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Community Conversations for Sustainability in the Desert: Leonora, Western Australia.

Abstract
The concept of sustainability calls for a holistic perspective where the prospects for future generations are not compromised by decisions made today. This paper provides an exploration of the Western Australian town of Leonora whose existence is based on mining, pastoralism, services to the region and tourism. The longest surviving residents with roots in Leonora country are the Aboriginal people of the region. In recent years Leonora has experienced a mining boom triggered mainly by resource demand from China but is not clear whether the wealth generated in the town is contributing to its sustainability. The fly-in/fly-out operations of the mining companies rely on bringing workers from outside the local community and have had limited benefits for the local Aboriginal people. A new addition to the Leonora's diversity are asylum seekers, temporarily located in a former mining camp accommodation site. There is strong separation between these different groups within the community which does not allow for integrated development whereby knowledge can be shared and co-created.

It is important for Leonora's long-term sustainability that it evolves into an adaptive complex system where current practices are challenged and new discourses of living together are being developed. This paper proposes the use of deliberation techniques to start the process of 'sustainability societalisation' which requires a different way of thinking about the relevance of place and the long-term future of a desert settlement.

Keywords
Aboriginal, deliberative democracy, mining, refugees, sustainable development, system

Cover Page Footnote
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Introduction

The concept of sustainability has reframed the way we think about the world enabling us to see the future in a different way (Hartz-Karp and Newman, 2007). It has drawn our attention to the integration of economic, social and environmental imperatives and to the interrelationships between local knowledge and actions, and global phenomena (Atkinson, Dietz and Neumayer, 2007; Blackburn, 2007). Sustainability calls for a holistic perspective whereby the prospects for future generations are not compromised by decisions made today. Effective sustainability within communities involves a community investing in a risk-sharing social process of continually managing trade-offs and timing of events. It requires meaningful interactions between various sections of the community itself. Such interactions include those between long-term and recent residents, people from various socio-economic and cultural backgrounds or with different employment careers and opportunities, as well as between the community and the various power holders, as represented by industry, government or lobbying groups (Paulin, 2007). There is a need for the community to effectively own its future, know what its values are, and constantly refine and transform its vision for what is important today and tomorrow, in order to be able to influence policy and decision-making. The existence of social and economic enclaves, the lack of communication or excessively dominant monopolies are, at least conceptually, counter intuitive to the goals of regional and community sustainability.

This paper presents a case study of a small[1] mining town in Western Australia. We argue that there is a strong need for reframing the way this community thinks about and engages with its future, however, this has yet to occur. The paper provides an exploration of the tapestry of relationships currently existing in Leonora and examines the implications for its sustainability. The research uncovered challenges and complexities that pose more questions than answers provided. There is however a very important message that this case study sends and it is that the "complex, contentious, apparently overwhelmingly difficult problems we face… cannot be resolved by doing nothing or even by doing as we have done in the past" (Hartz-Karp and Newman, 2007, p. 28). Some possible new ways of thinking are suggested with the belief that embracing sustainability as a vision within society will allow for a better way of living on the planet, including in a small township located in Australia's Western Desert such as Leonora.

[1] We refer to the Australian Bureau of Statistics definition of a small town, namely between 1,000 and 19,999 residents (Australian Bureau of Statistics, 2007b). However, compared to the other regional settlements in Western Australia, Leonora is relatively large.

The paper is organised as follows. After elaborating on the sustainability concept, we use the triad of social, environmental and economic dimensions to explain the relationships in Leonora. We draw on interview material with Leonora residents in 2008 and 2009 to substantiate the need for a change in the mining town. The search for sustainability transition is then framed along the understandings provided by systems thinking and complexity theory that argue for the importance of co-existence, integration, development and evolution, and knowledge generation. Finally, deliberative democracy techniques are being suggested as a way to facilitate the shift towards a more viable and sustainable desert settlement of this size and nature.

Sustainability – reasserting foundational ideas

Starting with the 1987 *Our Common Future* report, the sustainability definition has provided a much-needed way of thinking about future generations and the resource limitations on the planet[2]. The technical need for focussing on sustainability stemmed from the physical limits of our planet and the fact that there is need for all species to co-exist on it. Sustainability is also a system characteristic that describes the ability "to coexist with another system indefinitely, without either system being damaged" or at least to evolve and transform sustainably (Oracle ThinkQuest - Glossary Online, n.d.).

The social context of this concern, namely allowing future generations to have the same opportunities as we have now, is in many ways simple and logical but translating it into practice has been a political challenge at all levels. Western Australia was the first Australian state to have a sustainability strategy that endorsed the following vision: "Meeting the needs of current and future generations through an integration of environmental protection, social advancement and economic prosperity" (Government of Western Australia, 2003, p. 24). The emphasis on integration highlighted the importance of improving the quality of life, a major component of which is economic prosperity and this includes education and jobs prospects. There is a big role for industry and associated employment opportunities in this sustainability agenda not only in generating wealth but also in providing the "types of economic and social development that protect and enhance the natural environment and social equity" (Dunphy, Benveniste, Griffiths, & Sutton, 2000, p. 23).

[2] "Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland and World Commission on Environment and Development (WCED), 1987, p. 24) is the most commonly used definition for sustainable development.

It is clear that sustainability is a complex challenge that requires an unprecedented shift in people's thinking and ways of doing things. It entails not only a holistic understanding of the world but under the imperatives of climate change and the persistent global poverty, it also requires practical actions to be put in place urgently (Lowe, 2007). Marinova and McGrath (2004, n.p.) wrote about sustainability as a "framework of principles, a philosophy of practice that engages multi-levels, places, cultures and actors in a systematic approach" that "emphasises the importance of the local, of knowledge and action, but relates this to a broader global perspective in which interrelationships are recognised". In a very operational way Wiltshire (2005) stressed that achieving the goal of a sustainable future translates into learning how to make decisions that affect the present and the long-term future.

Against this background, the remainder of the paper focuses on the Leonora case study and poses the question as to how ready the Leonora community is to embrace the concept of sustainability and respond to its challenges.

Leonora – an overview

The Australian town of Leonora is located in the Western Desert (which covers the Gibson Desert, the Great Sandy Desert and the Little Sandy Desert of Western Australia). Its western foundation and existence since the 1890s have been strongly dependent on the mining opportunities linked to the abundance of natural resources such as gold, silver, nickel and lead. Leonora's natural settings have also been attractive to pastoralists and farmers who have made this place home. The town is situated on a crossroad in the desert attracting many tourists interested in experiencing Australia's outback.

However, the longest lasting civilisation with roots in Leonora country are the Aboriginal peoples of the region. There are four Aboriginal language groups in the area, namely the Kuwarra, Tjupan, Ngalia and Waljen people. Leonora is also often visited by the neighbouring Martu, Ngaanyatjarra and Pitjatjantjarra people (in some cases they also live in the town). According to one of its residents: "In every day affairs we usually identify as Wangkatja or 'people'… We engage in ceremonial contacts with these neighbours. The northern Goldfields has many of the dreaming tracks or Tjukurrpa connecting with these neighbours, the people who follow the law in Leonora are charged with the responsibility of looking after the sacred landscape associated with the Tjukurrpa" (Muir, 1998, p. 4). Their ecological knowledge is often expressed in art, dance, music, literature and oral traditions (Sutherland and Muir, 2001). Aboriginal people have engaged in traditional sustenance activities, such as fire stick farming and hunting, but their impact on nature has not been felt as strongly as the effect of Western civilisation.

Administratively, Leonora is a township located 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). It had a population of 1412 residents in 2006, of which 155 (or 11 per cent) were recognised as of Aboriginal decent (Australian Bureau of Statistics, 2007a). This represents a sharp decline since the 1996 Census, when the population was 2688 of which 239 (or 8 per cent were Aboriginal). The significant fluctuations of the world's market for minerals, with its sharp rises and falls, has strongly influenced Leonora's population and economy. The adjacent town of Gwalia (which is now part of Leonora) in the past represented a flourishing mining community around the Sons of Gwalia company's mining operations and had a population of around 800 in the 1930s. These operations ceased in 1966 and the Gwalia Historical Precinct is now a tourist attraction.

Some of the big mining companies currently located in the vicinity of Leonora are Broken Hill Proprietary - Billiton, Ltd. (BHP) and St Barbara but there is also a range of small operators who come and go depending on the price of metals. In fact, the town of Leonora has about 100 industrial sites. The latest Australian resource boom which started in 2005 (triggered mainly by demand from China and which was put on hold in November 2008 because of the global finance crisis) witnessed a significant expansion of mining operations in Leonora. Despite the mining boom, Leonora's population numbers did not increase (on the contrary, they continued to decrease). The main reason for this has been the adoption of the fly-in/fly-out model (FIFO) by the mining industry (Watts, 2004), which brings in a labour force for shift work from the city (mainly Perth but also Adelaide in South Australia). The FIFO miners do not settle in Leonora but rather live in temporary campsite accommodation away from family during the time of their shifts, returning back home during their time off.

By contrast, the pastoral industry and opportunities associated with a lifestyle on a farm are a significant factor in retaining residents in Leonora. The mining sector also offers employment to local residents, including in services such as prospecting and work in the labs.

A very important section of Leonora's population are the Aboriginal people of the region. The majority of them are engaged in providing services to the mining and pastoral industries. The Australian Census (2006) reports a 9.8 percent unemployment rate for Aboriginal people over 15 in Leonora, which is more than four times higher than for the rest of the town's population but significantly lower than the average Australian Indigenous unemployment rate (at 16 percent for 2006) .

Leonora is also an active service centre for the people and activities located in the surrounding areas (defined as the North Country precinct of the Western Australian Goldfields), including mining, exploration and the well-established pastoral industry. The Western Australian Department of Mines and Petroleum also has a customer services office located in Leonora which facilitates the processing of applications for mining tenements and provides information and services related to mining. The township has a medical centre with a resident doctor and other specialists (such as physiotherapist) working on a roster. A district junior high school starts from pre-primary level and offers excellent facilities, including an up-to-date science lab. Leonora has an airport, a railhead, a police station, a rural transaction centre, incorporating a Telecentre, tourist and information centre and a public library. A wildlife rescue centre is also operational. The Ngalia Heritage Research Council (Aboriginal Corporation) based in Leonora is a non-profit, community-run organisation whose aim is to protect the natural and cultural heritage of local Aboriginal people and create livelihoods for them.

The local people represent the backbone of the town's viability. The Leonora Shire is actively involved in organising a range of activities, including the annual Golden Gift Carnival (dirt truck horse racing, BMX demonstrations, fireworks, market stalls, bands and street entertainment), the annual Golden Nugget clay pigeon shoot and the Sport of Kings horse races three times per year which culminate in the Leonora Cup (Rola-Rubzen et al., 2008). The town's appearance is neat and clean and this attracts a constant stream of tourists intrigued by the Australian outback and with the prospect of finding gold. Leonora (including Gwalia) is part of the Golden Quest Discovery Trail, a 965 km trail which winds through remote sites of significance to Western Australian history, culture, landscape, flora and fauna.

Leonora's population through a sustainability lens

The grand narrative of sustainability (Myerson and Rydin, 1996) can be seen as something that is too general, abstract and difficult to interpret in a specific situation or for a specific community. In many ways the political and academic debate has neglected to define sustainability in a meaningful way that relates to ordinary people and their relationships in everyday life. While in academia the sustainability journey (Newman, 2006) has progressed towards linking its economic, ecological and social dimensions with newly emerging areas of inquiry (such as ecological economics, sense of place and community health), the reality on the ground has been limited integration between these three aspects of sustainability. Sense of place (Seddon, 1972), in particular, is a powerful integrating concept and plays an essential part for Leonora's residents.

This is understood in a surprisingly clear way when examining the characteristics of Leonora focusing on people and their relationships (see Figure 1). The concept of sustainability in this paper aims to synthesise the three domains of economic development, social development and environmental protection and improvement as shown on Figure 1. It is represented by the intersection of the three circles. The settlers'[3] population of Leonora are the people who see themselves as linked to the physical environment in terms of lifestyle and living opportunities as well as to the town's economy through business or employment opportunities, including pastoralism, mining and services, and to the social environment by engaging with the local community. Field research feedback by residents indicates that local settlers are often significantly interested in the long-term sustainability of the settlement (Marinova, 2008-2009).

The Aboriginal community made this place home thousands of years ago and the richness of their "country's" natural environment is a source of spiritual life, foundations of identity, and healing. This area of land supports their people and allows for the social structures to be maintained and developed. The mining boom has allowed many economic opportunities for the local Aboriginal people and they have been quite active in developing their own initiatives as well as providing services to the industry. Leonora has been able to offer the Aboriginal community an opportunity for empowerment and capacity building. Such empowerment channels include local initiatives aimed at promoting the use of information and communication technologies among young people (Rola-Rubzen, Muir, Muir, & McGregor, 2009) and the development of e-businesses and print media (for example, the Marnta Magazine[4]). Rola-Rubzen et al. (2009) stress the importance of finding meaningful capacities that enable young people to respond adequately to the challenges of contemporary life without compromising their cultural heritage and this has often been the case in Leonora.

In furthering the process of empowerment it is also important to recognise the intellectual property rights to traditional Aboriginal knowledge regarding native plants and their use. These rights are described as "a birthright" of Australian Aboriginal People (Evans, Scott, Muir, & Briscoe, 2009). Such initiatives have been developed at the Walkatjurra Cultural Centre (WCC) in Leonora with the

[3] We use the term "settlers" to describe people of non-local Aboriginal origins who have consciously moved to live in the area and have established permanent residence there. Historically this term has also been used to imply an intention to colonise the area; this however is not intended with the usage here. Therefore, we see the process of settling (and the resulting settler population) as continuing from the establishment of Leonora to nowadays. Such a usage allows us to group together early settlers and more recent migrants who have made Leonora home.

[4] Marnta Magazine (published by Marnta Media) was started in 2002 by a Leonora resident to raise Aboriginal cultural awareness.

help of local community leaders. A further case study from Titjikala, some 120 km south of Alice Springs, conducted in a similar way with the help of community leaders from Leonora and the Councils of local elders, shows that the documentation and protection of the traditional knowledge is possible and viable (Evans, et al., 2009) and can play a vital role in developing business enterprises to improve livelihoods of Aboriginal people.

These success stories show that Leonora's Aboriginal community has in many ways attempted to integrate the environmental and social importance of "country" with the economic opportunities available there. It is however difficult to yet see Aboriginal people entirely at the intersection of the three circles on Figure 1, firstly because the showcase examples are not the case for everybody, and secondly, because of their limited involvement in strategic visioning and decision-making about Leonora. According to Dodson and Smith (2003, p. 5), the challenges for Aboriginal people are often a product of success:

> An increasing number of Indigenous groups are negotiating resource development agreements, securing native title and land rights determinations, and establishing enterprises. As a consequence, they face the challenge of managing major land and natural resource endowments, and the daunting task of trying to generate sustained socio-economic development.

Leonora is a perfect example for this. On the other hand, irrespective of what happens with the economic boom in the town, its Aboriginal people will always be there and will find a way of surviving on this particular land.

This is very different from public servants who are being posted to the countryside in order to get employment and often promotion opportunities upon their return from Leonora. The mining employees are in Leonora because of the natural resources which generate the economic income for them.

Finally, the tourists who pass through Leonora are attracted there on a short-term basis for various reasons. As summarised in Figure 1, field observations suggest that the motivations for travel may be grouped into three themes: a social theme (for example, visits to relatives, friends and tourist attractions, including the Heritage Town of Gwalia), an economic theme (for example, looking for gold or short-term employment prospects) and an environmental theme (namely the beauty and the wealth of the natural environment). In some cases travel may be motivated within combinations of these three themes. What makes tourists different from the other community groups in Leonora is that they do not develop a sense of belonging to the place (McMillan and Chavis, 1986; Altman and Low,

1992), do not actively engage with local issues, only occasionally and as convenient participate in its traditions, and do not see themselves as major contributors to the way Leonora's future is being shaped.

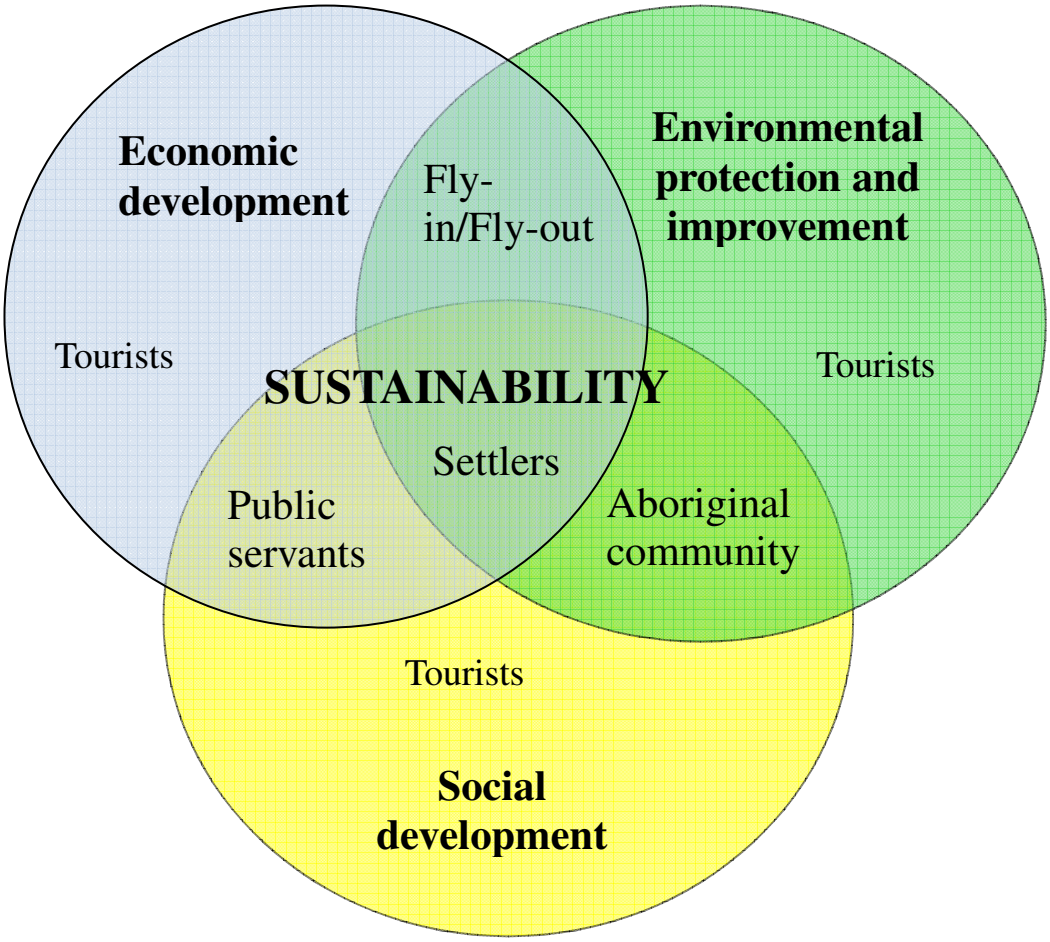

Figure 1: Leonora's residents through a sustainability lens

The various groups of Leonora's population engage with limited aspects of sustainability; this prevents a holistic understanding of the problems and the acknowledgement of the importance of the integration of economic, environmental and social considerations. Moreover, the various sectors engaged with these groups act as agents only for these particular aspects causing a silo effect.

For example, corporate social responsibility is becoming a defining feature of mining companies these days. According to Yakovleva (2005, p. 2), "(m)ining companies are now faced with challenges to improve their environmental and social performances, to ensure integration of the concept of sustainable development and to deliver on their corporate, social and environmental responsibilities in reaction to increasing pressure from international organisations, national governments, consumers, employees, local communities, NGOs and the wider public". BHP, for example, is committed to reinvesting 1 percent of their pre-tax profits into community programs and initiatives (BHP Billiton, 2010a). While this is comparable to other mining companies, research shows the need for strong State legislation in order for the mining companies to build long-lasting relationships with the communities where they operate (Hamann, 2004).

The fact of the matter is that mining companies are there to generate mainly economic benefits with limited responsibilities for the social or environmental aspects of their operations. The emergence of "triple bottom line" or sustainability reporting shows "clear reluctance to explicitly report all relevant data such as waste rock, tailings, energy, cyanide and water consumption, greenhouse emissions, or other aspects" (Mudd, 2010, pp. 114). Local social issues triggered by mining operations are rarely part of any sustainability reporting or corporate social responsibility. The mining industry is also criticised for being a display of masculinity and neglecting its impact on women and Aboriginal people (Gier and Mercier, 2006; Macdonald and Walker, 2002). On the other hand, the service sector's main preoccupation is the social wellbeing of people, including education, health, safety and recreation; its interactions with industry are limited with no long-term commitments on both sides. Finally, the care for the ecological environment is left to government regulations with emphasis on compliance rather than on responsible engagement.

The future of many settlements often relies on the vision and actions that local residents take. The local residents who have chosen to settle in Leonora would hold a high stake in the outcome of how their town interprets its sustainable future. The reality on the ground is that the groups depicted in the diagram rarely interact and mix. Every settlement is a complex system and interactions within this complexity are the basis for its long-term survival. Relationships and interactions encourage people to work together, cooperate and network. In this way complex systems allow for co-existence and integration as well as for further development and evolution, and most importantly, for the creation of knowledge that would give the system the capacity to survive in the future. Without dense networks of social exchange the community risks disabling desired innovation

and depriving communities of information and opportunities which might help them to evolve and transform sustainably.

Fencing refugees

After the research for this case study was completed a government decision was made to accommodate 158 asylum seekers at a former mine camp in Lenora, known as the Gwalia Lodge. The refugees, mainly families including 46 children, come from Sri Lanka, Afghanistan and Iran (Perth Now, 2010). The decision to reallocate them from the Christmas Island Detention Centre to Leonora was intended to help their integration and adaptation to the local community (Perth Now, 2010).

The benefits of accommodating refugees could be twofold. The increased number of permanent residents in Leonora will benefit the development of the school, local contractors and businesses. It also assures usage of the former mining camp.

Despite these positive outcomes, the reality is that the asylum seekers are currently segregated from the rest of the community with the only point of contact outside the camp being the recreation centre. This segregation does not allow for any interaction with the rest of the Leonora community.

A range of questions have been posed in relation to Leonora's newest community including: How was such a decision made? What is the selection process applied to those who are being reallocated (families versus single males or females)? Why was Leonora chosen to be a host site for temporary detention of asylum seekers? Why are they isolated from the community? While there are many mutual benefits from hosting refugees in Leonora and bringing in a wider and diverse group of residents, the processes in place suggest a likelihood that their presence may result in them being a segregated, rather than a socially integrated group within local social networks.

Although refugees do not have the same status and rights as Australian citizens, they can bring about a positive change in the cultural, social and economic landscape of Leonora in a way which would allow for future growth. However, how is this going to happen?

The argument of this paper is that communities within one geographical location, such as a desert or remote settlement, should be integrating and interacting with each other. There is a need for exchange of ideas, views, values and understandings within each separate group of Leonora's community as well as between the groups. We refer to this as "community conversations":

conversations that allow for communication of ideas on different topics affecting Leonora's present and future. Such interactions enhance co-evolution (mutual buy-in) of positions, visions and common will. The interactions may also involve cooperation and new knowledge generation with regard to securing the settlement's future and sustainability. A transition to this new way of living from the currently segregated components of the system would require a change away from disassociated decision making between the dominant sectors and institutions within the local economy.

'Societalising'[5] Leonora

In his work on modelling the behaviour of complex social systems, Schelling (2006)[6] demonstrated that mild preferences for individuals to be together with people like themselves could often escalate in highly segregated social systems; in other words, micro-motives cause macro-behaviour. Schelling's work offers some explanation for the formation of enclaves in communities whereby people are given the opportunity, choice and freedom to express grouping preferences. In cities, these examples include China towns in Australia or Turkish neighbourhoods in Germany.

In Leonora, the formation and maintenance of enclave groups identifying with the town is more pronounced as it is triggered not only by people's individual preferences but also by the choice (or the lack of choice) of association that people are given. The FIFO pattern of employment used by large mining operations in outback towns tends to discourage workers from fostering social bonds with local populations who are not directly associated with the mine (Watts, 2004). This pattern of employment also does not encourage investment in Aboriginal employment or give opportunities to the local community. A common justification for this is lack of engagement often centred on the theme that there are cultural barriers that prevent improved engagement. However, such themes fail to acknowledge that cultural and social dynamics are independent of each other (Eriksen, 2007). While ever mining avoids open social engagement and local social investment strategies, their presence may contribute to social unsustainability, as well as reduce ideas to help invest desirably in local ecology and economies.

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[5] The term 'societalisation' was coined by Walby (2007) and is described as a process whereby different complex systems are being brought into alignment.

[6] Social complex social systems are composed of entangled formal and informal groups, including families, organisations and networks. They are interconnected in a web of dynamic relationships. Schelling's work, which won a Nobel Prize in Economics, makes an important contribution in the modelling of social systems, including the processes of segregation.

Developing the tourist industry alone does not contribute to the overall sustainability of the settlement, as there is a need for stronger and long-term links between the different social groups and the place. Although tourism contributes to Leonora's economic development, it does not contribute in a major way to its social sustainability that is closely dependent on the sense of belonging (and not only the sense of place). The interactions between tourists and the local community are limited and this is partially triggered by the existing separations within the town. For example, mining accommodation camps are completely closed to outsiders, including tourists.

The temporary accommodation and potential settling of new refugees in Leonora adds another dimension of complexity and a need for communication with the existing community. It also means interaction with the local Aboriginal community whose leaders understand the importance of building healthy connections and value sharing. Kado Muir, a local elder, welcomes the new arrivals: "Aboriginal people in the town want to be sure that the asylum seekers are being treated with dignity and respect, and to share experiences and learn from each other" (ABC Goldfields, 2010).

Walby (2007) describes the need for social systems to be brought into alignment, including relations associated with gender, ethnicity, culture and class as 'societalisation'. This is what is missing in Leonora. An alignment within society to make the settlement liveable and viable today and in the long term can help to deal with the current problems and develop a common vision and pathways to becoming sustainable.

Table 1 presents excerpts from interviews conducted with Leonora residents in 2008 and 2009, which describe the town, its challenges and opportunities. They show how local people perceive their town and their views as to how to make it more sustainable. There is a diversity of opinions within the community as represented in the interviews. Some people stress the importance of economic opportunities; others emphasise the social and/or environmental challenges and opportunities. There are also people who have been able to explicitly outline a long-term sustainability commitment to Leonora as in the questions and advice below:

• *You are here today. Where will you be in 10 years time? I am here today and I will be here in 10 years time.*

• *Tell the politicians to think 100-200-300 years ahead. For our children and their children. Mining companies should be taxed at 40-50% to have money to fix their problems.*

These insights need to be shared and negotiated with decision makers, including industry and government in order to achieve societilasation and sustainability. Such alignment of interests and commitments within society would require the emergence of new discourses and practices in governance – negotiated decision-making, communicative governance, co-operative management and interactive governance (van Tatenhove and Leroy, 2003). Using deliberative democracy methods is a highly promising way for such negotiations and visioning to occur.

Table 1: Sustainability issues through the words of Leonora residents, Western Australia, 2008-2009

key: Economic = Econ, Environmental = Env, Social = Soc, Sustainability = Sust

1	• The mining community needs to develop the human resources potential which is already here.	Econ			
2	• Three mining camps… not much mixing with communities.			Soc	
3	• All high-skilled people are spread very thin.	Econ			
4	• The only benefit I have is monetary.	Econ			
5	• I am 25. I do not have a family. Fly-in/fly-out is OK for me for now. But our engineer left because his wife had their first baby.			Soc	
6	• Next step after school should be traineeship, and if that is not secured, than what future do the kids have?	Econ		Soc	
7	• Not much wealth is kept here.	Econ	Env		Sust
8	• Where are they? You never see them! When they fly out they probably even bring back the toothpaste with them.	Econ		Soc	
9	• If the mine closes governmental services are still going to exist. There are still going to be gardening and horse riding and great climate to enjoy; I feel part of the town.				Sust
10	• All of Western Australia is open pit [mining]. Have you seen it from above with Google Earth? Nobody is thinking about rehabilitation.		Env		
11	• Photovoltaics (PV) should be everywhere.		Env		
12	• Climate here is better than in Perth.		Env		

13	• I have my own wood, meat, veggies, cost of living is cheaper, cash jobs everywhere	Econ			Sust
14	• We have a desalination plant to get rid of the chemicals from the soil		Env		
15	• There are too many kangaroos nowadays because there is water everywhere		Env		
16	• There is a need for community economics and development that serves local people first	Econ			
17	• You are here today. Where will you be in 10 years time? I am here today and I will be here in 10 years time.				Sust
18	• Tell the politicians to think 100-200-300 years ahead. For our children and their children. Mining companies should be taxed at 40-50% to have money to fix their problems.			Soc	Sust
19	• You feel part of town… Leonora is always going to be here… this is the best town to live in this area.				Sust
20	• Leonora was kept by mining, small contractors, labs with unskilled labour, mining is always going to be here. It is a fuel stop, has a caravan park, it is diverse – depends on different things. People move out, then move back…	Econ			

Deliberating Leonora's sustainability

From a systems' point of view, sustainability can be understood as the ability of the complex system to survive indefinitely which implies that it will have the knowledge and intelligence to do so. According to Chester (2004), such a system "and the behaviour that structures it, leads to the emergence of a collective intelligence that in turn drives forward the same processes in feedback loops leading to a substantial increases in agency and potential" (Chester, 2004, p. 11). Emergence refers to macro outcomes produced by reflexive actors engaged in complex patterns of interaction and exchange while the feedback loops permit for strength, durability and interconnectivity to be built into the system in order to facilitate for these emergent properties to be maintained. Increases in agency and potential come from increased reflexivity by all individuals, groups and organisations and imply 'societalisation'.

How can this be achieved in the case of Leonora? How can reflexivity be encouraged? How can stories be shared for innovation and new ways of doing things to occur?

Deliberative democracy, which involves examining issues from multiple points of view while thinking critically about practical options, is an emerging concept that strengthens people's voices in governance and the process of deliberation. Deliberative democracy can generate the much needed bottom-up influence on policy decisions (Hartz-Karp and Newman, 2007; McGrath et al., 2004). Deliberation is an approach to decision-making in which citizens consider relevant facts from multiple points of view, converse with one another, think critically about the possible options before them, exchange and enlarge their perspectives, opinions and understandings. Deliberative democracy techniques can help establish "simpler, more powerful meanings that tap into our common language and that empower us to take effective action to actually achieve the sustainability of the things we depend on and the things we love" (Sutton, 2004, p. 8).

A deliberative dialogue for Leonora's future can bring together in one room representatives of the various population groups in Leonora together with representatives from mining, government, the service sector and experts, such as academics, social and policy commentators and politicians. According to Mudd (2010), the vast scale of modern mining in Australia requires constant vigilance by all involved – government, communities and industry. As a major player in the area, BHP is already committed to "building positive stakeholder relationships…, which include integrity, win-win relationships and respect for each other" (BHP Billiton, 2010a, p. 8). It also sees engaging in a culturally appropriate way with stakeholder groups as a vital part of a successful relationship with host communities. This engagement and vigilance however should be undertaken in a way that allows active deliberation on the issues affecting Leonora's future and not in the traditional style of community consultation or community perception surveys as is currently the case (see BHP Billiton, 2010b).

Sustainable development also depends largely on the ability to incorporate all communities in the policy-making. Aboriginal communities represent a vital part of the population in Leonora and policy processes at all levels – politics, policy advising and administration – need to be linked and to incorporate Aboriginal communities. The existing consultation processes so far have not satisfied the need for such involvement to the extent that Aboriginals are referring to the current situation as a "lack of country" (Marinova, 2008-2009). Similar problems echo all around Australia, and voices are raised to say what can be done better:

> …our law does not change and we hope in future there will be dialogue before changes are implemented or introduced onto our country. We hope that any journey that the government proposes will also include us

> in conversation, right at the beginning. (Arlparra/Utopia, in Concerned Australians, 2010, p. 23)

For example, the current model of service delivery to remote communities mainly benefits people who already are able to negotiate with government agencies, such as private owners, contractors and people with already established positions (Thorburn, 2009). Without adequate avenues for Aboriginal people's voice to be expressed, their voice could become constrained and potentially non-existent (HREOC, 2006). The importance of having a voice regarding the future of the town is particularly significant for young Aboriginal Leonora residents, who will have to live in the future that is created today.

By comparison, a deliberative dialogue will engage the minds and hearts of the participants and will allow for the various perspectives, opinions and understandings to be expressed and heard as experience in other similar events in Australia already shows (for example, McGrath et al., 2006; Citizens' Parliament, 2009).

Conclusion

Sustainable development in remote townships is reliant upon effective governance which is inclusive of Aboriginal Australian communities (Dodson & Smith, 2003). Building such inclusive governance requires "a set of key ingredients and core principles" (Caepr, Anu, Dodson, & Smith, 2004). Such key principles include dialogue and community participation in decision-making. Negotiation and consultation for effective governance can only be truly successful if all sides are equally empowered (Dodson and Smith, 2003). Thorburn (2009, p. 136) argues that "clearly the government has less to lose at the negotiating table than an average Australian citizen, let alone a disadvantaged Indigenous Australian".

This paper made an attempt to consider the population-related factors that influence the sustainability of a small desert settlement in Western Australia, Leonora. We looked into the past, present and future of Leonora to draw a portrait through a sustainability lens. It appears that Leonora not only exhibits a diverse range of economic opportunities (such as mining, pastoralism, tourism and services), but it is also a home for complex interactions among various social groups: settlers, mining employees, tourists, public servants, refugees and Aboriginal communities.

The existence of these groups makes Leonora a very diverse and heterogeneous desert settlement. As a central township in Western Australia, it plays an essential part in providing housing and essential services, such as education, health and police, for all its residents, including Aboriginal communities. However, because

of the mining industry, large areas of land cannot be accessed by the Aboriginal people thus disconnecting them from their own cultural and heritage. Although Leonora's existence has been historically closely linked to the success of extracting resources from the ground, it is more than a "fuel stop" and its future depends on the people and communities who live there. Its diversity and complexity in both economic and social terms present good prospects for its future:

> *"You feel part of the town…Leonora is always going to be here…this is the best town to live in this area"* (Leonora resident).

Currently however, Leonora's residents are a very divided community. There are limited interactions and opportunities for exchange of ideas among the various groups. The main research finding is that the key for current and future sustainable development lies with recognising the potential of local communities to determine their own future. Suggested pathways towards achieving sustainability are through improving communication within the community groups, participatory democracy and a process of societalisation, all of which have the capacity to breakdown preconceived ideas.

These processes, oriented towards sustainability goals, can enable reflexivity and co-evolution of knowledge and intelligence to assure that the town remains a viable and liveable settlement. Conversations are an indispensable way of achieving almost anything between people – from changes in the work environment (Drew and Heritage, 1992) to global political agreements (Blattberg, 2000). They form the basis of the new type of democracy, namely participatory democracy that can facilitate the process of societalisation of Leonora, shape sustainability aspirations and allow for dialogue and deliberation on the town's future. In the words of one of Leonora's residents, the sustainability of the town depends on its people and believing in their own abilities to make a difference:

> *"We have to do things ourselves, independently, stand out, bite your tongue. We have to be confident… Break preconceived ideas…*"

All of the above approaches have the ability to break preconceived ideas, which is essential for developing a sustainability approach locally as well as globally.

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