has been explained by a combination of reasons, including the overwhelming power of materialism, which takes over concerns about health, emotions and care for the family; the patriarchal status of the mining industry itself, imbedded in extracting recourses from the ground; the long tradition of being locked in a materialistic cycle and the challenges associated with living a normal life after a period of employment in mining.

Leonora as a host environment for mining operations provides a range of facilities for women and families with young children. This includes childcare, a district school from pre-primary to year eleven with a modern science workshop area, yabby farm and many outdoor activities aimed at stimulating active learning. The teaching curriculum of the school has been carefully designed following a series of meetings among teachers to develop a better education and to promote self-motivation among the students of Leonora. In 2008 the school has adopted a values framework (LDHS, 2008b) where environmental responsibility, preservation of the Australian cultural heritage and sustainability are major components. These good opportunities are in strong contrast with mining industry's preferences to offer FIFO employment. In fact, the number of children in the school has not increased, not even by one, during the recent period of mining boom.

Lost soul generation

Many of the children of the young people who have settled in Leonora since the 1980s, attracted by the high price of gold and then nickel, have left the town, ironically in search of employment elsewhere. Those who have stayed, including local Aboriginal population, have very few options to find meaningful employment. The regional and local impact from FIFO has been "negative social consequences for individuals, families, and the communities where they live, contributing to greater abuses of alcohol and drugs, family violence and break-ups, parenting problems, and reduced community involvement" (Storey 2001: 139). The system has been consistently failing the local people, their families and children in particular.

A small step towards improvement of collaboration between the mining industry and the Leonora District School is the BHP Billiton West Pilot Program aimed at students gaining experience at ground level of jobs associated with the mining industry (LDHS, 2008a). Despite this positive attempt of collaboration, the interaction between

the school and the mining industry remains limited and fragmented. The company's facilities, which could provide excellent training grounds for students, are located over 60 kilometres away and access to them is usually strictly prohibited. There is a need for extension of similar collaboration projects which would assist students in their transition from school to the workplace: "*Next step after school should be traineeship, and if that is not secured, than what future do the kids have*?"

Without establishing such practices on a regular basis, the children of Leonora face uncertain prospects for local employment and limited opportunities for further developing their skills. They also lose the intellectual and spiritual connection with the social and natural environment that is supposed to support them. Many refer to them as the "*lost soul generation*". This is probably the strongest gender manifestation of the negative impact and unsustainability of mining.

"Nothing goes forever and the mines are probably going to be closed one day. Then we should build the capacity to rely on our own skills and abilities by developing other meanings of livelihoods". Community voices like this demand the transformation of this sector and the mining industry needs to respond to them.

Transforming the industry

The importance of the mining industry is vast: it employs directly more than 30 million people across the planet and 34 countries rely on minerals for at least a quarter of their exports (WBCSD 2006). Nevertheless mining has been heavily criticised for the strong social and environmental impacts imposed locally and globally. A good indicator for the dissatisfaction experienced by the employees in this industry is the high labour mobility. In fact, in Australia it is the highest of any other sector (ABS 2002). Under pressure from various stakeholders, communities and the media, initiatives have taken place to ensure that some key problems, such as human rights, labour practices, waste processing, environmental impact and community engagement have been considered and adequately responded to. Actions are being taken to limit the negative impact of mining on the environment and on communities. Below are some examples of the international and Australian (including WA) efforts that are trying to mitigate the dissatisfaction expressed by communities and transform the industry.

Under the initiative of the World Business Council for Sustainable Development, nine leading mining companies began the Mining, Minerals and Sustainable Development Project across Southern Africa, South America, Australia and North America (MMSD 2002). It aimed to address the key challenges of sustainable mining development, among which are concerns over labour practices, human rights, environmental impacts of extraction, processing and waste as well as community engagement. The MMSD project advised that companies develop "consistent reporting guidelines to ensure that key aspects of company practices and performance are publicly reported and verified" (WBCSD 2006: 10). Subsequently it gave rise to the International Council on Mining and Metals which together with the International Institute for Sustainable Development agreed to set voluntary standards that go beyond the law in achieving sustainability objectives in relation to: community development; royalties

and compensation; resettlement issues; gender discrepancies; women-miners; hazards for health and international conventions (IISD 2008).

All of the above considerations have gender and power dimensions. The way women, local and Indigenous people and nature are treated is probably the most important aspect of the sustainability of mining industry. The WBCSD (2006) also stresses that there are multiple mainstream business benefits for mining companies which have committed to sustainability related to:

• Higher morale, productivity and innovativeness of employees;

• Cleaner production methods often resulting in cost savings;

• Life-cycle plans generating less by-product and lower closure costs;

• Lower operational risks improving access to loan and insurance money;

• Increased reputation, market advantage and legitimacy to operate in the host communities.

Argyle Diamonds in the Kimberley, Western Australia is a good example of a move towards being more sustainable. The company achieved from zero to 20% Indigenous workforce within 7 years (Newman and Stanton-Hicks 2003). Educating and training local people, including Indigenous people (see Young and Guenther 2008) and women, is the most significant investment that mining companies can make for the sustainability of desert settlements. Operating only along the lines of economic thinking without seeing the social and environmental aspects is not only short-sighted but also often surprisingly non-economic as it does not allow for the synergies described by the WBCSD to occur.

A study of workforce turnover in FIFO mines estimates "the cost of 'average' employee turnover at an open-cut FIFO mine of 300 employees would be in the order of $2.8 million" (Beach *et al.* 2003: 31). This is the equivalent of around $9-10,000 per employee per year of money for recruitment, hiring and employment termination of staff that could have been invested in a smarter way. Examined from another perspective – that of the stable local mining workforce provided by Leonora residents (the size of which is 320 people) – the desert settlement is saving the mining companies operating in its locality the equivalent of $2.8 million per year.

The authors (Beach *et al.* 2003) state that if anything, this figure is an underestimate. Most importantly, it does not include the actual costs of flying-in and flying-out the workforce. It also does not account for the large amount of greenhouse gas emissions created by this endless travel. Last, but not least it does not account for the discomfort caused to women. From a sustainability point of view, it is well within the interests of the mining industry to change.

There seems to be a good understanding within the Western Australian State government of the potential drawbacks of fly-in/fly-out. The Goldfields-Esperance Development Commission identified FIFO as an issue requiring further research for the whole area of its jurisprudence which includes Leonora: "The increasing use of

FIFO by resource projects in regional WA represents a loss of economic and regional benefits. Moreover, FIFO makes it more difficult for communities to capture the benefits that arise from project activity and expenditure at the local or regional level"[7]. A better mining projects approval process should include early assessment of the local impact of FIFO operations from a sustainability point of view. Mining companies will not be fulfilling properly their responsibility to its shareholders, without the adoption of responsible environmental and social practices (Storey 2001). A particular focus on gender implications is extremely needed as revealed in this paper.

It is important to bear in mind that "by and large, mining companies have not 'voluntarily' become progressive: they have been forced to improve their performance by international pressure and stakeholder conflict" (Whiteman and Mamen 2002: 50). This pressure, including NGOs and government, will need to continue until the model of power negotiation which puts women and Indigenous people as direct players in the negotiation process with mining (see Figure 2) becomes a daily-lived reality.

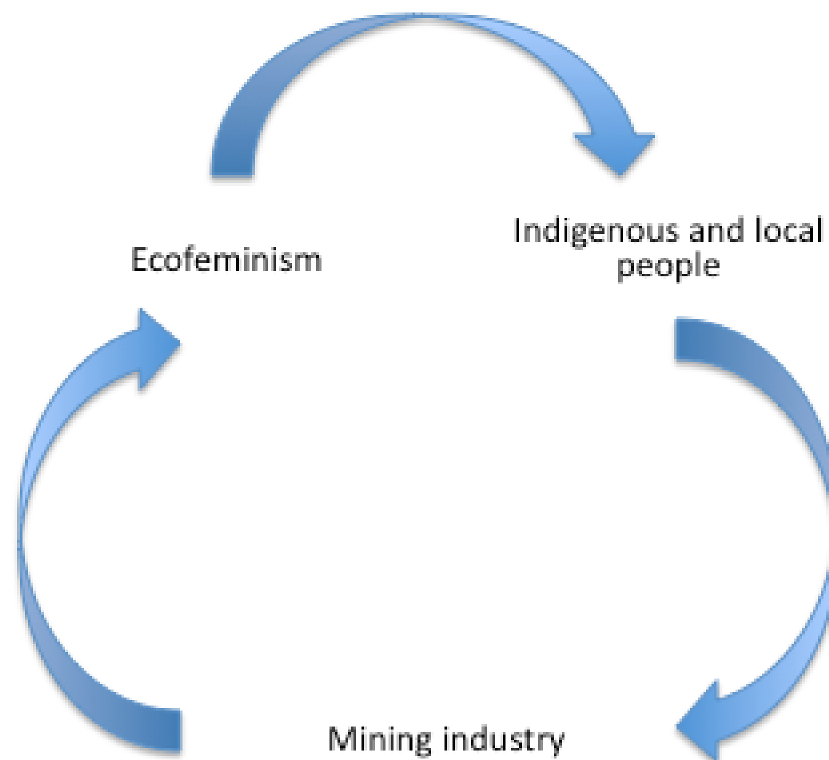

Figure 2. Negotiating gender relationships in mining

Conclusion

Mining has been the most masculine of all industries (Gier and Mercier 2006). Women by large have benefitted less from development and particularly from mining development. They are however those who provide care for the young, old and sick,

[7] www.gedc.wa.gov.au/projects.php?region=Whole+of+region&officer=&keyword=&action=Limit

who process and prepare food for home consumption. Women's active participation, including that of Indigenous women, in socio-economic activities, decision-making and negotiation of power relationships has benefits that reach far beyond women and extend to their children and communities.

> The Australian Indigenous Women's message to both mining companies and governments is: changes must take place, the women are saying let us decide what programs should be financed. Acknowledge our ability to make our own decisions within our own discrete areas. Make it possible for us to meet under our own terms to discuss our own issues and to develop our own programs. We need to look at our families and how we keep our children safe, healthy, to grow them up in a loving environment, to foster their own ambition and aspirations. Support us, the women, to keep and retain our 'power', our strength. (Kopusar n.d.: 9)

Literatures on gender and on mining exist scattered through policy reports, NGO activities and academia as well as in discussions in various networks, workshops, conferences and other organised events. The topic of women and mining however is often isolated from other problems and is not seen as a mainstream discussion. It has been specifically secluded to those focused only on gender. Unfortunately such an approach poses the danger of disconnecting it from the rest of the problems associated with the social and environmental impact of mining.

In the case of Western Australia, the mining industry exposes some fundamental problems associated with gender discrepancy, power interrelations and community development. The most common issues associated with mining development are described as barriers to women's employment, strong industry support for fly-in/fly-out practices and the dominance of patriarchal values. The mining industry itself aimed at extracting resources from the ground for material and monetary value is a reproduction of patriarchal values, thus reinforcing industry's own traditions. This paper aimed to reveal important gender and power impacts on local communities. The gender-related analysis of the relations of patriarchy and mining shows the well overdue need for transformational change which will contribute towards the sustainability of desert settlements. More research is needed in order to integrate the gender-based models of power negotiation into policy frameworks that work.

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