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The Role of Policy in the Creation and Perpetuation of Environmental Injustice
Two Case Studies in an Australian Regional City

Thesis submitted as requirement for degree of
Masters of Social Policy (Hons)

By

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I would like to acknowledge and pay my respects to the Elders - both past and present - of the Wulgurukaba and Bindal-Birrigubba peoples, the Traditional Owners of the land on which this research was conducted, the current day Townsville area. I would like to thank the Traditional Owners and Elders who assisted me in this research.

I would also like to give thanks to my supervisors Hayden Lesbirel and Rosamund Thorpe; Annette Giess and Rianne Muller from the Queensland Office of Economical and Statistical Research (OESR) who assisted in obtaining census data that was not publicly available from the ABS. Much of the data relating to Indigenous achievement and employment comes from papers prepared by the OESR.

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Abstract

Environmental injustice is a matter of concern in the western world. However, there has been minimal exploration of environmental injustice outside of the U.S, with all existing non-U.S. based literature sparse and narrowly defined, relating to either the export of environmental risk, economic domination of first nations' peoples or third world countries resources. Two case studies, within a medium sized regional city, were conducted to both ascertain the existence of environmental injustice in Australia, and identify the causative mechanisms. Cases were examined within an overall framework of environmental justice theory, with discussion underpinned by a rational choice theory analytical approach. Census data for the SLAs of Garbutt and Stuart shows relatively high percentages of Indigenous residents and relatively low levels of household and family income living in close proximity to two Locally Undesirable Land Use developments – Townsville Airport (Garbutt) and Stuart Creek Correctional Centre (Stuart) during 1996 - 2006. Accordingly, the requisite conditions exist that allow for a determination of environmental injustice in a regional city in Australia. Additional qualitative research uncovered the social, political and economic factors and policies that created environmental injustice.

The qualitative data shows that environmental injustice in a regional city in Australia is associated with the existence of wider social injustices. The environmental injustice found to exist arose over time due to an unintended interplay between a least cost approach to siting both LULU's and homes, and social/political factors. Social/political factors identified during this research as being part of the causative process of environmental injustice were a pro-development/growth stance by government and the people, as shown in public (and popular) demand for and lack of resistance to development of the LULU's studied; personal preferences in housing locational choice, as reflected in decisions about the others whom people live amongst and mix with regularly; and links between education and income level. The latter is important, as cost is an important, but secondary or tertiary, not the primary, factor in housing locational choice. A strong positive correlation ($r(24)=0.824$, $p<0.001$) existed between race levels and the presence of accommodation containing elements and levels of limited choice in all SLAs within the regional city, including both Garbutt and Stuart. This correlation underscores the strong links between the existence of social inequities and inequality and environmental injustice.

The existence of these multiple causative factors requires a broad based policy response to alleviate, if not eliminate, environmental injustice. Governments, and the people they govern, need to look to science to devise non-environmentally hazardous methods of achieving the same goals, spreading the burden of environmental harms into wealthier areas via fair siting protocols, as well as the creation of buffer zones around the LULU and use of technology to reduce the level of environmental hazards residents are exposed to. Due to the links between environmental and social injustices, LULU developers should pay compensation to affected residential areas, with the compensation to take the form of actions designed to alleviate the social inequities and inequality that lead to environmental injustice. Policy makers also need to fully consider the ramifications of policy on the marginalised and vulnerable. Adoption of the proposed Policy Makers Manifesto will assist in achieving this response.

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Chapter One – Research Overview

Of recent years the topic of environmental injustice has attained much prominence in academic circles. The aim of the research reported upon in this thesis was one of a comprehensive exploration of the topic of environmental injustice and any possible causative factors. The purpose of this chapter is to lay the groundwork, so to speak, for the rest of this thesis – setting out the rationale for both the research and the proposed location.

Post World War Two the economic landscape has been dominated by a heavy focus on manufacturing and industrialisation, as this is seen as the way to achieve peace, prosperity and happiness for all the peoples of the world (Louis & Magpili, 2001). These heavy industrial and manufacturing plants, which often emit toxic substances as a by-product of their production processes, have to be sited somewhere, as does any solid or liquid waste emitted. Academic literature suggests that **Locally Undesirable Land Uses** (or LULU's), such as industry - in particular, industry that emits toxic by-products – as well as significant concentrations of industry, tend to occur in close proximity to residential neighbourhoods that consist of a low/er income, high/er minority demographic composition than are residential neighbourhoods further away from the LULU's. This juxtaposition of LULU's in close proximity to low/er income, high/er minority residential areas has been referred to in the literature as either environmental injustice or environmental inequity. The majority of this research has been conducted in the United States of America, in particular the southern states, with very little research on environmental injustice emanating from other countries. Further, what non-U.S. based literature there is available does not address the same area of research that the U.S. based literature does – proximity to LULU's by low income/high minority populations and how this proximity may have arisen. The research reported in this thesis seeks to redress this imbalance in the literature by examining environmental injustice and inequity in one regional Australian city, Townsville, Northern Queensland. Figure One on the next page contains a Google Earth image of the Townsville area in 2012, with key areas and developments within the Townsville area highlighted.

Figure One – The City of Townsville in 2012



www.googlemaps.com/Townsville

Townsville is a sparkling jewel, situated midway along the Queensland coast, approximately 1800 kilometres north of the Queensland capital – Brisbane. It is a tropical city, surrounded on all sides by national parks that are literally right on the doorstep, all within one to two hours travel time from Townsville (www.queenslandholidays.com.au, 10/11/09). Two of these national parks - the Great Barrier Reef Marine Park (to the east) and the Mt Spec/Paluma National Park (to the north) – are listed as areas of World Heritage (ibid). The weather is also magnificent - Townsville has 300 sunny days per year, and temperatures range from an average minimum of thirteen degrees during winter to an average maximum of thirty-three degrees during summer (www.townsvilleonline.com.au, 10/11/09). Since initial settlement in 1864 (Gibson-Wilde, 1984) Townsville has grown steadily, and was formally merged with the neighbouring local government area of Thuringowa (which surrounded Townsville to the north, south and west) in 2008 (Ryan, 2008 (a)).

Townsville possesses a mixed economic base – it is the social, administrative, educational, commercial and service hub for the northern region of Queensland (which stretches from Bowen in the south to Cardwell in the north and west to Charters Towers) (Stack, 2007). It is this broad, mixed economic base that is further driving Townsville's growth into the future (Raggatt, 2012). In 2012 the population of Townsville was 185,768, and this population is expected to increase by approximately 30,000 to 216,524 by 2016 (Armistead, 2012). Townsville is home to the major campus of James Cook University, Lavarack Army and Garbutt Air Force bases (two of the five major military bases in northern Australia), a sheltered deep water port that also plays host to military and cruise ships, the location of the administrative headquarters for the northern region for many Australian and Queensland government departments and the central hub of the northern region's transport networks (Stack, 2007). Finally, Townsville is home to the northern region's two correctional facilities – the Cleveland Youth Detention Centre (situated in Belgian Gardens) and the Stuart Creek Correctional Centre (situated in Stuart). Both are large size and scale human service facilities, and academic examination of such facilities tends to occur in a related literature – exploration of NIMBY (Not In My Back Yard) protest movements.

There is also a strong industrial base, with Townsville being home to the only abattoir in the northern region (at Stuart on the southern side of the city) and three major metal refineries – Yabulu Nickel Refinery is half-an-hour's drive north of Townsville and the Sunmetals Korea Zinc and Xstrata Copper Refineries are in Stuart, situated in the same industrial zone as the abattoir (ibid). The raw materials for these refineries and the abattoir emanate from mines in the North West Queensland Minerals Province and

graziers in the regional hinterland (ibid). Townsville is also the exit port for the fly-in/fly-out workforce employed in the mines in the North West Queensland Minerals Province (ibid).

This strong economic base, mild weather and natural scenic beauty of the location should mean that life in Townsville is a good life for all residents. The above features of the Townsville area should mean that all residents of working age would have jobs that are fulfilling, earning good incomes, with no barriers to accessing the facilities – both man-made and natural – that exist in the Townsville area. A fairy-tale existence, in fact. Like most cities, some of Townsville's residents do live this fairy-tale life; however, there are other residents who do not live this fairy-tale life. This is because Townsville contains pockets of disadvantage, that consist of mainly, but not exclusively, Aborigines and Torres Strait Islanders – Australia's Indigenous peoples. The paradox posed above, of want in the midst of a tropical paradise, gives rise to several questions. Why does this want in the midst of paradise exist in the first instance? Is there a link in Townsville between the sites of LULUs and low income, primarily Indigenous residential neighbourhoods? If so, how has this link been created? The research reported in this thesis sought to uncover if there is a link between LULUs and human service NIMBY's and low income, mainly Indigenous residential populations in Townsville. Particular attention was paid to two industrial areas of Townsville: - the Garbutt and Stuart industrial estates and the residential neighbourhoods in close proximity to these industrial estates. Additional qualitative research set out to explore and unpick factors that may have underpinned any link uncovered between LULUs/NIMBYs and low/er income, high/er minority population residential neighbourhoods in Townsville.

A link between LULUs/NIMBYs and low income, mainly Indigenous residential areas within Townsville is possible, as research done in many of the major Western industrialized countries has found a link between the sites of industrial/toxic facilities such as exist in industrial estates and the presence of low income residential neighbourhoods surrounding these industrial zones (Bullard, 2005; Been, 1994; Earthbeat, 1999; Henderson, Bailey, & Mendy, 1996). The existing, predominantly United States based research has found that these residential neighbourhoods tend to consist of, in the main, African American individuals (Bullard, 2005; Been, 1994; Henderson, Bailey, & Mendy, 1996), whereas there has been little published data around the links between such populations and human service NIMBYs such as both Townsville's correctional centres. What non-U.S. based environmental injustice research has been undertaken has not to date explored the issue of proximity of such

low income residential areas to LULUs/NIMBYs, or how this proximity may have arisen (Szasz & Meuser, 1997). Nor has there been any examination of the exact demography of such residential areas to ascertain their racial composition. (ibid) However, a brief examination of population data from the 2006 Census of the Australian Peoples (www.abs.gov.au, 12/9/8) supports a contention of a link between low income/high minority residential areas and industrial LULUs/human service NIMBYs occurring in Australia. Both Townsville's main industrial areas – Garbutt and Stuart – are in close proximity to residential areas that possess the low income/high minority population demographic that allows for a determination of environmental injustice to be made.

However, the findings of the established literature referred to above have been contested. Pulido (1996) questioned the existence of 'environmental racism', its' precise definition and whether or not any 'discriminatory' patterns found were the result of other, 'non-racist' forces and structures. Bowen (2002) reviewed research done in the U.S. over the past thirty years, and found that the evidence regarding the disproportionate distribution of LULU sites in low income, primarily coloured residential neighbourhoods is mixed and inconclusive, further stating that the empirical foundations are too underdeveloped to be considered a well-developed body of knowledge. It may have been this conclusion that led Bowen (2002) to argue that environmental injustice as an area of scholarship was really about the over-representation of minorities, especially African Americans, in the low income statistics. This possible aspect of the environmental injustice research can also be seen in Australia. Cross-examination of census housing and population data sets for 2006 shows that Townsville's Indigenous population is not evenly spread across all SLA's. Furthermore, the SLA's with the highest percentages of Indigenous residents also have high levels of publicly provided rental housing within their housing markets. This means that the vast majority of these indigenous residents may be residing in this publicly provided housing. This will be further explored later in this thesis.

There have been two theories posited within the academic literature on siting large projects to explain the correlations that have been observed within the research that Bowen (2002) considers high quality – market forces at work or institutional racism/classism in the siting process (Been, 1994). The research reported in this thesis utilised a multifaceted approach to the study of environmental injustice in one regional city in Australia. The research seeks to ascertain if environmental injustice in Australia occurs within a similar context, with similar causative mechanisms, to the manner exposed in the current academic literature on the topic. In addition, this multi-faceted

approach allows for a more complete examination of the possible causative processes of any environmental injustice uncovered in the city studied – Townsville. The qualitative methodology utilised consists of an analysis of how interactions between differing forces and actors, such as historical development patterns, market demands, policy, governmental and institutional factors, and personal preferences have worked together to lead to the occurrence of environmental injustice, if found to exist, in Townsville. The methodology utilised will add depth to the empirical base of the current literature on the topic of siting LULUs as many cities and towns within Australia, and possibly worldwide, may have similar forces and actors similarly creating environmental injustice within their jurisdictions and boundaries. The historical information sought during the research process will also add significantly to the available literature on Townsville and Northern Queensland.

Rational choice theory will underpin an analysis of interactions between a number of possible causative factors responsible for creating environmental injustice in Townsville in 2013, if found to exist. Such factors include, but are not limited to, a least cost approach to siting, a pro-development stance held by both governments and the people they govern (leading to public demand for, and lack of resistance to, LULU's being developed), personal preferences around where people choose to live and the associations made between peoples, and links between educational qualifications and income levels. These interactions do not occur in isolation, occurring within the context of an over-arching belief system that sees a vibrant market economy based around consumerism as the path to peace, prosperity and happiness for everyone (Louis & Magpili, 2001). A second factor is the use of 'trickle-down' theory in devising policy and/or actions designed to alleviate or remediate for the effects of this vibrant market economy based around consumerism.

Environmental injustice creative processes may possibly work in the following way. Democratic government, and the politicians elected to positions in government, at all levels (local, regional and central) seek to increase their utility via the creation of policy based on popular (public) demand (as expressed in the media). This sought after increase in utility revolves around one goal – a political goal of being re-elected to continue in power into the future, as in this way a government can continue with its' plans for the area it governs. Policies created to meet this political goal involve measures designed to increase and/or maintain the living standards of the people governed, including the creation and maintenance of community and civil infrastructure, such as electricity, water and sewage, communications and transport networks, health services, housing, education and employment, and law and order, all of which are

provided to the citizenry as cheaply as is possible. As part of their goal to increase their utility, governments will also enact legislation that seeks to protect the citizen from the worst excesses of human nature and the market. Any government will also actively compete against other governments of the same level to attract either an increased share of the resources provided by a higher level of government or new private investment within their boundaries. This increased resource allocation allows government to further increase the living standards of their citizens, thereby increasing their relevance to the citizen, and therefore, utility. Such governmental activity is conducted within the context of the market economy and the dominance of quantitative/numeric/economic indicators such as **Gross Domestic Product (GDP)** and **Per Capita Income (PCI)** to determine Living Standards for their residents (Stiglitz, Sen, & Fitoussi, 2009). However, the research reported in this thesis will also examine a previously underexplored aspect in the creation of environmental injustice. Previous research has focused entirely on the role played by government, as explored above. What is the contribution of the populace as a whole, or the Governed, in the creation of environmental injustice?

This research has been conducted to fulfil the requirements to be awarded a Masters degree in the field of Social Policy. McClelland and Smyth (2010) state that social policy may be an informal agreement to do things a certain way (ibid, pp.9), with this informality being deliberate for three reasons:-

1. so as to circumvent the requirements of formal policy,
2. because the formal policy is difficult to implement as a result of poor design, or
3. The policy is so general it can be interpreted in a number of differing manners.

It is indeed possible that some of the formal policies shown in the literature to have an impact on the creation of environmental injustice, such as zoning (Boone & Modarres, 1996), began as an informal agreement amongst the populace to do something a certain way that was over time codified into legislation and academic theory. Several other possible informal policies of this nature also exist that may be a causative factor in the creation of environmental injustice. These include people's personal preferences around residential housing choices, an association between education and income levels and a tacit, implicit support for current societal paradigms – a market economy with an emphasis on the consumption of “stuff”. Such consumption tends to increase over time, as facilities outgrow their initial sites due to increased usage as the population grows or as technology improves the efficacy of operation of the good produced.

The current policy environment in Australia (and most of the Western industrialized world) is dominated by neo-liberal theory, which promotes the dominance of the free market and small government (Edwards, 2002). The research reported on in this thesis will set out the ways in which government actively works to support the operations of the free market, whilst remaining as small as is possible, as postulated by neo-liberal theory. At the same time government seeks to increase its utility amongst the populace, via policy and actions aimed at increasing and/or maintaining the living standards of the populace it governs. There is also an assumption that if mankind were not motivated to survive through gaining a monetary 'profit' of some kind, little social progress will occur (The Zeitgeist Movement, date unknown). These economic based indicators of living standards do not take into account other, qualitative, factors that research shows impact on, and are important to, quality of life – emotional, psychological and spiritual wellbeing (Brown & Brown, 2003). These qualitative factors form a part of the value systems of many of the world's First Nations' peoples, and can be clearly seen in their dominant cultural values, especially that of cooperation with others (Patton, Blackbourn & Fad, 1996). There is at least one modern government that utilises such factors in their official living standards measurement system - Bhutan utilises a Gross National Happiness Index (Holderness, 2009). Such issues of quality of life measurement are also coming to the forefront in Europe. In 2008 President Sarkozy of France set up the Commission on the Measurement of Economic Performance and Social Progress as a direct result of a clash between economic measures of socio-economic phenomena and the public perception of the same phenomena (ibid). This Commission produced a report in 2009 that recommended a change in emphasis from economic production to human well-being, as well as addressing how to define human well-being, and how to measure environmental sustainability (ibid).

This thesis seeks to ascertain how government and the governed have interacted to create and perpetuate environmental and other forms of inequity and inequality in society, via an examination of the link between the placement of LULUs and wealth. This involves an examination of the motivations that underpinned the actions of both individual actors and of government itself. As explored above, the current dominant paradigm within society at large is one of heavy use of primarily economic indicators to determine standards of living, and how these standards may have improved over time. Therefore, current policy thinking is dominated by economic methodology, which is heavily underpinned by an economic rationalist and managerialist agenda in all areas of public policy (Edwards, 2002). This emphasis on economics makes it appropriate to utilise a rational choice framework to underpin the analysis of the data, as rational

choice frameworks utilise an economic methodology, in the format of a cost-benefit analysis (Ward, 2002). When applied to institutions, a rational choice framework sees them as systems of rules and inducements within which individuals work to maximize their own utility (Lowndes, 2002). A rational choice institutionalism approach seeks to identify the interests and motivations that underpin rational actors' behavioural choices within an institutional context (Schmidt, 2006). This means that for each individual actor, when faced with a multitude of choices as regards a possible course of action, will choose the one that will provide either the best overall outcome or advance either their own, or that of the organisation they work for, utility (Ward, 2002).

When applied to the topic of siting contentious land uses, rational choice theory dictates that developers of any large scale development, be it industrial, commercial or residential, no matter whether they are in the private sector or government, will seek sites that provide them with the least cost option as regards both fiscal cost and political resistance. In this way, the actor maximises their own personal utility within the organization they work for, and that of the organization itself. Sites near low income, predominantly coloured areas are favoured due to the low transaction costs involved; wealthier areas tend to contain more highly educated individuals who are less likely to tolerate any environmental disruption of their immediate living environment – poorer individuals have far less capacity, or indeed, willingness, to fight against any environmental bad being placed near them (Hamilton, 1993; 1995). However, this may not be entirely the case, as literature also suggests that poorer areas seek out LULUs due to the employment opportunities they provide for the residents of the area (Szasz & Meuser, 1997). Szasz and Meuser (1997) and Hamilton (1993, 1995) seem to suggest that residents in low income areas are more willing to trade environmental hazards in return for employment benefits. Such development also works to increase the vital economic based indicators of living standards – GDP and PCI – to the low income area, attracting further LULU development, thereby exacerbating the resultant environmental injustice.

Finally, use of rational choice theory requires a positivist ontological position be adopted. This means that a causal relationship between two variables can be established (Marsh & Stoker, 2002). A positivist approach requires a foundationalist epistemology (ibid), with such causal relationships being used to underpin an explanatory model (ibid). This is an apt approach to use. It is only by understanding exactly how the multiple relationships involved work to propagate and perpetuate inequity and inequality that society can work towards reducing the occurrence of environmental (and indeed, other forms of) injustice. An understanding of these

relationships will assist government in its endeavours to improve the outcomes – and living standards – for its most disadvantaged and vulnerable citizenry.

Finally, as stated earlier, this research is being conducted as part of a requirement towards a Master's Degree in Social Policy. Therefore, it also sees the decisions made by the various actors involved as being a policy that is being enacted by that actor, be they an individual or an institution. McClelland and Smyth (2010) state that social policy works to influence the lives of all as well as the nature of our society, and has dual functions – it is a goal and an instrument at the same time, determining how our social needs are to be met and our social rights recognized. Therefore, social policies are also subjected to the same paradoxes described by Stone (2002). So just how do the various actors in the policy process balance the dual nature that is implicit in social policy making? The research reported in this thesis seeks to uncover how such balances are made between the competing goals.

Chapter Two will explore the current literature, and set out the theoretical framework utilised in this research. Space will be allocated to an exploration of the two competing theories of causation, and how they interact with the possible causative factors identified earlier, and with one another. It is entirely possible that true causation is actually due to both competing hypotheses working in conjunction with one another via the mechanisms outlined earlier in this chapter. The first hypothesis is that of market forces at work. Under this hypothesis, once a decision to site a LULU is made, those who can afford to move elsewhere do so. The presence of the LULU lowers the cost of housing in the residential neighbourhood close to the LULU, making housing in this neighbourhood more affordable for those on a low income (Been, 1993, 1994, with Gupta, 1997). An analysis of demographic data in both Australia (www.abs.gov.au, 12/08/09) and the United States shows that coloured individuals are more likely to be on low incomes than non-coloured individuals. However, missing from any analysis are possible reasons as to why this correlation between being a member of a minority and being on a low/er income exists. The research reported in this thesis will include such an examination.

The second theory is institutional racism, defined by Anthias (1999) as

“The collective failure of an organization to provide an appropriate and professional service to people because of their colour, culture or ethnic origin. It can be seen or detected in processes, attitudes and behaviour, which amounts to discrimination through unwitting

prejudice, ignorance, thoughtlessness and racist stereotyping which disadvantage minority ethnic people” (p. 2).

Institutional racism does not imply intention – racial discrimination can happen in institutions even when the agency involved does not intend to make any distinction on the basis of race (www.ejnet.org, 17/11/09). Power, and/or the use thereof, to muffle any opposition is the necessary element of any form of discrimination, whether it is on the basis of race, sex, religion, ability, age or sexual preference (ibid). In essence, therefore, the institutional racism hypothesis derives from either within the affected minority communities, or the social researchers who examine them. Both groups may hold a perception that their community has been the subject of such siting decisions due to the demographic composition of their residential neighbourhoods. This low/er income, high/er minority demographic composition means that the community will be less likely to mount effective opposition, or that their communities do not matter to those in power because of their demographic composition.

Psychological literature indicates that such feelings and perceptions of discrimination on exposure to injustice, either directly or vicariously, arise from biological reactions within the brain, which leads to an urge to correct the injustice suffered (Rosenbaum, 2013). For the average member of the populace; however, it is possible that not much thought is given to the plights of minority groupings within society. Recent social opinion research on social issues such as same sex marriage equality show that most Australians are in support; but conversely, they are not active in pushing the agenda. Space will also be given to an examination of the literature relating to possible additional causative factors and policies pursued by both government and the governed – both of the formal and informal kinds. Finally, space will be given in Chapter Two to an exploration of the method utilised in the research reported in this thesis.

Chapter Three analyses quantitative data obtained from a number of sources to ascertain if a relationship exists between LULU's and surrounding areas of low income/minority populations in Townsville. Demographic data from the 1996 and 2006 Census of the Australian Population conducted by the **Australian Bureau of Statistics** (or ABS) relating to income levels and a population breakdown according to race has been obtained, along with taxation data for the postcodes of the Townsville **Local Government Area** (or LGA). This data will be examined to ascertain if this observed relationship between income and race and the presence of a LULU exists in Townsville.

Chapter Four examines the role of government in the creation of any environmental injustice uncovered in Chapter Three's exploration of the demographic data. Chapter Four will also examine the siting processes of two LULUs identified in the Townsville area – Townsville Airport and Stuart Creek Correctional Centre. Chapter Five submits the actions of the Governed to a similar examination and Chapter Six explores the informal associations that underpin environmental injustice, as well as exploring Indigenous history since 1770 and how this history has contributed to the current low income status of Indigenous people in Australia. The research reported in this thesis will seek to ascertain whether any environmental injustice uncovered was unintended, arose as a direct result of attempts by government to alleviate social injustice, and was created over time due to interplay between government, the governed and historical changes in policy concerning Indigenous people.

Since this research aims to devise policy recommendations that can work to eliminate the presence of organised institutionalised injustices, including environmental, the final chapter – Seven – will weave all the varying strands into a comprehensive whole and provide some Recommendations that will assist in the elimination of injustices, including environmental.

Chapter Two – Literature Review, Theoretical Framework and Method

Introduction

As has been explored in the first chapter – Research Overview – it is hypothesised that the causative processes of environmental injustice are multi-faceted in nature, and can be ascribed to a combination of both theories of causation – market forces and institutional racism/classism. The research reported in this thesis has been designed to explore the hypothesis that environmental injustice in Australia is an unintended consequence of interaction between a “least cost” approach to siting decisions in general and social and political factors. The social and political factors proposed as part of the causative process include demand for construction of the LULU expressed by the populace, via the usage of the service offered or consumption of the good produced by the LULU; personal preferences surrounding the demographic composition of the immediate environment, and an association between educational attainment and median income levels. Bowen (2002) has argued that the environmental injustice literature is really about the over-representation of minorities in the low socio-economic sector of society. Accordingly, the research reported in this thesis will ascertain if this is also the case in Australia, and if so, advance an argument that such a status is a result of the effects of two hundred years of history, and the policy frameworks that governed Indigenous life, since the Europeans invaded/colonised (exact terminology dependent on the cultural framework utilised) Australia, beginning in 1770. This research seeks to fully explore this hypothesis via the examination of the relationship that exists between the siting of LULUs and surrounding residential neighbourhoods that may be composed predominantly of low income, minority, families and individuals.

This chapter seeks to explore the current literature on the topic of environmental injustice. It also seeks to advance a new theory of causation – that environmental injustice is caused via market forces working in conjunction with institutional racism/classism. Environmental injustice is an unintended consequence of government working to provide the goods and services the populace desires at the lowest cost to the provider and the consumer of goods and public services. The populace, or the governed also have a role to play in the creation of environmental injustice, and this new addition to the theoretical work will also be examined. Finally, space will be given to the methodology utilised in this research.

This chapter is an exploration of the existing literature on the topic of environmental injustice. Literature from three separate academic disciplines – environmental injustice,

siting and Not In My Back Yard (NIMBY) and existing critiques of the field of environmental injustice research will be explored. The aim of this chapter is to seek out common, otherwise unexplored factors, that may lead to the creation of environmental injustice. This may also show why environmental injustice has become the issue of both academic and social prominence it has become. From the examination of this literature, some research questions will be posed at the end of this chapter.

Literature Review

Environmental justice research focuses on the built environment, or the spaces where humans live, work and play on a daily basis (Schweiser, 1999). The environmental in/justice body of literature revolves around one central hypothesis:- that low income, predominantly minority, individuals and communities bear a disproportionate burden of environmental hazards or harms, in comparison to high/er income, non-minority individuals or communities (Turner & Pei Wu, 2002). Two mechanisms to account for these disproportionate burdens have been postulated in the literature:- the siting of the environmental hazard itself, referred to in the literature as a LULU (**L**ocally **U**ndesirable **L**and **U**se), often sited in close proximity to a low/er income, high/er minority residential community, and the racial composition of the LULU's workforce (Pellow, 2000). The published research involves analyses of racial and/or class differences across three areas:

1. Proximity to known or prospective hazards
2. Regulation, amelioration and clean-up efforts, and
3. Health effects (Brown, 1995).

The bulk of the studies done are both contemporary and American (Szasz & Meuser, 1997) and concern facilities associated with heavy industry - toxic waste storage areas and recycling and manufacturing plants and refineries. There has also been some research conducted in Europe and Australia, where a similar correlation has also been observed (Earthbeat, 1999), however no proximity research appears to have been conducted outside the United States, until now. Printed collections of articles do include a token number of chapters on non US research (Szasz & Meuser, 1997). However, these chapters describe either the impact of economic development and resource extraction on the local Indigenous people or the export of risk (banned pesticides, harmful products, hazardous waste) to nations with weaker environmental protection regulations (ibid). Environmental in/justice research methodology has been heavily

criticized (Bowen, 2002; Pulido, 1996), with these critiques discussed in the next section. There are also related bodies of literature on siting mechanisms and processes (Mitchell, 2007; Lesbirel, 1987) and the NIMBY phenomenon (**Not in My Back Yard**) (Dear & Gleeson, 1991; Pendall, 1999; Takahashi, 1997; Wilton, 2002; Dear, 1992, Strangio, 2001; Lake, 1993). The NIMBY phenomenon also attracts much comment in the popular media (Chilcott, 2009; Gaynor, 2010; King, 2009; King 2010 (b); McMahon, 2010). The research reported in this thesis is concerned with only one segment of the environmental justice research body of literature: - that of proximity of low income/high minority residential areas to known or prospective environmental hazards and how this proximity may have arisen.

Critique of the existing research

Pulido (1996) states that argument exists as to whether or not 'environmental racism' exists, if so, what it is and whether or not the discriminatory patterns found to exist are simply a result of other, non-racist forces and structures. The research reported in this thesis will advance the argument that this is indeed possible. Pulido (1996) argues that although research into this area has been pursued with a worthwhile goal (contributing to more informed policy making), it has been conducted with unspoken political projects lurking beneath the surface. Pulido (1996) states that in most research it is assumed that solid scholarship can contribute to effective policy creation. There is also an unspoken underlying assumption on the part of the researcher that should environmental racism be found not to exist, then opponents will no longer challenge the development of potential environmental hazards in their immediate area (ibid). This is due to an emphasis on rationality, especially reductive positivist rationality (ibid). This is a direct example of how a researcher's political ideology can affect the outcome of their research and any qualitative discussion engaged in that stems from their research. Pulido (1996) writes from within a radical perspective, and as such finds problematic tacit assumptions around racism – what it is and how it is experienced. Pulido (1996) concludes that environmental injustice research has advocated a narrow and politically limiting view of racism which may be of use at the policy level and of less use elsewhere.

Pulido (1996) identifies three specific assumptions that underpin such research - that racism can be isolated from other forces and forms of difference, consists of discriminatory acts instead of ideology and is monolithic. Pulido (1996) asks geographers, in particular, to declare their ideology and to include methods other than statistical analysis. Pulido's (1996) stance is an important one, given that Bullard states that the environmental justice movement is not just about communities of colour living

in close proximity to LULUs, it encompasses all low income peoples in its' ambit (Schweiser, 1999). It is not just ethnic groups that constitute minority populations. There are other groupings within society that could be considered to be in a minority. These include people unable to effectively compete in the social market place for reasons that are either intrinsic (disability, mental illness, aging), extrinsic (sole parents of young children, carers for the elderly and disabled) or both. A person can actually be a member of more than one minority grouping, which works to increase the difficulty they possess in competing in the social marketplace. It is these people who form the bulk of the low income socio-economic group, because they lack the qualities desired by the social marketplace.

Bowen (2002) examined 42 studies over 30 years, and categorised them according to how well each met what he termed "*reasonable scientific standards*", which were not defined. Twelve of these 42 studies were analysed in detail, critiqued (ibid), and divided into three groups, as below.

1. Poor Quality – these had flaws sufficient to be judged useless regarding any contribution to scientific knowledge and in Bowen's (2002) opinion, the conclusions reached should not be considered to have any applicable merit to public policy and management decisions. The studies were not designed, conducted or documented well enough to know whether the study contained any scientifically meritorious conclusions, and therefore should be considered to be purely conjectural in nature.
2. Medium Quality – the research in this category had similar methodological flaws to that in the first category. However, these flaws were less severe or fewer in number, and were therefore considered generally to not be as great a threat to validity as those in the poorer quality research. Data, study design and methods utilised were judged to lead to approximately accurate findings whilst also being sufficiently flawed to render any conclusions unusable for either public policy or management decisions.
3. High Quality – research in this category was also flawed; however it was sufficiently well designed and documented to be considered substantially accurate and to have scientific validity and merit – up to the limits mentioned in the comments section. Bowen (2002) could recommend this research as having the minimum level of scientific merit for use as input in public policy and management decisions. The highest quality research within the category was considered to be excellent and essential for input into public policy and management decisions.

The first thing to note from Bowen's (2002) examination of the literature is that Bowen (2002) found all the studies examined to possess some degree of methodological flaw. However, overall Bowen (2002) concluded that the research conducted so far on the topic of environmental injustice indicated that a

'small and fairly heterogeneous body of research hints or even indicates (but by no means demonstrates) that in some specific areas, some ostensibly identifiable groups of the population may in some instances live closer to some selected environmental hazards' (ibid pp unknown).

Bowen (2002) concludes that the evidence on disproportionate siting is both mixed and inconclusive, and that even if patterns of disproportionate exposure had been systematically identified, little of the research can be linked to actual exposure and associated public health effects. It is this that has led Bowen (2002) to conclude that in the U.S. the environmental injustice body of literature is really about the over-representation of minority peoples, especially those of African American origin, in the low socio-economic group of society. Bowen (2002) and Pulido's (1996) critiques therefore, provide support to an argument that the environmental injustice field of scholarship has become another mechanism by which, and was designed and created with an aim of, keeping social justice issues in the forefront of the policy debate.

However, this narrow focus is problematic as it ignores the plight of low income populations who are not coloured, or low income, coloured populations who do not live close to a LULU. Accordingly, these critiques played an important role in determining both the hypothesis and methodology of the research reported in this thesis. This review of the existing literature has led to a new causative hypothesis being devised regarding the existence and formation of environmental injustice. This thesis will argue that environmental injustice is the result of interplay between market forces and institutional racism, and that further, it is unintended. Environmental Injustice has arisen out the interaction between a least cost approach to siting decisions by all concerned, not just LULU developers, and social/political factors. These social and political factors include personal preferences regarding the immediate residential environment and an association between education and income levels. Finally, all these interactions occur within the context of a society that views the path to peace, prosperity and happiness for all as the consumption of manufactured goods (Louis and Magpili, 2001). A key component of the causative process is attempts by government to correct and alleviate social injustice and the excesses of the market place. Evidence supporting these

contributing factors to environmental injustice will be explored in the next section – the Theoretical Framework.

Theoretical Framework

Two mechanisms have been advanced in the literature to account for the disproportionate siting of environmental hazards in close proximity to low income/high minority population residential neighbourhoods – market forces and institutional racism (Pastor, Sadd & Hipp, 2001, Been, 1994). The market forces hypothesis views disproportionate siting as the outcome of a process – the establishment of a LULU close to a residential area sets off a chain reaction – those who can afford to move out, do so (Been, 1994). The LULU's presence then lowers property prices in the neighbouring residential area (ibid). These lowered property prices mean that living in that residential area is more attractive to individuals and families on lower levels of income, as they can afford to live in that area (ibid). The establishment of the LULU also attracts further LULUs to the immediate area, lowering property prices even further (ibid).

The institutional racism/classism hypothesis focuses on the actual siting decision, and sees this decision as being race, class (or both) based (Pastor, Sadd & Hipp, 1994; Been, 1994). This hypothesis argues that such developments tend to be located in close proximity to low income/high minority population residential neighbourhoods due to one of two reasons:-

- 1) The residents' lack of ability to adequately contest the development's approval by government, or
- 2) That the neighbourhood's demographic composition (low/er income, high/er minority, not really 'socially' acceptable population) is not considered to be worthy of respect or consideration by those involved in the siting decision (ibid).

Recent psychological research indicates that such a stance on the part of the residents, or of community workers working with the residents of the affected area, arises due to bio-chemical changes in brain that occur as a result of exposure, directly or vicariously, to injustice (Rosenbaum, 2013). These changes then lead to the desire to correct the imbalance that led to the injustice being suffered in some manner (ibid). It does need to be said at this point that definitions of what constitutes an injustice are closely associated with the political ideology or belief followed, and accordingly will vary, as will the appropriate corrective mechanism.

Both hypotheses of causation appear to be single faceted in nature – environmental injustice is due either to the forces of the market or racist/classist decisions made by the developers of the LULU. In this regard, the extant environmental injustice literature possesses a narrow focus, and taken as a body of literature as a whole, supports Bowen's (2002) contention that the environmental injustice literature is really about the over-representation of minorities, especially African Americans, in the lower socio-economic sector of society. This thesis will argue that the true causative process of environmental injustice are multifaceted in nature, and incorporate elements of both causative hypotheses advanced in the literature to this point in time. The research to be reported in this thesis seeks to make a comprehensive examination of environmental injustice from within an Australian context. To this end, literature from within the academic disciplines of environmental injustice, siting, planning, NIMBY resistance, economics, social and community welfare and psychology will be examined in order to ascertain and isolate key factors that may be associated with the creation of environmental injustice.

Prior to this exploration occurring, some basic definitions need to be set out, with the first one being exactly what constitutes a LULU development?

What is a LULU?

What constitutes a LULU? No standard definition exists in the literature around what exactly constitutes a LULU, and different disciplines explore different types of LULU. For the purposes of this research, a LULU can be considered to be any proposed land use that may attract NIMBY opposition from the residential population that lives in close proximity to the proposed development. A LULU can come in many sizes and types, and can constitute any type of development. However, not all types of LULU attract the same levels of attention, from academia and from the populace. This research will highlight some LULU's that have garnered public attention, but not academic attention.

Many of the facilities explored in the existing environmental in/justice and siting research are large in both size and scale of operation. These LULUs consist of heavy industrial facilities, such as refineries, power plants, waste dumps/refuse tips, recycling plants and large scale manufacturing plants (Mitchell, 2007; Lesbirel, 1987; Been, 1994, Been & Gupta, 1997; Shadbegian & Gray, in press; Mohai, Pellow, & Roberts, 2009; Brulle & Pellow, 2006; Szasz & Meuser, 1997; Boone & Modarres, 1999; Hamilton, 1993 & 1995; Kraft & Scheberle, 1995; Louis & Magpili, 2001; Perlin, Setzer, Creason & Sexton, 1995; Schweiser, 1999), or the human services element, such as a prison (Kriesel, 1991). Such facilities require large parcels of land on which to construct

the development, are often operated 24 hours/day, seven days/week, with large workforces numbering in the hundreds, if not thousands, of employees. Therefore they require plenty of space and access to major transportation, communication, electrical, water and sewage networks that will support the operations of the LULU (Ember, 1998; Hodgkinson, Nyland & Pomfret, 2001; Szasz & Meuser, 1997). These LULU's are operated by either the private sector or government along corporate lines.

The NIMBY research focuses on a second type of LULU facility – 'social' LULUs such as homeless shelters, hospices, rehabilitation centres, and other social services designed to assist low income, disadvantaged individuals and families - and the community opposition to these developments. These 'social' LULUs tend to be operated by government, either directly or indirectly (Dear & Gleeson, 1991; Pendall, 1999; Takahashi, 1997; Wilton, 2002; Dear, 1992; Lake, 1993), with the physical facility often being of a smaller size than that of the more heavy industrial facilities. Finally, there is a third group of LULU's little researched in the academic literature. Such LULU's include electrical lines and transformers, mobile/cell phone transmission towers and housing, both for the high end private market and social/public housing. This third group of LULU's attracted much public comment in the local paper – the Townsville Bulletin – in the period during which this research was conducted, 2007 – 2013. All LULU developments, no matter what their nature, however; do have commonalities – they all undergo a process by which potential sites are chosen, and all can be (and often are) objected to by members of the community.

Siting Decisions

As stated previously, two mechanisms have been hypothesised regarding the correlation between industrial LULUs and low/er income high/er minority residential areas – market forces and institutional racism/classism. Both hypotheses are situated at opposite ends of a spectrum and are single faceted in nature, failing to take into account several social and political factors. However, the literature does provide some conclusions that will allow forces that may underpin both hypotheses to be additionally fleshed out.

Szasz and Meuser (1997) argue that siting is due to two competing explanations, and that within each explanation, any resulting environmental injustice will arise out of three demographic possibilities:-

- 1 Facility is sited for reasons other than the existing demographic – the site is close to raw material and/or consumers of the product produced, there is enough land at an affordable cost, the site has access to transportation

infrastructure, the area is already zoned for industry and that geological conditions are right to develop a waste storage facility. There are three possibilities by which environmental injustice can be created –

- a) No, or minimal population, with the area undergoing additional development once the facility is sited.
- b) Area is demographically indistinguishable from surrounding area, with changes occurring after siting.
- c) Area chosen because it is different demographically but this difference was not a factor in the siting decision.

2 Facility is sited because of the existing demographic

- a) Area is targeted because it is depressed economically and resistance is expected to be low as the facility promises jobs and employment.
- b) Area is targeted because the residents either are, or perceived to be, politically less able to resist
- c) Area chosen because of outright racial prejudice and discrimination.

Hamilton (1993, 1995) hypothesizes a 'least cost' approach to the siting of contentious LULU facilities – that such facilities will be sited in the area that involves the least cost to the developer, with these costs being both financial (monetary) and political (community opposition/demand) in nature. Those responsible for the siting decision will utilise a cost/benefit approach towards the siting of the LULU (ibid). Rational Choice theories state that when faced with a number of differing options from which to choose, the decision maker will choose the option that provides the best overall outcome for them, or within an institutional context, the institution of which they are a part (Ward, 2002). Hamilton (1993, 1995) utilised a rational choice approach to siting decisions, and posited that LULU developers, private or public, will be looking at areas where there is plenty of land that is well served by civil infrastructure and where political resistance to the development is minimal. Modern industrial estates, as well as land that has been zoned for industry, will contain established civil infrastructure, and can represent a 'least cost' approach with regards to the siting of contentious facilities (Lin & Ben, 2009).

In essence, land has been set aside on which such facilities can be developed. Operational costs will be low due to existence of the civil infrastructure, and political resistance will be low as land is set aside for industrial LULUs to be developed on. Therefore, in theory all siting decisions could be accounted for under Szasz & Meuser's (1997) model, acting in combination with Hamilton's (1993, 1995) least cost approach.

However, this established literature explores only the actions of government and/or the operators in any siting decision. The research reported in this thesis will show that construction and expansion of any LULU facility is dependent on sufficient demand for the good or service it produces existing. This demand emanates from the populace, or the governed. Exploration of the actions of the governed has been given minimal attention in the literature perused to compile this literary review to date.

What about residential housing locational choices - does a "least cost" approach also apply to these? Current literature indicates that it does, but that this is secondary to the major factor of proximity to usual destinations (Goudie 2000, Shearer, 2012). For those who reside on acreage on the outskirts of Townsville and Cairns, cost was actually a tertiary factor. Goudie (2000) found that the primary factor was desire for a large plot of land or the residential amenity of living with a view, followed by proximity to usual destinations. Evidence exists that for residential siting decisions, attention is also paid to people currently living in the neighbourhood itself. Who else lives there? How similar are they? Frug (1996) argues that the composition of residential neighbourhoods is a by-product of the use of zoning, and that zoning has deleterious side effects for the community as a whole.

Zoning

Zoning as a concept (and a policy) dates from the immediate post World War Two period, and can be directly related to two influential movements within the discipline of Town Planning – Modernist Town Planning advocated by the Congress Internationeaux d'architecture d' moderne in 1945 and the Garden City Movement (Nicks, 2003). Zoning provides constancy into the future, by setting aside parcels of land for development of various types (commercial, industrial, residential) to occur at some stage in the future (Boone & Modarres, 1999). Each land use type, or zone, is separated from adjacent zones via the use of either natural (such as watercourses) or man-made (such as parklands or major transportation routes) features. This separation of land use types from one another was a key element for both movements (Nicks, 2003). A visual examination of most of the world's cities utilising Google satellite maps will show just how successful these movements were on the design of urban spaces. It is the design of these urban spaces, our towns and cities where people live, that is the focus of the environmental justice movement (Schweiser, 1999). The principles that underpin zoning is one reason why environmental injustice exists. It provides an explanation of why residential areas are immediately adjacent to either industrial or commercial areas, separated only by the width of a road.

Winston (2010) argues that many of our inventions, beginning with the discovery of fire, have bettered our lives. At the same time they have also proven deleterious for some of humanity, or the eco-system in which mankind resides (ibid). Zoning, as both an invention and a policy, provides a good example of this concept, and can be viewed as a good idea that has led to deleterious effects on some people. How is this so? Frug (1996) argues that zoning laws actually work to fracture communities, dispersing and dividing people, leading to homogenous residential neighbourhoods of like living amongst like. However, this may not be as new a concept as Frug (1996) implies.

Archaeological research has shown that communities were divided in the same fashion from ancient times, with cities being divided up into various quarters – all the artisans lived in the same area, as did the bakers, the scribes, butchers, administrators and law makers (Mowbray, 1994). It is entirely possible that zoning as a concept grew out of these long entrenched patterns (or informal policy) of like living amongst like (personal preferences regarding the composition of the immediate residential area). It can therefore be argued that both the Modernist Town Planning and Garden City movements merely formally encoded what was already common practice when it came to laying out cities and towns.

Current Western welfare policy and practice, as well as the public perception of poor people, stems from the English Elizabethan Poor Laws, which quarantined and controlled the lives of poor people, who were seen as undeserving due to a lack of ability by the person to compete (Daugherty, 2001; Hindle, 2004). The current dominant neo-liberal ideology can also be seen in operation at the time these laws were drafted. This type of thinking sees that such deficits need to be conquered for the person to participate (Fenna, 2004). Those who could conquer their deficits are seen by society as being deserving of help and assistance and those who cannot, are not (ibid). Modern social housing estates represent a method of quarantining the poor, as does this tendency to live amongst like – all the low/er income people live in the same area of town, separate to higher income residential areas. Zoning means that residential areas and industrial areas can become contiguous with one another. Therefore, under the standard current definition, environmental injustice occurs when these low income residential areas also consist of predominantly minority residents, and are situated in close proximity to an industrial LULU situated on the industrial land.

Boone and Modarres (1999) showed that zoning ordinances passed during the 1920's and 1930's played a key role in the creation of the current day environmental injustice in the City of Commerce, Los Angeles County, California. Applying Winston's (2010)

concept of good ideas that have led to deleterious side effects for some in the community allows for both the good and bad sides of zoning as a policy and practice to become evident. The invention - zoning – is a good thing, as it allows for orderly development of an area, based on need for additional land around the notions of community espoused by the Modernist Town Planning and Garden City movements (Nicks, 2003), not the vagaries of the marketplace. Land can be set aside on which to place the developments that are a crucial part of the modern market based economy, such as industry. The deleterious effect of zoning is in the juxtaposition of the various end uses, so residential land will lie immediately adjacent to industrial or major commercial land, separated by a road or watercourse, with the resultant effects on residential amenity, such as traffic noise and the emission or storage of toxic wastes. While the community expresses a need to consume the goods/services produced by these LULUs, provisions will need to continue to be made to house the facilities that produce the goods/services demanded by the populace.

Boone and Modarres (1999) also showed another factor that is somewhat glossed over in their article. This is the fact that the government of Commerce, California actively sought to grow the city of Commerce. Boone & Modarres (1999) detail the various policy actions involved in growing the City of Commerce, but no-where do they state that this growth was actively pursued by the city government (ibid). This will be further explored in the next section on government policy involved in the creation of environmental injustice. However, as has already been noted elsewhere, this research postulates that the true causative process of environmental injustice is multi-faceted in nature. Like everything else, zoning acts in combination with other social and political factors already identified, which will be further explored in later sections of this chapter. The key aspect of the environmental injustice argument is that of the proximity of LULUs, especially those of an industrial nature, to residential areas that are of low/er income that may, or may not, also consist of a high/er minority population than any residential area not in such close proximity. Therefore, the presence of income inequality also plays a role in the creation of environmental injustice. What factors determine income levels?

Consistent, world-wide research indicates that median income level is directly related to education attainment level – the higher the education level achieved, the higher the median income earned (U.S. Census Bureau, 2002; Stewart & Swaffield, 1999). Additional research shows that parental educational levels influence those of their children (Ryan & Sartbayeva, 2011) and that those with minimal education tend to cycle in and out of employment in low paid jobs, often times interspersed with time in

receipt of welfare benefits (Stewart & Swaffield, 1999). This means that a low income status may also be intergenerational in nature, keeping the cycle going. Finally, much of the environmental injustice literature is predicated on proving that a correlation exists between being on a low income, being a member of a racial minority and living in close proximity to a LULU (Bowen, 2002). Missing from any discussion in the literature are the reasons why people are on such a low income in the first place, as well as possible reasons as to why this is the case.

All of the above factors that underpin environmental injustice can also be considered to be policies. McClelland and Smyth (2010) define policy being both formal and informal, as well as both a means and an end to a set goal, and normally associated with an institution of some kind in the popular mind (ibid). McClelland and Smyth (2010) define social policy broadly, noting three very different forms:-

- 1: A statement or set of statements.
- 2: A general statement of either intent or values
- 3: An informal agreement to do things in a particular way. Such informality may be deliberate to either circumvent the requirements of formal policy, because the formal policy is poorly designed and/or communicated to those responsible for implementation, or so general any constraints imposed by the policy can be interpreted in multiple ways (ibid).

McClelland and Smyth's (2010) definition of policy is a broad one. This broad definition of policy provides scope to label intangible aspects of life, such as personal preferences; and unwritten associations, such as the one between educational attainment and income levels, as an informal policy. This is because they can be considered to constitute a statement of intent and of values, as well as an informal agreement to things a certain way, by and amongst society in general. However, it is also entirely possible that these personal preferences and unwritten associations may constitute the outcome of policies. The relationship is similar to that between the chicken and the egg – which came first? Did our personal preferences shape and inform zoning as a policy or did zoning shape our current predilection for living in homogenous residential neighbourhoods? The policies or policy outcomes being explored in the next section may be created and implemented by government, an individual, the community and society in general. How does the existing literature on environmental injustice fit into this new method of looking at the causal processes of environmental injustice? The next section is devoted to looking at the current

literature, seeking to ascertain the specific policy that was created and implemented. Was it a formal or an informal policy, or was it a policy outcome?

The Role of Policy

Government

Boone and Modarres (1999) showed how the creation and implementation of zoning as a policy contributed to the creation of environmental injustice in one city in the United States – Commerce, Los Angeles County, California. The authors also state that zoning was not the only policy involved in the creation of the environmental injustice, and that some of the additional policies were enacted by either the state of California or the City of Los Angeles (ibid). Both levels of government were above what was originally an unincorporated county (ibid). Boone & Modarres (1999) also showed that the city government of Commerce sought actively to grow the city of Commerce, and that it interacted with higher levels of government to do so. What role does government policy as a whole play on the creation of environmental injustice? Prior to exploring the answer this question, the role of government itself must be examined.

Stewart and Ward (1996) state that government exerts a major influence on the lives of people, and is pervasive. Government shapes lives by establishing in legislation some of the social structures and norms that control daily life. Government legislation sets out the nature of the education system, family structures and practices, the goods and services bought and sold, and movement from one place to another via the transportation networks (ibid). Government also plays a role in the allocation of wealth and goods, services and benefits and non-tangibles such as status, between both individuals and social groupings (ibid). At the broadest level, government is the institutions and processes by which societies both make and enforce decisions that are binding on the members of that society (ibid). In essence, government is about the way by which any given society organises itself politically and is ruled (ibid). The word itself derives from old French, and means *to steer, pilot or govern* (ibid, pp.2).

Stone (2002) divides decision making around social issues into three areas – goals, problems and solutions, with each division containing a number of ways of looking at these issues, each of which competes with the others. Ergo, part of government is about balancing competing interests to achieve goals. Stone (2002) states that it is politicians who make these decisions and that politicians have two separate goals – a policy goal and a political goal. Of the two competing goals, the more important goal is the political goal – politicians need to be in office, and possess power, in order to be able to accomplish their policy goals (ibid). To quote Otto von Bismarck “*politics is the*

art of the possible" (www.quotationpage.com, 28/08/2013). However, what has not been explicitly stated is the societal context within which politics, and policy formulation, creation and implementation occurs – a vibrant market society that revolves around consumerism and consumption that further ensures the maximum good for all via the consumption of “stuff” (Louis & Magpili, 2001).

As has been stated in Chapter One, the current policy framework in Australia is one of economic rationalism and managerialism (Edwards, 2002). This policy framework stems from a belief that a functioning, vibrant, market economy based around consumerism is the pathway to peace, prosperity and happiness for all humanity (Louis & Magpili, 2001). The underlying ideology is that of the New Right – that society is best served by an unfettered market; and that if someone cannot participate in this marketplace, it is due to personal factors that the person must work hard to overcome (Fenna, 2004). Economists see the role of government in a market economy as being that of a conduit between the market and the people (McTaggart, Findlay & Parkin 1996). Governments of all levels in Australia are significant actors within the Australian economy, as employers, service providers and in a supervisory role (ibid). Each level of government – central (Federal/Commonwealth), regional (State) and local (city or shire) - acts in a different fashion to intervene in the operations of the market according to the levels of responsibility and area of governance (ibid).

What does all this mean for environmental injustice, and its' creation? Government's dual role – of a conduit between the people and the market on the one hand and acting as a participant in the market (employer, service provider and supervisor) on the other allows for constant friction and contestation to occur. It also means that government is committed to maintaining the status quo whenever and where ever possible. The status quo is the unfettered operation of a market economy that supplies the goods and services to be consumed that will then be deemed to have made us happy. Therefore, application of rational choice institutional theory to government decision making processes means that government policy needs to support the operations of the market economy. This is the default position for government, as to step in to correct for the failure of the market can be costly for government, financially and politically (McTaggart, Findlay & Parkin, 1996).

Stone (2002) refers to their being on the part of lawmakers both a policy goal (which solves a problem) and a political goal (of being re-elected to continue making policy) that co-exist. Of the two, it is the political goal that is the more important (ibid), politicians need to be in power to pursue and enact policy goals. These policy goals are

then further dictated by the prevalent political ideology held by those holding the power. So, it also makes sense that any government intervention will not occur unless there is a popular demand for such intervention. In some cases of social policy formulation; however, the opposite may also occur – strong public opposition from certain sectors of society may outweigh unspoken popular support for a given measure. In addition, any actions on the part of government will also need to be on a “least cost” basis. This aspect is even more important if no opportunity exists for government to recoup any costs associated with the action via charges of some kind. This is Stone’s (2002) notion of efficiency.

Stone’s (2002) notions of efficiency, and how they interact with the political goal of being re-elected, can clearly be seen in the political decision made to officially incorporate Commerce, Los Angeles County, California as a city (Boone & Modarres, 1999). Local residents, dissatisfied with the services provided by the then unincorporated county of Commerce and threatened with annexation by neighbouring counties who were eyeing off their industries, began the process (ibid). This push for incorporation was seized on by the Industrial Council, a voluntary body representing the industries sited in Commerce. The Industrial Council also favoured incorporation, and presented a model to the residents that benefited the interests of both the Industrial Council and the residents (ibid). It was at this point the county government got behind the push for incorporation as a city (ibid). So far, for the government of Commerce, all this is happening at no cost to the citizens of Commerce. It is also meeting the political goal of being re-elected as the government of Commerce is fulfilling the wishes of its residents by pursuing the path of incorporation.

Formal policy enacted by higher levels of government made this process easier and more attractive to the government of Commerce to pursue (Boone & Modarres, 1999). Firstly, a plan devised by Los Angeles County in 1954 allowed incorporated cities to contract with the Los Angeles County for services such as law and order provision (ibid). Secondly, in 1956 the California government enacted legislation that provided for a percentage of sales tax returns to be remitted to incorporated cities (ibid). Utilising rational choice analysis to examine both policies will show that enactment of these policies also served to advance the interests, or utility, of the governments of Commerce, Los Angeles County and California, the politicians elected to all bodies, and the residents of all governmental areas.

Firstly, the 1954 plan allowed incorporated cities to contract with the Los Angeles County Council for delivery of public services such as garbage collection and law and

order provision. This plan was blamed for the fracturing of Los Angeles County (Boone & Modarres, 1999), however, it can be argued that it did provide a benefit to both Los Angeles County and any incorporated city, such as Commerce became. In essence, under this plan, the larger taxpayer (income) base of Los Angeles County subsidised government services in any smaller incorporated city. This subsidisation meant that the cost to residents of any incorporated city via taxation for public services, such as garbage collection and law and order provision was reduced, without affecting the delivery level of the service in that city. The lower property taxes paid by residents of any incorporated city that contracted with the Los Angeles County Council for public services provide a “least cost” option when it comes to living in an incorporated city, encouraging migration into that city. Los Angeles County benefitted by expanding its’ own area of influence via the provision of services in any incorporated city, as well as receiving funds from that city to support the expansion of County services into additional areas. Both the city and county governments are boosting their utility via the provision of public services at the least cost to their taxpayers, while the county government is also expanding its’ area of influence into any incorporated city that contracts with it for the provision of public services. Fulfilling these policy goals aimed at increasing the living standards of their citizenry also fulfils the political goals of the politicians who pass the ordinances/legislation, as these achievements will be utilised in electoral campaigns.

Thus, the policy goal of formally incorporating as a city allowed for the political goal of local Councillors being re-elected to occur in both Commerce and Los Angeles County. In addition, Commerce grows in size and influence due to the influx into the city of both residents and opportunities that arose as result of the lowered cost of living and doing business applicable in Commerce. As for the poor people – well, they were left to themselves and their own devices. It may also have been assumed that other policy, nominally enacted by the California government, would have assisted them in their ability to effectively compete in the social marketplace. After all, all they had to do was to conquer their deficits in order to succeed. The links between income and education levels, and the propensity to live close to friends, family and usual destinations would have meant that they would have found accommodation close to the industries in Commerce that employed them. The environmental injustice movement has placed a focus on the fact that most of these low income residents also happen to be African American ethnically.

The second piece of policy – the 1956 decision by the California government to remit sales tax to incorporated cities - also played a role in boosting the utility of the city

government of Commerce, and the politicians elected by the citizens of Commerce to govern their city. For a predominantly industrial area such as Commerce was then, this remission of sales taxes could amount to a considerable sum, which could be used to reduce even further, if not totally eliminate, property taxes as means to pay for services such as garbage collection or law and order (Boone & Modarres, 1999). This reduction/elimination of property taxes would also attract additional industry to Commerce, as it provided industry with a “least cost” option for operating in Commerce (ibid). In essence, then, this 1956 legislation worked to mandate incorporated cities to commercially advance their areas of governance, as increases in business in the area led to increases in the remission of sales tax from regional government. Any projected influx of industry would attract yet more residents, due to the increased employment opportunities available, thereby increasing the population, income base and influence of the City of Commerce.

Once again, a policy goal of increasing living standards is met, as the additional industries attracted to Commerce via the much lowered property taxes work to increase the employment opportunities available to existing residents of Commerce. The increased remission of sales tax due to the influx of industry contributed to improved community facilities, provided as part of the social wage, at minimal cost to the Commerce taxpayer. Again, the political goal of the politicians who passed the ordinances/legislation is met as these achievements could have been used as part of an electoral campaign. Thus, Boone and Modarres (1999) have convincingly demonstrated that local government in the United States actively works to pursue the growth of the area it governs, via assistance from higher levels of government.

What about regional and central government? Are they too actively seeking growth? Examination of the literature seems to confirm that these levels of governance also actively pursue growth as a policy and in practice. A pro-growth/development agenda also exists in the actions of regional and central government, and can be seen at work in the area of urban policy (Frug, 1996). The Federal (central) government contribution was financial support for urbanisation, occurring across several different policy areas. The U.S. Federal government filled the dual role of government noted by Stewart & Ward, (1996) acting as both a conduit between the people and the market and as a player in the market. This was done via the provision of funding for infrastructure (road) construction and the provision of federally insured mortgages (which encouraged home ownership over renting) (ibid). Once again, central government is fulfilling its dual role acting as both a conduit and a player in the market place. All of this activity allows the Federal government to fulfil its dual policy and political goals. The provision of funding

for development of infrastructure provides jobs while the provision of the federally insured mortgages provides secure money that can be used to purchase a home. Of course, these homes need to be constructed, which allows for further job creation, and grows the economy.

The other major policy area in which central government has acted to grow the economy and shape urban policy is defence, with Frug (1996) noting that defence spending has consistently favoured suburban over central city location. However, as such facilities can be categorised as large size and scale LULUs, this may be a side effect of the use of zoning ordinances. Due to the additional cost constraints imposed by a need to develop additional civil infrastructure (O'Connor, 2009), development will fill up areas of existing infrastructure first. The large plots of land required by such industrial use could possibly tend to be set aside very early in any planning for future growth. This aspect will be further explored in Chapter Four, the actions of government. However, once again, the Federal government is working to grow the economy via the provision of guaranteed employment to develop the goods that we will be encouraged to purchase to make us happy.

State (regional) government is also acting to support the market and grow the economy – to achieve any significant level of homogeneity (sameness) suburban areas need to incorporate as cities. It is the state legislatures and courts provide the powers to do so, via formulation and adoption of local government laws (Frug, 1996). These laws also enable central cities to adopt zoning laws and ordinances which allowed for the homogeneity (ibid). A similar situation exists in Australia – local government exists at the behest of regional (state) government (Stewart & Ward, 1996), and in fact is not constitutionally recognised by either central or regional government (Hartwich, 2009). The overall end goal is that such local laws are drafted with an aim of excluding those who are different from the majority of residents. This can clearly be seen in the stratification of the suburban areas – families with at least one breadwinner tend to live in the suburbs, while those on welfare are consigned to the inner city public housing ghettos (Frug, 1996). The one thing missing from all this activity is a focus on the marginalised and vulnerable, the victims of environmental injustice. However, as this research will show, here too, government works as a player in the marketplace to improve the lives of such citizens, utilising a 'least cost' approach. This may be the most efficient method of delivering human services, but it may not be the most effective way of improving such lives.

As mentioned earlier, rational choice theory dictates that the actor's choice will be the one that advances their utility. How do politicians, and therefore the government they lead, advance their utility with the people whom they govern? The earlier examination has shown that this political goal is achieved via making improvements to and/or maintaining the living standards of the community it governs. This is done via an increase in opportunities available (via good management of the economy of their region), the provision of services (civil infrastructure – transport, water, sewage, electricity, and communications networks); and the provision of law and order and other social services (such as garbage collection). For local government, its' overall size is also important in attracting large scale development. As has already been mentioned, for government the key indicators of our living conditions are economic ones – GDP and PCI. This means that government will actively support large scale developments within their area of governance, as that is where the largest boost to such numerical indicators of living standards occurs.

Such a stance may have arisen out of the growth of economics as a science – Nasar (2011) argues that the nature of economic research changed between 1850 to 1950 from an explanation of why we were doomed to poverty to showing that increased productivity led to increased standards of living. It can be argued that our living standards are the key concern of politicians, as maintenance and improvement in our living standards is what allows our politicians to be re-elected, to continue their policy platforms that aim to make additional improvements in our living standards and conditions – the political goal Stone (2002) spoke of. Some social issues, such as provision of low income housing and law and order services also require large scale development. The research reported in this thesis is designed to empirically test a rational choice theory approach to the siting of LULU developments, aided by government policy. At all times government policy is driven by popular demand, as expressed via the media. In this regard, then government both drives and responds to demands that are aimed at supporting the status quo, keeping the system ticking over with little or minimal change aimed at improving the lives of the vulnerable or different. This government action designed to achieve the growth/development of the region governed is an informal policy, and is actively driven by popular demand. How does this popular demand manifest itself?

The Governed

The previous section has shown that government at all levels actively drives and seeks a pro-growth/development agenda. However, due to pursuit of a “least cost” approach,

government will not act until the people have demanded. How do the people demand? This is the focus of this section.

As we saw above, the incorporation of Commerce, California as a city was led initially by the populace of what was then an unincorporated county (Boone & Modarres, 1999). Examination of the NIMBY literature also provides another method by which the governed show support for government to actively pursue a pro-growth/development agenda. Exhaustive examination of this literature, and the environmental injustice and siting literature, reveals a single commonality: that in each case the source of the community's objection is the proposed site of the facility – not to the construction of the facility, nor of the need for the facility to be constructed in the first instance. Such issues tend to be brought up by the developers of the facility, with little responsive comment to these issues being made by the objectors. It can be argued that the absence of such objections, and to the continued consumption of the goods and services produced by these LULUs, constitutes an implicit acceptance of the status quo – the continued dominance of a society that deems happiness arises from participation in a market based society. Does a similar pattern of NIMBY objections exist in Australia? In addition, this research will ascertain if there are any other methods by which the populace support government in its pursuit of a pro-growth/development agenda.

Associations

So, far it has been shown that a review of the literature on environmental injustice from a fresh angle has revealed a major factor that has worked to underpin the creation of the environmental injustice noted in the established literature – that of active pursuit of a pro-growth/development agenda on the parts of both government and the governed. This agenda has been actively pursued within the context of a social structure that sees the pathway to peace, happiness and prosperity for all citizens as being a vibrant market economy based around the consumption of “stuff” (Louis & Magpili, 2001). This focus around the consumption of goods and services ignores some of the more intangible aspects of quality of life, such as connection with both others and the world lived in, and feeling valued by others (Brown & Brown, 2003). Such items cannot be purchased in the marketplace because of their very intangibility, so are left ignored by government and by society in general. It is possible that most of us do not even give much thought to these intangible aspects of life. This can clearly be seen when looking at perceptions of disability in children – research has shown that parents in third world countries, such as India, consider their children's difficulties as part of the normal

processes associated with growing up, until confronted by western trained researchers who seek to formally diagnose their child with conditions such as ADD or Autism (Dumont, 2006). Additional reading of the literature has revealed some other factors that underpin the creation of environmental injustice. As was the case with pursuit of a pro-growth/development agenda, these factors also constitute an informal policy that the populace ascribe to. It is now time to address these other factors.

Frug (1996) showed how formal urban policy, such as zoning, affected our daily lives, with the policy process being circular in nature – government responds to the wishes of some of its constituents when it comes to the layout and nature of residential areas, who then make decisions (informal policies) on where to live. These decisions are based primarily on the overall position, nature, layout and composition of the residential area, with cost being a close secondary or tertiary deciding factor. This notion is in line with McClelland and Smyth's (2010) definition of policy utilised in this research, of policy being both a means and an end at the same time, and being of a formal and informal nature. Therefore, McClelland and Smyth's (2010) definition of policy therefore includes non-tangibles such as values, beliefs and preferences as informal policy. Values, beliefs and preferences constitute a statement to do things in a certain way, even if that statement is an unwritten one. Pulido (1996) alluded to these values, beliefs and preferences in her critique of the environmental justice research as being non-racial factors in the creation of environmental injustice. What role do these unwritten, unstated beliefs, values (such as the association between hard work and income earned) and personal preferences (where to live, who to mix with, occupational and educational options) play in the creation of environmental injustice? There exist three specific factors that appear to be crucial in both the creation and perpetuation of environmental (and social) injustice.

The first factor has already been alluded to earlier – personal preferences relating to the demographic composition of the immediate residential neighbourhood and social circles. The research shows that people tend to look for neighbours who possess similar backgrounds, beliefs and values to themselves, but may have different hobbies, tastes in music, interior decorating, etc. Frug (1996) argued that it is the people who benefit most from zoning – the educated middle class – who also keep zoning as a policy alive. Goudie (2000) and Shearer (2012) also found similar patterns – people living close, not just to work, but also to friends, family and recreational activities they enjoy. Radin (1997) noted that psychological research shows that people do not construct their inner worlds as they are, but as they would wish them to actually be. This means that they will actively seek out for neighbours, people who will share similar

backgrounds and values, as in that fashion their own values will not be actively challenged on a daily basis. These personal preferences for living with people who are like ourselves, but at the same time, different, are in turn supported by government policy of zoning, which assists government in controlling the growth of the area it governs. This can be seen in the formation of public policy as well, much of which is aimed specifically at the educated middle class, which may further exacerbate these established personal preferences to live amongst others with similar values and backgrounds.

The relationship between these trends consists of a “chicken and egg” argument; which came first and is responsible for these tendencies. If the community and society can be defined as institutions (in a broad sense), it can be argued that these personal preferences fit into Anthias’ (1999) definition of institutional racism, as well as Pulido’s (1996) description of the non-racial factors that affect the formulation of environmental injustice. If such a definition is accepted, Anthias (1999) seems to argue that all should make a conscious effort to consider others who are radically (as opposed to minimally) different when deciding with whom they live/mix. Exploration of this will be outside of the scope of this research; so will not be pursued further. However, suffice to say, it does not appear that many people actively make such a conscious effort to practise tolerance of difference, and seek out those who are radically different to themselves. Much of the published research on environmental injustice has found that neighbourhoods so affected are predominantly minority in composition. Class divisions link into the next informal policy – income inequality.

The second informal policy is that of income inequality. Research shows a conclusive link between the educational attainment level achieved and a person’s median hourly income – the higher the attainment level the higher the median income earned (Stewart & Swaffield, 1999; US Census Bureau, 2002). Additional research shows that a person’s educational attainment level can be predicted – by that of the parents, especially that of the father (or mother, if a father is absent) (Ryan & Sartbayeva, 2011; Wilkie, date unknown). Children with low educational attainment levels tend to have parents with similar educational attainment levels (ibid). The final piece of the income puzzle is the finding that people employed in low skill level, and therefore low income, positions have a tendency to cycle in and out of periods of employment, interspersed with receipt of welfare benefits (Stewart & Swaffield, 1999). Therefore, having a low income can become intergenerational, thereby perpetuating inequality and injustice of all kinds. In the popular media, it is the parents who are blamed for this

intergenerational cycle of poverty (Viellaris, 2011). Breaking the cycle means encouraging the children to want something better, and supporting them to achieve it.

The third factor involved in the creation of environmental injustice is a societal emphasis on the market as being the answer to all which ails us. Louis & Magpili (2001) state that since the Bretton Woods Conference in 1945, the economic system has been predicated on the healthy functioning of a vibrant market economy based around industry and manufacturing. Such a system is seen as the pathway to peace, prosperity and happiness for all the peoples of the world (ibid), and everyone in the Westernised world believes it. Application of rational choice theory to this concept means that people demand manufactured goods be produced for purchase (which may or may not involve environmentally hazardous processes/waste production), and storage facilities to store the waste produced (which once again may or may not be toxic, but certainly takes time to break down). It also involves government action to support the operation of the market (or to alleviate its' worst effects). As a system it is all pervasive, and as a rule, the majority of the populace do not fight it – maybe because there is nothing that can replace it effectively. As stated earlier; however, there are countries that do not ascribe to this viewpoint, such as Bhutan (Holderness, 2009), and Europe has begun to work on devising a system of measuring markers within the context of a western society to determine the happiness levels of the population (ibid). This change may be due to the increasing education levels within Westernised society, as many more people come to believe that there is more to life than the consumption of 'stuff'.

This literature review has encompassed all of the variables associated with the creation of environmental injustice in line with a hypothesis that the causative processes of environmental (and social) injustice are multifaceted in nature. Causative factors identified include a “least cost” approach to siting decisions, income inequality, a dominant ideology that sees consumerism and consumption of manufactured goods as being the path to peace prosperity and happiness, and personal preferences. All these factors combine to create injustice for those who are different in some way to the norm, be this through ethnic background, disability, mental illness, age, gender, belief system or sexual preference.

From this exploration of the available research across three different fields of academic literature, two research questions have been devised.

1) Does environmental injustice also exist in an Australian context?

2) If so, what were the causative mechanisms of this environmental injustice?

The former is readily explorable via basic quantitative methods, whereas examination of the latter question will require substantive qualitative research to provide some basic answers to the question. The next section deals with the methodological issues around achieving the goals of this research.

Method

The research reported in this thesis seeks to uncover if environmental injustice does exist in Australia under the same conditions as in the United States, the source of the majority of the published research, explored above. The existence of environmental injustice in Townsville is readily ascertainable via the use of quantitative methods. However, exploration of factors that may have led to the creation of environmental injustice in Townsville will require the use of qualitative research methods. This mix of research methods makes it appropriate to conduct case studies in order to answer the research questions posed earlier. An exploration of the specific methods, and the factors that underpin their usage, is the focus of this chapter.

Two separate case studies, combining quantitative and qualitative methodologies, were conducted surrounding LULU developments within the Townsville Local Government Area (LGA), Queensland, Australia. They are the Statistical Local Areas (SLAs) of Garbutt (on the northern side of Townsville) and Stuart (on the southern/western side of Townsville). Both SLA's are part of the Townsville Local Government Area, with Garbutt in Townsville City Council Electoral Division 3 and Stuart in Electoral Division 6 (<http://townsville.qld.gov.au/council/laws/Documents/ECQ%20Final%20Boundaries%20Jan%202012%20-%20A1%20-%20LGA.pdf>). Google Earth satellite maps of Townsville (page 2), Garbutt (page 41) and Stuart (page 43) have been included with this research to allow the reader to place everything into a visual and spatial perspective. Both SLAs contain a mixture of both residential and industrial/commercial areas within the boundaries of the SLA, with each of the industrial/commercial areas containing a number of different types of development.

This research also incorporates an historical aspect, covering the period from 1864 through to 2006. During this period Australia moved from a collection of individual separate colonies of Great Britain to a federated nation state comprising of six states (New South Wales, Victoria, South Australia, Tasmania, Western Australia and Queensland), and two territories (Northern Territory and the Australian Capital

Territory). This change occurred on 1 January, 1900. This aspect may confuse the reader, as the Queensland government was the central government prior to 1900 and regional government thereafter. Therefore, for the purpose of clarity the terms central (Federal/Commonwealth), regional (state/Queensland) and local (Townsville City Council) will be utilised to describe each separate level of government. When referring to the Queensland government prior to 1900, it will be described as the Queensland colonial government, and it will be noted that it is the central level of governance at that time.

The first research question to be answered – *“Does environmental injustice also exist in the Australian context?”* is the quantitative part of this research. Analysis of the quantitative data gathered was uni-variate in nature, with a simple correlational analysis conducted of three data sets gathered as part of this research. Data relating to income levels and Indigenous populations of Garbutt and Stuart was compared to such data from other SLA's in the Townsville Local Government Area, which comprises 26 SLA's in total. Differences in income and Indigenous population levels were examined to ascertain their relativity to other SLA's not in such close proximity to LULU's to definitively answer this first research question. Examination of this demographic data is the focus of Chapter Three.

Income data utilised was obtained from two sources – census data collected as part of the 1996 and 2006 Censuses of the Australian population and taxable income data relating to the 1996 and 2006 financial years (each financial year runs from 1/7 to 30/6). Race data utilised was also collected by the Australian Bureau of Statistics (ABS) during the 1996 and 2006 Censuses. In all cases, this data was publicly available. This numerical data was used to definitively answer the first of the two research questions – Does environmental injustice also exist in the Australian context? Discussion of this question will be underpinned with the use of additional census population data around items such as education level and of type of residence within an overall framework of environmental justice principles and rational choice theories. The major limitation associated with the gathering of the quantitative data related to how it was gathered, via a self-reporting mechanism during the 1996 and 2006 Censuses of the Australian People, conducted by the Australian Bureau of Statistics. However, this limitation had no effect on the efficacy of the analysis of the quantitative data.

Having answered the first research question, determining that environmental injustice does indeed exist in Townsville, the focus shifted to qualitative research methods to

determine how this environmental injustice arose. Examination of the qualitative data located three key themes associated with creation of the environmental injustice – actions by government, the governed (or the populace as a whole), and associations. Two key associations were noted as being possibly instrumental in the creation of environmental injustice – both between people and between some of the quantitative data sets utilised, such as income and educational levels. Examination of the qualitative data around possible causative processes is the focus of Chapters Four, Five and Six. The qualitative data utilised and analysed was obtained via a number of sources. These included, but were not limited to, interviews, news articles, council minutes and other government documents, and historical publications/sources relating to the history of the Townsville area. In some instances anecdotal data was uncovered, and this data was used to flesh out additional data that could be utilised. In all, a rich vein of additional data was uncovered that added significant depth to the examination of the creative processes of any environmental injustice uncovered. Discussion of patterns found to exist in this data utilised a rational choice perspective within an overall framework of the underlying principles of environmental injustice. In this regard, the actions that may have led to the creation of the environmental context can also be viewed within the context of a specific time period in history.

All interviews conducted were semi-structured in nature, with a list of specific areas identified for each participant prior to the interview being conducted. The topics covered differed, according to the reason why the participant was being interviewed. Due to the fact that there was a need identified to interview some Indigenous Elders, ethical approval relating to participation of Indigenous persons/topics had to be sought and was granted. Persons interviewed under ethical approval included Indigenous Elders, local historians and a senior regional government department manager in Townsville. Some minor historical data was unobtainable due to either cost considerations or was quite simply unable to be located, despite extensive searching. Where this has occurred, it has been noted. However, it is felt that the lack of this data was not a significant issue with regards the analysis of the qualitative data. Should other researchers wish to replicate this research, similar data can be obtained for other cities else-where.

As it is hypothesised that history may also play a role in the creation of environmental injustice, exploration of any relevant history will be inter-woven amongst the chapters at relevant points. In addition, two key LULUs – Townsville Airport and the Stuart Creek Correctional Centre - will be explored to ascertain which of Szasz and Meuser's (1997) competing explanations played a role in the siting decision and the creation of the

environmental injustice, if such is found to exist. Both LULU's are sited immediately adjacent to the residential SLA's under study. Finally, the factors that have contributed to the perpetuation of the environmental injustice in each area will be explored. Once again, discussion will be from an environmental justice perspective, underpinned by the use of rational choice institutional theory. Given Bowen's (2002) assertion that the environmental injustice movement is really about the over-representation of minorities in the low income statistics, an examination will be made to ascertain if similar patterns also exist in Australia, and if so, space will be given to an exploration of why this may be the case. The final chapter – Seven - will provide a synopsis of the research and provide some practical recommendations aimed at the alleviation, if not elimination of environmental injustice.

This theoretical framework explored above is appropriate, as this research seeks to ascertain the role of both government and the people, and their actions, in the propagation and perpetuation of inequity and inequality in society, via an examination of the link between the placement of LULU's and wealth. This involves an examination of the motivations that underpinned the actions of both the individual actors and of government as an actor itself. It is also extremely apt, as it draws on economic methodology (Ward, 2002). Current policy thinking is dominated by economic methodology, which is heavily underpinned by an economic rationalist and managerialist agenda in all areas of public policy (Edwards, 2002). When applied to institutions, it sees them as systems of rules and inducements within which individuals work to maximize their own utility (Lowndes, 2002). A rational choice institutionalism approach seeks to identify the interests and motivations that underpin rational actors' behavioural choices within an institutional context (Schmidt, 2006). This means that each individual actor, when faced with a multitude of choices as regards a possible course of action, a person will choose the one that will provide the best overall outcome (Ward, 2002).

Therefore, given the wide ranging scope of this research, a case study is the most appropriate methodology. Alston & Bowles (1998) state that a case study is research focused on a single case, issue, group, organization or event. One case, usually defined as being typical, is fully investigated and thoroughly analysed so as to ascertain any details which may be lost in a larger study (ibid). The authors further state that this is particularly important, as it allows information to be revealed that will assist in an analysis of, and afford further insights to, a wider target group, with this information assisting in the development of appropriate intervention strategies (ibid). Seale (2004) states that a case study will allow us to examine how sayings and doing

are embedded in particular patterns of social organizations, an important advantage to the use of case study methodology, as this research is concerned, in a large part, with the actions of institutions. This is an appropriate research method as regards studies of environmental in/justice, it is only by understanding how environmental injustice has occurred that any inequities can be addressed, a key goal of the environmental justice movement (Schweiser, 1999). Therefore, the method can be generalised in order to ascertain if similar patterns can be located in other cities and towns, both in Australia and in other countries. In this regard, this research is using the maxim of the environmental movement:- *"Think local, act global"*.

Chapter Three – Quantitative Results

Introduction

As explored earlier in the review of the current literature, there has been much written on the topics of environmental in/justice and two possible causes - market forces versus institutional racism. The research reported in this thesis seeks to both ascertain any existence of environmental injustice in Australia and analyse possible causative processes. Prior to fulfilling the first part of the research, confirming the existence of environmental injustice, via an examination of quantitative data obtained from the 1996 and 2006 Censuses of the Australian Peoples, within the city of Townsville, North Queensland, it is timely to precisely define the conditions under which either will be deemed to exist.

As explored in the previous chapter, environmental justice research utilises a number of different methodologies and units of analysis. The most that can be definitively ascertained is that there is some evidence to support claims that some identified groups live in closer proximity to some identified environmental hazards than do other groups (Bowen, 2002). The research reported in this thesis utilised the same definition of environmental injustice extant in the bulk of the existing literature - low income, predominantly Indigenous residential areas situated in close proximity to industrial, and other social forms of, LULU in the city of Townsville. The exact mechanism by which any environmental injustice has occurred will be explored in the next three chapters, which analyse just how history, technological and other developments over time have interacted with the market, government policy and the people, along with a “least cost” approach to siting decisions, to create such environmental injustice.

Method

The main focus of this chapter is the possible relationship in Townsville between industrial areas and neighbouring residential areas that may consist of low income, predominantly minority residents. Previous research in this area (Been 1993, 1994; 1997 with Gupta; Bullard, 2005; Hamilton, 1993, 1995) has made extensive use of proximity methodology (Louis & Magpili, 2001) – the demographic of neighbouring residential areas is compared to national and state figures, utilising either an absolute or relative measure of income inequality. Both Bowen (2002) and Pulido (1996) criticised this research. Pulido’s (1996) critique focused on the definition of ‘environmental racism’ and a possible hidden agenda supporting development of LULU’s on the part of the researchers, whilst Bowen’s (2002) critique focused

specifically on methodology, and the attention to detail paid by the researcher in devising and recording the data sets utilised. Bowen (2002) did consider some research, such as that by Been (1993, 1994, 1997 with Gupta), as being of good quality, within the limits of the comments section.

However, even such high quality research can be considered flawed due to what has not been included in the comments section. This may have been what Bowen (2002) was alluding to in his mention of the limits of the good quality research. Neither Been (1993, 1994, 1997 with Gupta) nor Hamilton (1993, 1995) specified anywhere in their publications how the income measure utilised was decided on – both state that they made use of census data, but did not state what other measures of income data obtained from the census were provided that could have been utilised. Both also made use of family income data only, which may exclude single person households and households consisting of unrelated persons sharing the costs, and noted the percentage of the population below the poverty line; however, there is no explanation surrounding the compilation of the poverty line utilised. In addition, Been (1993, 1994, 1997 with Gupta) and Hamilton (1993, 1995) utilised mean incomes - a median income measure, if available, may have produced different results. In addition, there is a lack of alternative explanations for the race disparities discovered, such as any cultural factors that may apply – discussion revolves predominantly around the low socio-economic position of minority populations, and can therefore be considered to be heavily racially based (Bowen, 2002). Therefore, their research provides a slanted view of the situation as it does not fully explore the characteristics of the residential neighbourhoods included in their study. As the overall aim of this research was one of a comprehensive exploration of environmental injustice, albeit within an Australian context, it was the critiques of the existing literature by Pulido (1996) and Bowen (2002) and the deficiencies in methodology noted by Bowen (2002), that primarily underpinned the methodology utilised in the research reported in this thesis. As Australia is a part of the “Western World”, this methodology can be readily adapted to political conditions in other countries that also form part of the “Western World”, thereby allowing for a fuller development of the theoretical underpinnings of the concepts that underpin environmental injustice.

All statistical and population data utilised in this research has been obtained from data collected by the Australian Bureau of Statistics (or ABS) as part of the 1996 and 2006 Censuses of the Australian People. This choice of years was influenced by the availability of census data, as both years' data is available online for free, via www.abs.gov.au/census. Another census was conducted in 2011, however the data

had not been publicly released prior to this research being concluded, and prior to 1996 census data relating to income and race is difficult to obtain at a reasonable cost. In addition, the last major industrial development to occur in the Townsville Local Government Area (or LGA) was the construction of the Sunmetals Korea Zinc Refinery, with Stage One construction beginning in 1997 (Sunmetals Korea Zinc, 2000). This was an important factor in Case Study Two – Stuart. Been (1994) hypothesised a ‘minority move in’ as a causative factor in the creation of environmental injustice. The timing of the census being comparative to the development of the Sunmetals Korea Zinc refinery allows for this hypothesis of Been’s (1994) to be tested in an Australian context.

Been’s (1993, 1994, 1997 with Gupta) unit of analysis was that of a United States Census Tract, while Hamilton utilised local government boundaries (1993) and postcodes (1995). Within Australia, the equivalent of a Census Tract is that of the Statistical Local Area (or SLA). SLA’s are the base spatial unit for collection and dissemination of data and statistics, utilising the same boundaries as the incorporated bodies of local government (1216.0, ABS, 2005). Local Government Areas (or LGA) can also be SLA’s if they are equivalent in size to the next level of analysis – that of Statistical Subdivision, and are broadly similar in size, economic significance and user needs to other LGA’s within Australia (ibid). However, when such conditions are not met, an LGA can be composed of more than one SLA (ibid). Such is the case with the LGA of Townsville, which, in 2006, was composed of twenty-four SLA’s. Therefore, this methodology is a combination of the units of analysis utilised by both Been (1993, 1994, 1997 with Gupta) and Hamilton (1993, 1995).

Within the Australian context, it is not possible to cross correlate census SLA’s with postcodes, nor do the postcodes during the period of the research correlate with the boundaries between the two local government areas that made up the greater Townsville region – the ‘twin cities’ of Townsville and Thuringowa. Many of the postcodes cross over the boundary between the two separate and distinct LGA’s. Three SLA’s have been excluded from the comparative qualitative analysis underpinning all the data as they do not have sufficient land suitable for the development of large scale LULU’s - each of these SLA’s consists mainly of hillside land, with a fourth SLA containing a residential area that is also unsuitable for large scale LULU development. However, this fourth residential area was, in 1996, part of an SLA that contained a substantial industrial area within its boundaries. These have been highlighted in Table One (p.52) containing the demographic data via the use of bolding the relevant SLA’s. Of the remaining twenty, each of which is capable of hosting LULU

style developments, two – Garbutt and Stuart - will be examined in further detail, in order to answer the question “Does Environmental Injustice exist within the Townsville Local Government Area?”. All the Census data has been compiled on the basis of Place of Enumeration reporting – i.e., it is based on where the individual filling out the form was residing on Census night in each year.

Income measures utilised were those of Median Weekly Household and Family Incomes, obtained from Census data. Australian Household Census forms ask each person within the household to indicate into which range (beginning with \$0-150/week) their total weekly income, from all sources, before tax, will fall (Summerfield & Tobin, 2003), which is then combined to form the household or family income. The difference between the two income types relates to the degree of relatedness of the persons that make up the household. If these persons are biologically or legally (as in the form of a marriage) related to each other, then the total income will be included in the Family income statistics. If they are not (or if the household consists of a sole person), then the figure will form part of the data set for the Household income statistics (ibid). However, the median figure for each SLA may not be a true reflection of the actual incomes earned by the residents of the SLA - there is a tendency on the part of respondents to slightly understate their income on the Census (ibid); and for those not in the labour force, such as those on government pensions and benefits and self-funded retirees, not to answer this question, as they consider that this question only applies to income earned from employment (ibid). The publicly released figure is a median, so population demographics also play a role in determining the median; a heavy preponderance of incomes at either end of the distribution range can skew this median significantly. Data from the next level down – that of Census Collection District - is difficult to obtain for 2006, so there has been no breakdown within the SLA's.

Similar issues relate to the race data. Australia's Indigenous people can identify as being Aboriginal, Torres Strait Islander or both (Ross, 1996). As with income, this measure is entirely dependent on a self-reporting mechanism. The emphasis is on self-definition, as opposed to identification by government (ibid). The figure utilised in this research is the total number of persons identifying as being Indigenous to the ABS on the Census forms, be they Aboriginal, Torres Strait Islander or both, resident within the SLA and the Townsville LGA. The percentage split between the three groups is roughly 70% Aboriginal, 25% Torres Strait Islanders and 5% both (ibid). A third group of Indigenous Australians also exists, those claiming South Sea Islander ancestry, however, such people are not currently separately identified at Census time (ibid). Echoing the established, U.S. based research, figures for both SLA's, and the

Townsville LGA will be compared with the national and state level figures. This will be underpinned by a qualitative analysis and discussion surrounding any disparities uncovered, a discussion missing entirely from the earlier research.

The data from the Case Studies

Geography, Topography and Description of each SLA

Both SLAs are very different in nature regarding their geography and topography, and on opposite sides of the City of Townsville. At local government level, both are electorally part of the Townsville City Council, with Garbutt forming part of electoral division 3 and Stuart forming part of electoral division 6 (<http://townsville.qld.gov.au/council/laws/Documents/ECQ%20Final%20Boundaries%20Jan%202012%20-%20A1%20-%20LGA.pdf>).

Garbutt is on the northern side of Townsville, and consists of flat land. The residential component of the SLA is surrounded by LULU's on all four sides:- Townsville Airport (with an associated major RAAF base) is situated on a salt pan making up the northern/eastern sides; a youth detention centre is on the eastern side, with a conservation reserve running between the Airport and the Youth Detention Centre; a major thoroughfare (Hugh St) forms the southern boundary; with a major light industrial/heavy commercial/warehouse strip fronting Ingham Rd (another major thoroughfare) along the western side. Additional light industrial/large commercial premises/warehouses are also situated on the other side of Ingham Rd, going as far back as Woolcock St and Dalrymple Rd. The area covered by this case study first appears in maps in 1868 (Gibson-Wilde, 1984), with the siting of Townsville's first racecourse (ibid). Development in Garbutt then stagnated until the development through Garbutt of the northern rail line in 1911 (Townsville City Council, 1997). Creation of a siding attached to this rail line in the Garbutt area was the impetus for additional settlement beginning in 1915 (ibid). Garbutt's major population influx occurred in the immediate aftermath of the Second World War, when accommodation built to house serving personnel was utilised to alleviate the severe housing shortage in the Townsville area. Additional housing was built under the auspices of the Commonwealth/State Housing Agreement during the 1940's, 1950's and 1960's (ibid). By the late 1960's the majority of the current Garbutt residential area was fully developed, and additional development occurred in the industrial land on the western side of Ingham Road during the 1990's.

A Google satellite map of Garbutt (Figure 2) is on the following page to allow the reader to place this development into a visual perspective.

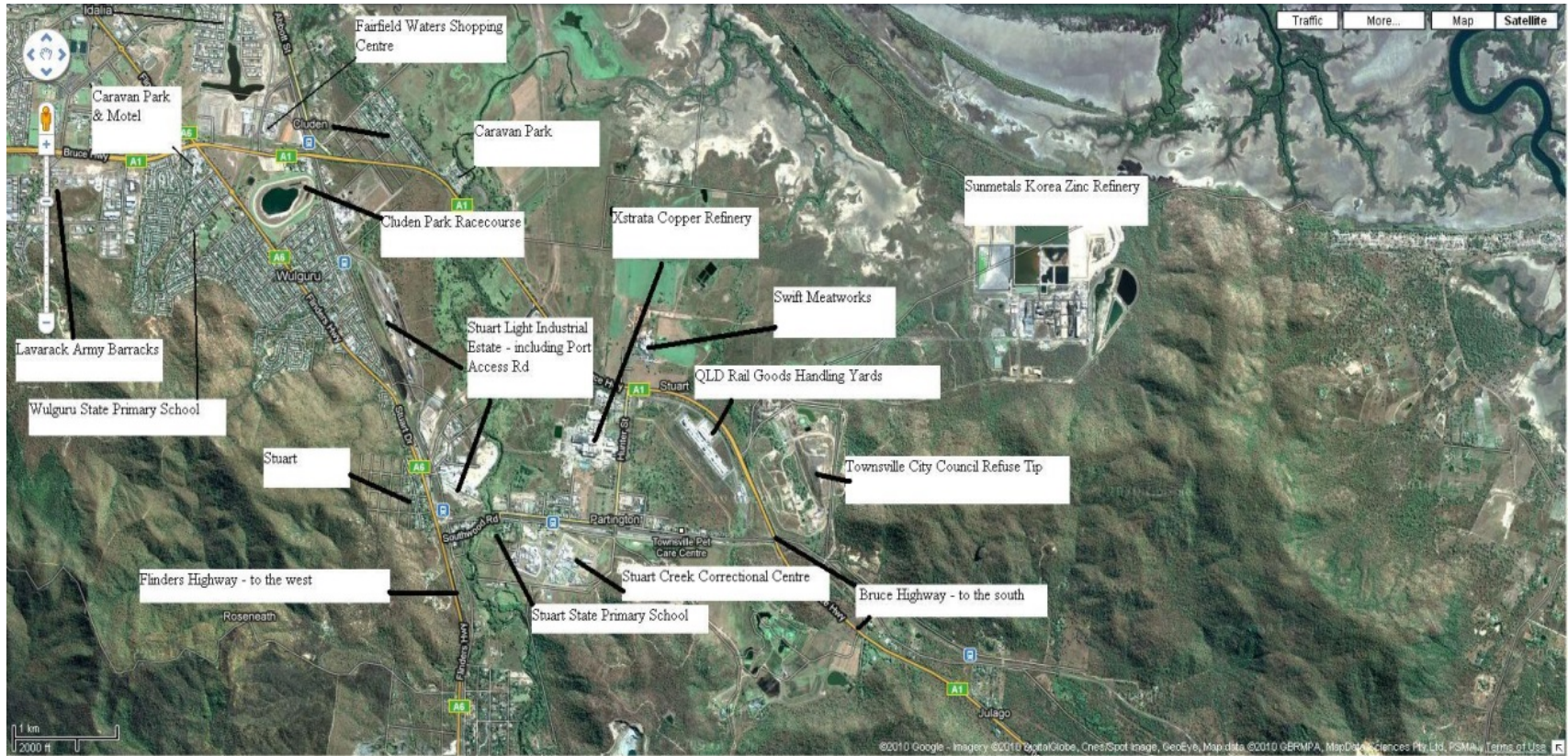
Figure Two – Garbutt in 2012



www.googlemaps.com/Garbutt

Stuart is very different in layout – the residential and industrial areas of the SLA are separated by a major road (the western terminus of the Flinders Highway, leading to the western interior of Queensland), with the southern Bruce Highway going through the middle of the industrial area. The residential part of the SLA, initially developed during the 1950's by Queensland Rail (Gibson-Wilde, D.M., 2010) contains slightly elevated housing blocks, as it is sited at the bottom of Mt Stuart. The industrial area of Stuart contains, at the time of writing (2013) a mixture of both heavy and light industry - the Sunmetals Korea Zinc Refinery, Townsville City Council's van Tassels' Road refuse tip (recycling and garden products (mulch) businesses run by Council are also conducted from this site), a livestock transfer station, Swift meatworks, Xstrata Copper Refinery, Queensland Rail Goods Yard, and numerous light industrial premises, such as mechanical workshops, car wreckers and other forms of light industry. The Stuart Creek Correctional Centre is also located within the boundaries of this industrial area, with a state primary school immediately adjacent to this facility. A road connecting the inland highway with the southern highway has recently been constructed through the middle of this industrial land, with future plans to extend this road into the Port of Townsville. Development in this case study dates from the beginnings of Townsville's settlement in 1864 (Gibson-Wilde, 1984; 2010). Construction began on H. M. Stewarts Creek Correctional Centre in 1890 (www.epa.org.au), with the first residential development recorded in Stuart also dating from shortly after Townsville's founding in 1864 (Gibson-Wilde, 2010). However, development in this case study area stalled after the initial developmental boom, with no further development occurring until the late 1950's. Development is still ongoing within the industrial section of the SLA. Once again, a Google satellite map has been included on the following page allowing the reader to gain a visualisation of the layout of the Stuart area.

Figure Three – Stuart in 2012



www.googlemaps.com/Stuart

Factors that have underpinned development in both case study areas will be discussed in Chapters Four and Five.

As stated above, this research utilises Median Weekly Household and Median Weekly Family Incomes, obtained via the 1996 and 2006 Censuses, as the income measure. As was done by Been (1993, 1994, 1997 with Gupta) and Hamilton (1993, 1995) these incomes were compared to the poverty line. The poverty line utilised in this research was the Henderson Poverty Line, the marker of poverty in Australia produced by the Melbourne Institute each quarter (www.melbourneinstitute.org.au/povertylines). The Henderson Poverty Line methodology was first compiled in the 1970's, and is based on the cost of a typical 'basket of necessities' (Manning, 1982). A number of different poverty lines are produced, covering differing living situations, such as single person households with and without children of specified numbers, couples with and without children of specified numbers, and whether or not the main income earner is in the workforce or not (ibid). The poverty line figure utilised was the benchmark poverty line of a couple family with two children (ibid), as that is the most common demographic within Townsville's SLA's, for the June quarter of 1996 and 2006. The June quarter was chosen because it represented the mid-point of the calendar year and the end of the financial year in Australia.

Median Individual Weekly Income was also available, however its use was discontinued as it was felt that this was not a true measure of income available to a household. This is due to the trapping within the original data set of the incomes of teenagers working part time after school or partnered parents who work part time during school hours. Inclusion of these incomes creates a left skewed bell curve, which serves to drive down the median significantly. Comparison of the Individual Median Incomes with Henderson's Poverty Line, shows that most of Townsville lives in poverty. The exception to this rule was one Townsville SLA, as well as the Townsville LGA itself.

Mean taxable income data on a postcode basis (www.ato.gov.au/taxstats) was also explored. The two SLA's involved sit within two different postcodes; Garbutt in 4814 and Stuart in 4811. Incomes in the 4811 postcode were lower and higher in the 4814 postcode than that of Townsville LGA in 1996, with both postcodes having a lower income than Townsville in 2006. The postcode with the lowest income was 4819 (Magnetic Island only – www.auspost.com.au, retrieved 11/01/2012), while 4810 (which consists of six separate SLA's - ibid) was the highest earning postcode (interestingly, none of these SLA's was the highest income SLA according to the ABS census data),

with this pattern occurring in both years. Translation of these annual incomes to weekly incomes (annual income divided by 52) shows a difference between the lowest (4819) and highest (4810) income postcodes was \$120/week in 1996, increasing to \$327/week in 2006 (ibid). This can be considered to be reflective of the growing gap between the rich and poor that exists within Australia (Tsumori, Saunders & Hughes, 2002).

However, with regards to postcodes, problems exist with both the unit of analysis and method of data collection. Both postcodes contain SLA's additional to those involved in the case studies that ABS data shows to be higher income than both the case study SLA's. In addition, the boundaries between postcode and SLA do not correlate, with the solitary exception of Magnetic Island (4819 and an SLA). However, taxation data can be considered to be a more reliable indicator of individual income levels. During the time period of this research (2007 – 2013) in Australia a tax free threshold of \$6000 p.a. existed, with those who earn under this amount not required to lodge a tax return. This worked to weed out of the original data set the teenagers and parents with small scale part time jobs that skewed the ABS individual income figures so significantly. Comparison of these corrected weekly figures with the relevant Henderson Poverty Lines shows that all areas of Townsville earn an income well in excess of this Line.

Table One – Comparison of Income and Indigenous Population Percentages –
SLA's in the Townsville LGA

Statistical Local Areas Townsville LGA	1996 Median Income figures		2006 Median Income Figures		Indigenous Population		Overall Population		Percentage of Popn Indigenous	
	H/hold	Family	H/hold	Family	1996	2006	1996	2006	1996	2006
<i>Garbutt</i>	\$ 419	\$ 514	\$ 619	\$ 950	410	419	2513	2240	16.32	18.71
<i>Stuart (incl prison)</i>	\$ 548	\$ 654	\$ 968	\$ 1,107	195	397	1197	1205	16.29	32.95
<i>Sth Townsville</i>	\$ 542	\$ 733	\$ 971	\$ 1,189	121	128	2059	2378	5.88	5.38
Average non-LULU	\$ 643	\$ 713	\$ 1,023	\$ 1,240	121	188	3570	4079	3.91	4.90
Remaining Townsville LGA SLA's										
<i>Wulguru</i>	\$ 665	\$ 731	\$ 1,043	\$ 1,132	155	331	4803	5012	3.23	6.60
<i>Oonoonba/dalia/Cluden</i>	\$ 555	\$ 1,160	\$ 638	\$ 1,348	0	27	510	455	0.00	5.93
<i>Nth Ward/Castle Hill</i>	\$ 668	\$ 966	\$ 1,158	\$ 1,642	203	186	6096	6458	3.33	2.88
<i>Pallarenda</i>	\$ 868	\$ 973	\$ 1,313	\$ 1,500	9	25	1009	1005	0.89	2.49
<i>Railway Estate</i>	\$ 595	\$ 697	\$ 998	\$ 1,171	176	130	2771	2802	6.35	4.64
<i>West End</i>	\$ 521	\$ 726	\$ 864	\$ 1,144	215	158	3527	3635	6.10	4.35
<i>Currajong</i>	\$ 495	\$ 589	\$ 859	\$ 1,064	126	168	2924	2943	4.31	5.71
<i>Gulliver</i>	\$ 535	\$ 604	\$ 869	\$ 1,044	157	214	3020	2879	5.20	7.43
<i>Hermit Park</i>	\$ 570	\$ 705	\$ 906	\$ 1,179	181	170	3460	3456	5.23	4.92
<i>Hyde Park/Mysterton</i>	\$ 573	\$ 759	\$ 967	\$ 1,283	84	74	2378	2244	3.53	3.30
<i>Mundingburra</i>	\$ 592	\$ 781	\$ 958	\$ 1,277	108	156	4026	3721	2.68	4.19
<i>Pimlico</i>	\$ 540	\$ 710	\$ 840	\$ 1,118	77	82	2448	2384	3.15	3.44
<i>Rosslea</i>	\$ 550	\$ 658	\$ 846	\$ 1,050	63	98	1878	1615	3.35	6.07
<i>Aitkenvale</i>	\$ 643	\$ 726	\$ 1,007	\$ 1,126	197	213	5063	4839	3.89	4.40
<i>Cranbrook</i>	\$ 733	\$ 797	\$ 1,056	\$ 1,164	289	355	6445	6206	4.48	5.72
<i>Douglas</i>	\$ 795	\$ 862	\$ 1,423	\$ 1,596	21	274	2097	6816	1.00	4.02
<i>Heatley</i>	\$ 679	\$ 735	\$ 898	\$ 1,044	282	385	4582	4269	6.15	9.02
<i>Murray</i>	\$ 1,040	\$ 1,088	\$ 1,657	\$ 1,727	44	178	6979	10425	0.63	1.71
<i>Vincent</i>	\$ 682	\$ 684	\$ 1,052	\$ 1,056	279	264	2944	2561	9.48	10.31
<i>Mts Louisa & St John/Bohle</i>	\$ 749	\$ 796	\$ 1,245	\$ 1,372	0	282	3707	5608	0.00	5.03
<i>Magnetic Island</i>	\$ 460	\$ 492	\$ 886	\$ 1,001	37	44	3027	3102	1.22	1.42
Townsville LGA	\$ 586	\$ 753	\$ 967	\$ 1,237	3685	5007	83077	93840	4.44	5.34
Queensland	\$ 597	\$ 702	\$ 1,031	\$ 1,154	95518	127644	3368850	4046880	2.84	3.15
Australia	\$ 886	\$ 1,025	\$ 1,507	\$ 1,773	173831	455027	8849224	20061651	1.96	2.27
Poverty Line	\$	431	\$	621						

(www.abs.gov.au/census; www.melbourneinstitute.org.au/povertylines)

Discussion surrounding the demographic data

Townsville has three residential SLA's that exist in close proximity to LULU's of the type studied in the established literature – Garbutt (light industry/heavy commercial premises and the airport/RAAF base), Stuart (light and heavy industry and the Stuart Creek Correctional Centre), and South Townsville (the Port of Townsville). Of the three SLA's in close proximity to LULU's of the type studied in the existing literature, the race aspect of the environmental injustice hypothesis is strongly supported only in Garbutt and Stuart, with mild support in South Townsville. It will be argued later in this thesis that the high Indigenous populations present in Garbutt and Stuart (and to a smaller degree, South Townsville) are the result of the presence of large scale accommodation that falls into two types. There is accommodation present in all three affected SLA's that is either limited individual choice (Garbutt and South Townsville) or state coerced (Stuart) in nature. The presence of such accommodation has not been referred to in the existing literature, and has significant ramifications for the environmental injustice empirical base.

Income levels are another matter entirely. All twenty-four SLA's in the Townsville LGA were ranked from lowest to highest across both income types and census years. Garbutt consistently came up as having the lowest income of all Townsville's SLA's however, this thesis will argue that this consistent position can be explained via the presence of the limited individual choice accommodation present in Garbutt. This limited choice accommodation takes the form of a public housing estate. This housing estate is in fact the largest public housing estate in the Townsville LGA. South Townsville too has a public housing estate, but this is not of the same magnitude as the estate present in Garbutt – for further information, see Figure 6 p.72. This argument will be additionally fleshed out in Chapters Four, Five and Six. Stuart and South Townsville ranked from fifth to fourteenth and seven to seventeenth places, respectively. Therefore, further research will be required around this income disparity between Stuart and South Townsville. Possible areas for future research that may in time assist in explaining the disparity will be explored in Chapter Six, Associations. Thus, this table shows that Bowen's (2002) conclusion surrounding the existing research – *'that in some specific areas, some ostensibly identifiable groups of the population may in some instances live closer to some selected environmental hazards'* (pp. unknown) also applies in Townsville.

The demographic data supports a determination of the existence of environmental injustice in Townsville. However, support for the base hypothesis of the environmental

injustice movement in Townsville is mixed. Variation exists between Garbutt and Stuart on the one hand and South Townsville on the other. The table shows that environmental injustices may vary in the severity of the injustice. In addition, a definite association was found to exist between the presence of a large Indigenous population percentage and the presence of accommodation that was of a limited choice or state coerced nature in all three SLA's. Both aspects possess enormous ramifications for the environmental injustice empirical base, as neither has yet been referred to in the existing literature. Further research is required utilising much more sophisticated quantitative and case study research which addresses conceptually and empirically this issue of variations in the magnitude of environmental injustices in Townsville, and indeed, more generally in other cities/towns.

Having found demographic support for the existence of environmental injustice in Townsville, attention must now be given to the processes whereby this environmental injustice was caused? Will an examination of these causative processes assist in explaining the income disparity that exists between Stuart and South Townsville? The research that is reported in this thesis has taken a slightly different approach to the exploration of these causative factors and processes. Existing environmental injustice, NIMBY and siting literature has been perused in order to isolate any common variables that may be associated with the creation of environmental injustice. The variables isolated were identified as being an active pursuit of growth by government and the governed (the people), an association between educational attainment levels and median income levels and the propensity for people to live amongst and associate with those whom they are most alike. These variables will be examined in the next three chapters, on the actions of government and the governed in pursuit of growth – economic and otherwise; and on associations. A historical aspect will be employed in the first two qualitative chapters, analysing particular LULU developments in the Townsville area. This approach will enable exploration of underlying motivations and behavioural patterns over time. The focus of the qualitative data will be on the severe cases of Garbutt and Stuart, however the conclusions reached as a result of that examination will provide some directions for further research that will assist in fleshing out the variance in the severity of the environmental injustice seen to exist in South Townsville.

Chapter Four – Government Policy and Actions

Introduction

The demographic data obtained from the 1996 and 2006 Censuses of the Australian Population, explored in Chapter Three, supports a determination of existence of environmental injustice in the city of Townsville, North Queensland. Both case study areas (the Garbutt and Stuart SLA's) possess relatively lower income levels and a relatively higher Indigenous population than do other areas of Townsville not in such close proximity to LULU developments. The focus of the next three chapters is on the processes by which this environmental injustice was created. Key variables hypothesised to be a part of the causative processes of environmental injustice will be subject to an in depth examination within an historical framework in order to ascertain their role in the causative processes of environmental injustice.

These variables consisted of one major and two minor variables. The major variable, the pursuit of a 'pro-growth/development' agenda, by both government and the populace will be scrutinised in this chapter (government) and the next chapter (the governed). Exploration of the two minor variables, the association between income and educational levels and people's personal preferences around those lived amongst and mixed with will form Chapter Six. Chapter Six will also examine the role played by the history of Australia's Indigenous peoples, and the policy frameworks that have governed their lives since Invasion/Colonisation occurred in 1788. This is vital, because it is this history that is the single biggest contributor to Indigenous disadvantage in modern times.

Governmental support of an active "pro-growth/development" stance

Did/does government support an active 'pro-growth/development' stance in the Townsville area? The short answer to this question is "yes". The review of literature in Chapter Two indicated that planning was an essential element or component involved in pursuit of growth by government at all levels. Plans are made by government for the future of our communities – to allow for projected growth in the population (due to both births and migration, with growth of the population being of especial interest to the two lower levels of government – regional (state) and local). This population growth then leads to an increase in demand for manufactured goods and service provision for and by the residents of the area governed that government must cater to.

The historical data uncovered in this research shows that these processes occurred in Townsville. Planning for the future of the settlement of Townsville actually pre-dated

Townsville's official settlement in 1864 (Gibson-Wilde, 1984). Recent news articles indicate that future planning for both the city of Townsville and the surrounding area continues to occur in the present day. This early informal planning has become formalised and codified into a legislative framework that also tasks regional and local governments to work towards the commercial advancement of their areas of governance. In addition, there are other methods by which governments work to support an active growth stance, which will be explored later in this chapter. Finally, the role played by this pro-growth/development stance, planning and least cost siting practices with regards to the siting decisions of the two LULU's involved with this research – Townsville Airport and Stuart Creek Correctional Centre – will be further explored. This aspect is an important one, as both LULU's arose, and were expanded upon, as a direct result of the growth of the Townsville area, and popular demand for the provision of the services provided by both LULU's..

Planning in Townsville's early history

Informal planning was evident in the Townsville region prior to its' official founding as a settlement. Townsville's key founder, John Melton-Black, described as an 'entrepreneur' (Gibson-Wilde, 1984), acted according to the principles of Tracy's (2010) 20/80 rule (that 20% of the time devoted to planning saves up to 80% of both the cost and time required, to achieve a goal). Melton-Black conducted what would be described in modern terms as a feasibility study into the area's long term possibilities, prior to officially founding a settlement (Townsville) in November 1864 (Gibson-Wilde, 1984). Melton-Black's systematic approach was in complete contrast to the founding of the other settlements in Queensland at the same time, Bowen (roughly 200 klms south or Townsville) and another settlement established in the current Cardwell (roughly 200 klms north of Townsville) area, both founded in 1862 (ibid). It can be argued that Melton-Black's approach to the founding of Townsville is the reason the Townsville LGA has attained its current status and size, in comparison to Bowen (part of the Whitsunday Regional Council) and Cardwell (part of the Hinchinbrook Regional Council). Both the latter would appear to have been founded on the basis of the local scenery only, with no thought given to the area's long term possibilities for growth (ibid).

Arising out of the data gained from this "feasibility study", Melton-Black created a vision (or plan) for the future of Townsville – for the settlement to become an administrative, educational, social and commercial centre, servicing and supporting the development of the northern region of Queensland (Gibson-Wilde, 1984). Melton-Black's feasibility study showed that the shoreline of Cleveland Bay, and the immediate hinterland, was

an ideal location for a settlement of such importance (ibid). Townsville is situated on a river mouth (which provided an ideal site for a low cost, sheltered, deep water port, capable of handling the largest of ships), there was relatively easy overland access to the interior hinterland (enabling northern Queensland to be further settled and developed) and plenty of fresh drinking water and flat land for the construction of homes and businesses (both requirements for attracting large numbers of people to the region) (ibid). Once again, this was in complete contrast to both Bowen and Cardwell – neither had enough fresh water available to supply the large size settlement such an administrative centre demanded, nor did they possess a site for a sheltered, deep water port – both settlements were situated directly on the coastline (as opposed to a river mouth). This siting directly on the coastline meant that shipping access at low tide at both sites was problematic without construction of a long jetty (ibid). This long jetty can be considered to be a major piece of infrastructure costing a substantial sum. The rules of the marketplace dictate that such infrastructure will not be constructed unless a guarantee that monies spent will be recouped via charges imposed exists. Demand side planning, which will be discussed later in this chapter, dictates that sufficient demand exist prior to the construction of the infrastructure. This means people living in the area, who desire the importation or exportation of goods, to and from other ports.

It can be argued that Townsville, therefore, was also created with the settlement and development (including industrial development) of the northern region of Queensland in mind. Having created a vision for Townsville, Melton-Black planned to fulfil this vision. Melton-Black's first action under his plan was to enter into partnership with Robert Towns (Gibson-Wilde, 1984). Towns was southern business man who had a grazing property in the area of current day Stuart, and was seeking a suitable site on which to establish a 'boiling down' works – a form of abattoir – to value-add to his property in the Townsville area (ibid). Townsville was named after Towns (ibid). Melton-Black did the work on the ground in Townsville itself, whilst Towns provided money and southern governmental connections that Melton-Black did not have, and both worked to profit from the venture of founding a new settlement (ibid).

Government which was a relatively recent development (1860) within the then colony of Queensland (www.qld.gov.au, 14/08/2013) was reluctant to engage with the development of Townsville, and had to be forced to act to provide services by local residents (Gibson-Wilde, 1984; Gibson-Wilde, D. M, 2010). Because Melton-Black actively planned for the future of Townsville, it took only twenty years for Melton-Black's vision - the establishment at Townsville of a major administrative, educational, social and commercial centre for the northern region of Queensland - to be achieved (Gibson-

Wilde, 1984). Townsville had arrived, and was on the map. Both Melton-Black and Towns worked to grow the Townsville region – its economy, and therefore, its influence and stature, with both what was then central government and other settlements within Queensland (ibid). This was done via the provision of opportunities for people coming into Townsville, especially employment opportunities (ibid). Without Melton Black's planning for the future, and the work undertaken to achieve his vision for the city (ibid), Townsville may not be the city it is today. Incidentally, Melton-Black did not broadcast his achievement in the founding of Townsville, as his descendants were most surprised to hear of his efforts in this regard (Gibson-Wilde, D.M., 2010). From these early beginnings, Townsville has maintained its position as the capital of the northern region of Queensland (Stack, 2007), whilst both Bowen and Cardwell have remained small towns, supported by the links created with Townsville.

The History of Planning in Australia

Within Australia, the codification and adoption of planning as a formal policy (as opposed to an informal practice) began in 1944. The creation and adoption of a national integrated planning scheme was a recommendation of a report commissioned by the Commonwealth Housing Commission, presented in 1944 to central (Federal/Commonwealth) government (O'Connor, Gawler, Howard, Ryan & Thompson, 1944). The principles of town planning recommended in the report echo those of the two key movements in town planning at the relevant time period – Modernist Town Planning and the Garden City Movement (Nicks, 2003). O'Connor et al (1944) recommended separation of land according to function, with boundaries between the differing zones formed by natural features such as watercourses or man-made features such as major roads and parkland. In addition, O'Connor et al (1944) also recommended that residents not have to travel too far to get their places of employment.

Planning for economic development of an area is very different, and appears to be associated with regional government in Australia. The Queensland government was an early leader in this area, with passage of the State Development and Public Works Act (or the SDA) during the 1930's (Staley, 2011). The primary purpose of this legislation was to facilitate the economic, and otherwise, development of the state of Queensland (ibid). The legislation achieves this function via the creation of the position of Coordinator General of Queensland, whose job is to oversee all development within Queensland (ibid). Development overseen by the Coordinator General can relate to the provision of civil infrastructure - the construction of transport routes, communication and electrical networks and water and sewage mains; or development of major

industrial facilities, such as refineries and manufacturing plants (ibid). Economic development is intertwined with the creation of these physical developments – to attract commercial and industrial development you must first of all possess the requirements of industry and commerce – the civil infrastructure, land availability and access to a labour pool from which workers can be drawn (Ember, 1998).

Town planning in Queensland was legislated for in the Local Government Act of the 1960's (Staley, 2011). This legislation provided a legal framework that enabled local councils to make formal plans for their areas of governance (ibid). In addition, this Act legislatively mandates local government in Queensland to commercially advance their areas of governance (Fogg, 1974). In this regard, the Local Government Act works in a similar fashion to the California government's remission of sales taxes to incorporated cities (Boone & Modarres, 1999). This legislative mandate to commercially advance their area of governance means that local government will actively pursue growth – of their population, land area and the important, economic indicators of living standards - GDP and PCI (Edwards, 2002) – by attracting both new residents and business opportunities. New residents and business opportunities increase the importance of local government against other local governments, as they increase the revenue available to local government, by adding to the ratepayer base for the particular local council.

In this regard Queensland also grows, in population, GDP and PCI, as businesses and residents are attracted from other states or overseas to the opportunities that exist for them in Queensland. This increased population, GDP and PCI allows the Queensland government to lobby central government for an increased share of the national fiscal resources, often at the expense of the other states and territories. It can be argued that the SDA acts in a similar fashion to the Local Government Act, but is for regional government, and is, in essence a legislative mandate requiring regional government to commercially advance their area of governance – the state of Queensland – as well. However, it was not enacted by the next level of government up – central government, but by itself – the regional government of the state of Queensland.

The Planning Process

All plans, be they regional or town, appear to be produced in the same manner. Plans are made for up to 20 years in advance, although occasionally they stretch out to 50 years in advance (Staley, 2011). Town planning is very different to regional plans, as the former focuses on the allocation and assignment of land for the various functions within the boundaries of a local government area (ibid). The latter focuses on the

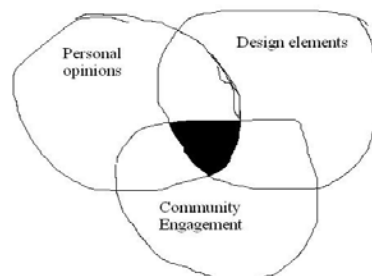
growth and development of a region that may be composed of several local government areas (ibid). Both however, appear to be interlinked (ibid). Regional plans are composed by regional (state) and local government working together (ibid). The focus in such plans is on jobs, housing and opportunities to meet the needs of a growing population (Townsville, An Industrial Growth Centre, 2005; Townsville-Thuringowa Strategy Plan, date unknown; Far North Queensland Regional Plan, date unknown), the key concerns of the planning discipline (Thompson, 2007). Regional plans provide a framework by which the growth of the region is properly managed to ensure maximum opportunity and an orderly growth.

This is important, as O'Connor et al (1944), noted the market did not allow for the orderly growth of a region, thereby allowing for the creation of urban sprawl and substandard, improperly constructed/maintained buildings that were considered to be safety hazards. This aspect of the operations of a market economy may have been what underpinned O'Connor et al's (1944) recommendation for establishment of a national integrated planning scheme in order to provide governments with the legislative mandate that allowed them to manage the growth of their respective areas of governance. This historical chain of events enables it to be clearly seen how previously informal actions and policies (such as those early city layouts where people of similar occupations lived in the same area of the city, referred to in the Literature Review) and processes were formalised. These previously informal policies and practices have been codified into legislation, and guidelines to manage these processes have been developed over the years as a direct result of this recommendation by central (Federal/Commonwealth) government.

Town planning is slightly different. Land audits are conducted, comparing the amount of land required for the next 20-50 years with the amount of land already subjected to a planning scheme (Staley, 2011). If a land deficit exists, additional land is identified and incorporated into a local planning scheme (ibid). The exception is land required for heavy industry – today regional government is the developer of such land, and sets aside land for heavy industrial use via creation of State Development Zones (ibid). Such zones are exempted from local government control (ibid), as is any land required for regional government purposes, such as the provision of social/public housing and office accommodation (Chrisafulli, 2011). In this manner, any public NIMBY objection becomes null and void, as under the legislation objections to development can only be made to local government. Future planning is conducted in line with the current employment patterns of an area – if 25% of the area's workforce is employed in industry, it is assumed that this pattern will remain into the future (Staley, 2011).

This is important, as the amount of land required for each function (industry, commercial, residential) is dependent on the function for which the land is earmarked (Staley, 2011). Industry requires a massive amount of land – 20 square metres for each person employed in either light or general industry (ibid). Given the overall size of such developments, it also needs to be fairly flat land that is not too flood prone (ibid). Commercial and residential land has much smaller footprints, as buildings can go up (ibid), or the land is subdivided into smaller blocks (ibid). Government land needs work according to a function of both population size and industry in the surrounding area (ibid). The land components of government development are driven by the infrastructure required, such as a hospital (a building which can go up) or a sporting field (which cannot go up) (ibid). These infrastructure needs are driven service needs, and involve co-locational factors – the location of similar services in close proximity to one another (ibid). The earmarking of new land for incorporation into a planning scheme is part science, part design (ibid). Planners weigh up various options when setting out the land, and several different criteria also influence this process, including personal opinions, the area’s history, the overall living environment and environmental issues (ibid). Each criterion is weighted according to projected land needs, and then set via community engagement (ibid).

Figure Four:- Staley’s model of the design process



Good planning is situated in the black zone of the model where the three circles intersect (ibid). However, planning can be affected by things such as the election cycle and amount and nature of the community engagement (ibid). The average planning scheme lasts for 25 years, or seven election cycles, during which governments can change as a result of community needs changing (ibid). These community needs are also dependent on political practices, such as the “pork barrelling” which occurs at

election time (ibid). Once compiled all plans are then put out for public comment and objections, prior to being officially ratified by the Governor (ibid).

It can be argued that the current planning processes, as detailed above, support the notions that underpin the current economic system – that consumption of manufactured goods will make people happy (Louis & Magpili, 2001). Further, that the tacit acceptance of such planning as a policy and government action and priority by the populace (to be further explored Chapter Five – Actions of the Governed) constitutes an implicit expression of support for the current economic system, which is, in turn, supported by the action of planning. This is due to the focus on the operations of a market economy that aims to have people consume to possess a good quality life (Louis & Magpili, 2001). However, this is not the only approach to quality of life, and GDP and PCI are not the only methods of measurement of life quality of life today.

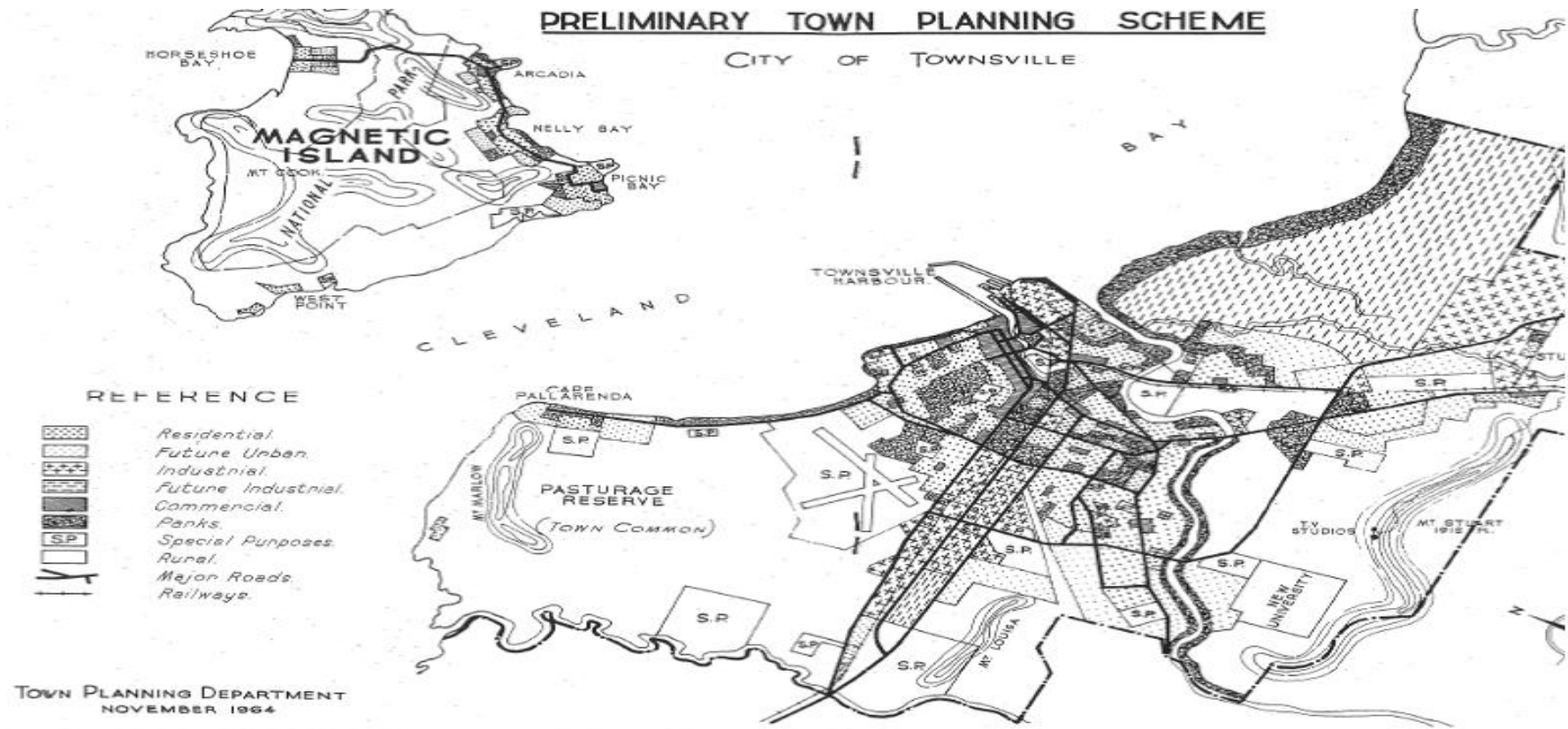
Another approach to life quality focuses on intangible aspects of our lives, such as a connection to/with others and the lived environment, and being seen as being valued in some way, such as being an employee, friend, student, etc (Brown & Brown, 2003). Such intangible features of life quality can be difficult for many in the community to achieve, due to both intrinsic (such as disability) and/or extrinsic reasons (ibid). This approach does not involve consumerism and consumption; however, it does involve people changing their views and becoming more tolerant of the differences of others, and supportive of them also having a quality life and feeling valued by society (ibid). As stated earlier, most people do not go out of their way to think about such minority groupings in day-to-day life. The driving force seems to be only if they, themselves, are affected in some way by the general intolerance of such minority groupings. They may be supportive of such minority groupings having the same rights as they do, but do not stand up to be counted. Such views around determining quality of life are beginning to be noticed by government. As referred to earlier in this thesis, Bhutan utilises a National Happiness Index that takes into account these intangible aspects of life quality, and recently work has been done in France on devising a similar measure that can be utilised in modern, western, industrialised societies (Holderness, 2009)

[Planning in Townsville](#)

Perusal of minutes of the Townsville Council (1940's – 1970's) shows a concern with the orderly development of Townsville well before the advent of a formal town plan. Developments were scrutinised by the Works Committee of Council, with this Committee reporting to Council. The most common reason for rejection of a development application was that the proposed development would *“prejudice the*

orderly and proper growth of the locality". In this statement of rejection, it can be clearly seen that Townsville Council pursued and maintained an interest in managing the growth of Townsville well before the advent of a formal town plan. Townsville had two early attempts at instituting formal town planning – in 1946 (Townsville Daily Bulletin, 16/4/1946) and 1949 (Townsville Bulletin, 22/7/1949), before committing to compilation of a town plan in 1959 (minutes of Special Meeting of Townsville Council, 21/5/65). An inaugural town plan was produced in 1964 for public comment (see below – Fig Five), and the town plan was officially ratified by the Queensland Governor, in Council in 1966 (Order in Council, 1966).

Figure Five – Preliminary Town Plan – City of Townsville



(Council of the City of Townsville, 1964)

Visual examination of the documentation accompanying this Town Plan indicates that those involved with its' creation followed the principles of the key planning movements of the time, Modernist Town Planning and the Garden City Movement (Nicks, 2003). This can be clearly seen in the separation of land within the Townsville area according to planned end use with barriers between the zones taking the form of major transport routes or natural features such as watercourses. So, too, was the focus on "lifestyle", setting out commercial and industrial areas throughout the city, so that residents did not have to travel too far to get to their places of employment, as well as numerous areas zoned for parks and gardens to be developed. Townsville's history, too, played a role in the compilation of this plan. Many of those involved with its creation were long term Townsville residents, who had grown up in Townsville with the implicit knowledge that Stuart was where the industry went (Gibson-Wilde, D.M., 2010). This implicit knowledge resulted in the majority of the Stuart area being zoned for industrial purposes, as is seen in the finalised plan.

Catering for the growth of Townsville over the longer term can also be seen in this plan. Land has been allocated for future usage that was not developed for quite some time, with the longest development lag between the zoning of land in this town plan and development of the land being 37 years. Construction of the first buildings for James Cook University in Douglas began in 1970 (www.townsville.qld.gov.au, 14/08/2013), development of the Cleveland Youth Detention Centre (on land marked SP on the plan adjacent to Townsville Airport) took 16 years (en.wikipedia.org, 14/08/2013), and removal of Townsville Hospital from its initial North Ward site to SP land adjacent to the university took 37 years to achieve (www.townsville.qld.gov.au, 14/08/2013). The relocation of Townsville Hospital is an example of the co-locational factors referred to by Staley (2011). It makes sense to have a teaching hospital adjacent to a university that contains a substantial health services faculty. It can be argued that at the time this plan was devised in 1964, government already foresaw that eventually, as the population of Townsville and the northern region grew, there would be need to expand existing government facilities in the Townsville area, such as the hospital and university; or to create new facilities, such as the youth detention centre. Government may not have known exactly when such expansion would be required, or even the exact nature of the facilities that would need to be built, but knew that such service expansion would be required. This pattern of facility expansion can be clearly seen in the history of the two LULUs identified in this research – Townsville Airport and the Stuart Creek Correctional Centre, both of which will be subject to additional

exploration later in this, and in the following chapter. Accordingly, land was set aside on which to house these type of developments.

Thus, the time lag between the allocation of land for these facilities and their eventual construction can be directly related to two factors – the need for either the facility in the first instance, or upgrading to a larger size facility as a direct result of the increase in usage of the facility; and the cost involved in constructing this (new) facility. As will be seen later in this chapter in discussion on Townsville’s Airport, the cost of such facilities is massive, so therefore construction is not begun until a need for either the facility or an upgrade is demonstrated, via public usage/demand. This provision of infrastructure is known by planners as “demand-side” – it is not provided until the demand exists (Staley, 2011). Public discussion and input regarding this plan will be explored in the next chapter dealing with the other side of the “pro-growth/development” stance – that of the actions of the governed. Since this inaugural town plan, Townsville’s City Plan has been regularly revised (Staley, 2011), with work on the most recent revision beginning in 2009 (Raggatt, 2009). The language used in this most recent town plan is a mirror image of the inaugural one in 1964 (Council of the City of Townsville), with similar processes followed in its compilation.

So far this chapter has shown that government in Australia utilises planning as part of a strategy to pursue an active ‘pro-growth/development’ agenda, in a very similar fashion to that exposed in the current literature (Boone & Modarres, 1999; Frug, 1996). Are there any additional methods by which government in Australia actively pursues a ‘pro-growth/development’ policy agenda? Once again, the answer is an unequivocal ‘yes’, by all three levels of governance. Each level of governance also acts within the market, as a conduit/supervisor (seeking to correct for market failure) and acting as employer (delivering services to the people). Regional government, as the controller of all unoccupied land in Queensland, can be especially powerful, as it possesses the capacity to value add when it comes to the granting of leasehold over land to third parties. Finally, all three levels of government work together to provide the civil infrastructure the community demands. It is this aspect which will be considered in the next section.

Other methods by which government pursues growth

Perusal of the minutes of Townsville Council reveals that Townsville Council has acted to grow both the Townsville region, as well as that of North Queensland as a whole. Furthermore, such actions have been long standing, and date back to the early 1900’s, at minimum.

In 1907 Townsville Council agreed to support other northern Councils in lobbying regional government for the provision of both infrastructure and services in Northern Queensland. The northern councils participating in this lobbying effort saw the provision of this infrastructure and services as a method of increasing their population; as such an increase would benefit all of North Queensland, as did the members of Townsville Council (Minutes of Townsville Council, 1907). Other actions pursued by Townsville Council with an eventual aim of growth for Townsville and the immediate area included depositions to regional and central government on issues that affect the lives of Townsville citizens (such as the aerodrome); and to encourage industry to locate in Townsville. Council also appointed Councillors (or senior employees of the Council) to represent Council's interests on regional government management bodies such as the electricity, fire and port management boards. Townsville (and Thuringowa) Council also invested in the provision of community infrastructure, such as an aerodrome in the 1930's. Such investment was made with a policy goal of attracting additional private investment into the Townsville area. This aspect will be explored further in this chapter, in a section on Townsville Airport, and its history. All of the activity noted above occurred both before and after passage of the Local Government Act, which as has been seen, mandated local government to commercially advance its area of governance. Therefore, passage of the Local Government Act made formal via codification into legislation what had been long standing practice (or informal policy) on the part of local government like Townsville and Thuringowa Councils.

However, Australia is a federated nation state that consists of six states and two territories (Stewart & Ward, 1996), Central, regional and local government both cooperate and compete with one another, often doing both at the same time. As mentioned in the Literature Review, the prevailing political ideology is one of neo-liberalism, which dictates an unfettered marketplace (Fenna, 2004). However, within this neo-liberal paradigm, differences exist as to the degree of government interference with regards to government policy aimed at reducing any inequities caused by an unfettered marketplace. In essence, such differences relate to the provision and extent of some kind of a welfare safety net, designed to support those who can find it difficult to compete in the social marketplace (ibid). Australia is considered to be a welfare state, whereby government steps in to mediate the worst effects of the market on its' citizens (Stewart & Ward, 1996), and enacts policy aimed at achieving equity, and providing some form of a safety net for its citizenry.

The pursuit of planning as a policy is a good example of such a concept. Use of planning schemes and ordinances seeks to provide a level playing field when it comes

to the development of an area and prevents citizens from being harmed by the vagaries of the market place when it comes to pursuing opportunities. Another example of a welfare safety net is that of housing provision for those on low levels of income. Housing policy created by central government with a goal of achieving equity amongst the people of Australia by correcting for failure within the housing market was, as will be seen, instrumental in the creation of environmental injustice seen in Garbutt. Central (Federal/Commonwealth) government policy aimed at achieving equity was also instrumental in the creation of the environmental injustice seen in Stuart. In this case the policy goal was one of equity between white and Indigenous Australians, via the creation of a society that was truly inclusive. In 1967 a Referendum was held to consider removing a section of the Australian Constitution that actively prevented inclusion of Indigenous population figures in the biennial census count (Reynolds, 2000). Passage of this Referendum coincided with the beginnings of a mass migration of Indigenous people from the regional/rural areas of Australia where they had previously lived into the more urban areas of Australia (Ross, 1996). This migration into the urban areas led to the eventual mainstreaming of Indigenous human service provision into general human service provision. The next section will further the role played in the creation of environmental injustice by government (at all levels) pursuing a degree of equity amongst its constituents.

Policy in Pursuit of Equity

As has been explored in the literature review, Winston (2010) writes that some of man's inventions were considered, at the time, to be a good idea; however, in the long run they have had deleterious effects on mankind and/or the environment. The slow creation of a market society is an example of this concept applied to policy. The current market based society that revolves around consumerism being an answer to all that ails us (Louis & Magpili, 2001) has no doubt seen improvements in man's quality of life – for some. For others – those who find it difficult to compete for intrinsic or extrinsic reasons in the market place that is society – there can be deleterious side effects (Brown & Brown, 2003). It does need to be said at this point there are some who are able to compete in this societal marketplace, but choose not to do so. However, the focus of this research is on those who cannot, or find it difficult to, compete in the societal marketplace, as such people form the majority of those subject to injustice or inequity. This is why government in Australia can find it necessary to step in to prevent, or correct for, market failure (McTaggart, Findlay & Parkin, 1996). In Australia a component of this safety net is the provision of affordable housing.

[The Commonwealth/State Housing Agreement](#)

It was stated above that the present environmental injustice observed in Garbutt and Stuart arose out of attempts by central (Federal/Commonwealth) government to correct for the inequities of the marketplace and the resultant social injustice. In Garbutt the mechanism by which the environmental injustice arose was policy pursued by central (Federal/Commonwealth) government, to correct for failure in the housing market. The observed failure in the housing market related to the low standards of the accommodation occupied by low income individuals and families. All three levels of government acted in conjunction with one another within the market to correct for this failure. This is the focus of this section.

O'Connor et al's (1944) report was primarily concerned with the state of Australia's housing stocks, and noted two things – a significant shortfall in available housing (by 300 000 dwellings, at minimum) and the inability of the private housing market to provide accommodation of a reasonable standard for low income families and individuals. Therefore, a key recommendation was the creation of national integrated housing scheme, funded by central government and managed by regional government (ibid). This led to the Commonwealth/State Housing Agreement (www.aph.gov.au/21/1/2011). The first such agreement was signed in 1945, and had a focus on home ownership (ibid). This original agreement has been regularly revised, with a change in the focus occurring in 1972 – from encouragement of home ownership to the provision of rental accommodation only for low income families and individuals (ibid).

This change of focus in the agreements may be related to the gradual depletion of the purchasing power of the currency. As the purchasing power of the currency lowered, for low income individuals and families buying a home became more and more unaffordable. This aspect will be explored later in this chapter. Central government, acting in partnership with regional government, actively pursued equity goals via this housing policy. Le Grand, Propper and Smith (2008) state that such government intervention in the operation of the housing market is reflective of the fact that shelter is considered a basic human right. Any intervention is also motivated by efficiency considerations, as individual decisions about housing do affect all of us, leaving it unlikely that the private market will produce an optimal outcome for all (ibid). Government intervention occurs in two forms – rental assistance payments and/or the provision of publicly owned housing with rental pegged to income levels (ibid). Thus we see government working to achieve two of Stone's (2002) policy goals – equity

(between people) and efficiency (achieving this equity at the lowest possible cost to the provider and the end consumer).

The failure of the housing market to meet the needs of the people was obvious in Queensland. In 1946, 4718 Queensland families were living in temporary accommodation such as bark shelters and tents (www.communities.qld.gov.au). As a result of O'Connor et al's (1944) recommendations, central and regional government stepped in to remediate the situation, by acting, in the market, as a property developer, developing housing for either purchase or rental, with the focus on purchase. The role played by local government was that of a lobbyist – making representations to regional government for more land to be allocated for construction of housing under the tenets of the CSHA (Minutes of Townsville Council, various dates). The cost could be kept low; and therefore more affordable to those on low incomes in two ways:-

- 1) The construction of houses of the same or very similar design/layout set in massive housing estates, and
- 2) Construction of the housing by government on government land.

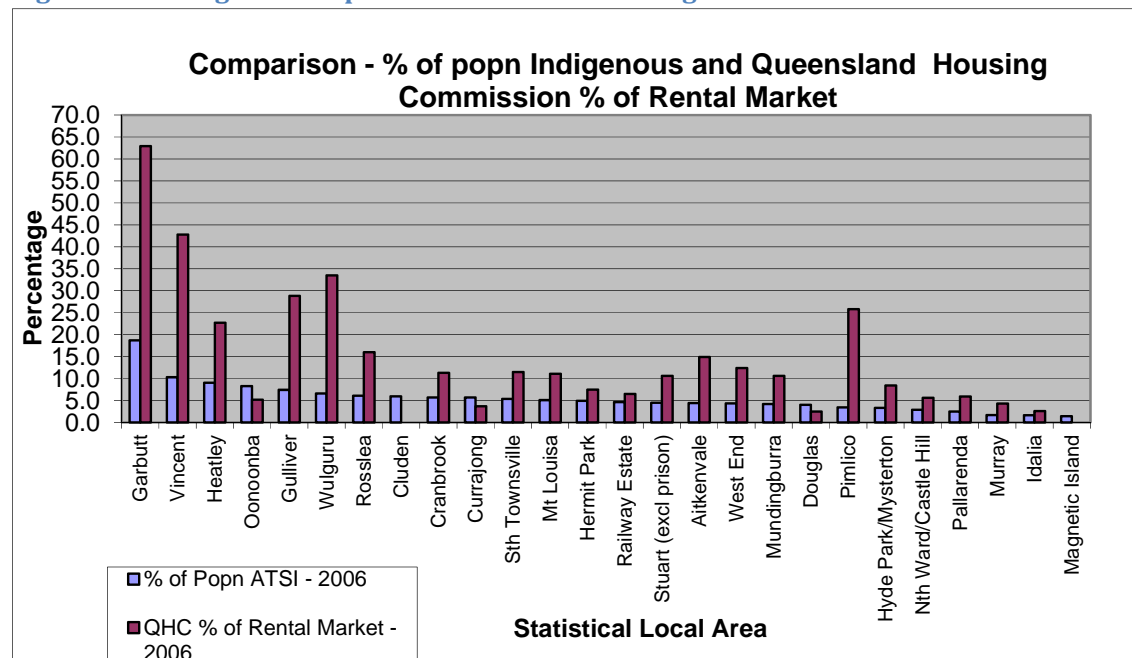
All unoccupied land in Australia is considered to be Crown Land, so all that was required was an administrative action – the transfer of land from central to regional government, and/or re-allocation by regional government of the land to be used for housing purposes (Green, 2011(a)). The massive construction program was also economically responsible – it was constructed at the least cost possible (Green 2011 (b)). Massive estates consisting of “cookie cutter” houses were constructed in Queensland (Green, 2011 (b)), including Townsville (Le Roy, 2011). In addition, already existing government buildings, such as the war time defence personnel accommodation that existed in Garbutt (Townsville City Council, 1997) were transferred to the regional government housing authorities for use to meet the local need for housing (ibid). Garbutt possesses Townsville's largest social housing estate, which comprises 63% of Garbutt's predominantly rental housing market (54% of the total housing market in 2006) (www.abs.gov.au/census). The next largest social housing estates are in Vincent and Heatley, and all three SLA's have extremely high relative Indigenous population percentages in comparison to other areas of Townsville that do not contain such massive public housing estates.

Provision of this housing to redress the inequities of the housing market is also an example of the use of trickle-down theory at work. Use of “trickle-down” theory is a significant part of government's use of ‘least cost’ principles in actions to remediate

social injustice. Trickle-down theory emanates from economics, and assumes that if you improve conditions for the wealthy, then this will ‘trickle-down’ to the less well off (McTaggart, Findlay & Parkin, 1996). When it comes to policy measures aimed a redressing social injustice, the assumption seems to be that if you improve one area of a person’s life, they will be motivated to seek to improve their overall position by focusing on other areas of their, or their children’s, lives. Applying this concept to housing policy, the assumption was made by central government that relief of housing stress would mean that people would be able to work in other areas to better their life, or the lives of their children. Chapter Six, Associations, will show that such an assumption is erroneous. Ensuring a better life is hard for the disadvantaged and vulnerable, as they are often not capable of working out exactly how to achieve that better life. For such people to attain that better life requires intentionality – the person must actively work to develop the skills required to obtain that better life, and many do not even know they are lacking in such skills, or where to start in the first instance. To attain and develop such skills, many require the provision of supports to do so. As a society, we are not very good at the provision of these supports, and seem to discount the need for them. The assumption seems to be that I did this by myself, and you can to.

So, what does this mean for environmental injustice?

Figure Six – Indigenous Population and social housing correlations – 2006



www.abs.gov.au/censusdata

Data relating the size of public housing rental estates was only available from the 2006 census. A strong positive correlation was found between the percentage of an SLA's Indigenous population being over five percent and the presence of public housing within the SLA's rental housing market ($r(24)=0.824$, $p<0.001$). Exploration of the census data showed that an association between the two also existed in the neighbouring LGA of Thuringowa (ibid). However, no correlational analysis was undertaken as the research was limited to the Townsville LGA only. There is one exception to this association in the Townsville LGA - the Stuart SLA, which contains the adult correctional centre for the northern region – the Stuart Creek Correctional Centre. The public housing and the correctional centre is housing that involves either limited choice on the part of the resident (the public housing estates) or state coercion (the correctional centre).

Therefore, it can be argued that in Townsville the environmental injustice that exists in Stuart and Garbutt can be directly related to the existence of social inequity and therefore, injustice. It is social inequity that relegates Indigenous people to the lower level of socio-economic strata, and the reasons why this is so will be explored briefly in Chapter Six – Associations. In addition, this environmental injustice is also an unintended consequence of attempts by government to alleviate the effects of the current market based, inequitable society – the enactment of the housing scheme beginning in 1945, and the 1967 Referendum to abolish Section 127(a) of the Constitution Of Australia.

Least Cost Principles

The key hypothesis of the environmental injustice movement is that of a link between the siting of LULU's and residential areas that are low/er income and high/er minority in demographic composition (Turner & Pu Wei, 2002). The literature has advanced two possible causative hypotheses, both of which relate to LULU siting decisions – market forces or institutionalised racism (Pastor, Sadd & Hipp, 2001, Been, 1994). Hamilton (1995, 1997) hypothesised that least cost principles govern the siting of LULU's. Therefore, to fully examine the causative processes of the environmental injustice found to exist in Townsville, consideration must be given to LULU siting processes in Townsville, with this aspect the focus of this section.

Two major LULU's were identified in this research – Townsville Airport and the Stuart Creek Correctional Centre. Construction of both LULU's appears to be a direct result of public demand for the service offered by/from the LULU – air travel to/from Townsville and incarceration of convicted malefactors as proscribed by the law - with this aspect

to be further explored in the next chapter. The main factor involved in the siting decisions for both facilities seems to be the availability of a land parcel of sufficient size in close proximity to the civil infrastructure required to support the daily operations of the facility (transport, communications, electricity, water and sewage networks) and enough room to expand the capacity of the facility as and when required. Therefore, the siting decisions of both facilities can be readily explained by the first of Szasz and Meuser's (1997) siting criteria that related to the availability of the land and infrastructure, acting in combination with Hamilton's (1993, 1995) 'least cost' approach to siting, and relate only to fiscal cost. In addition, a perusal of the available data around these siting decisions (Minutes of meetings of Townsville Council, September, 1938) fails to uncover any aspects of environmental racism/classism underpinning the siting decisions made. The current situation of environmental injustice in both SLAs occurred as a direct result of the influx of residents after both facilities were constructed, with this influx a direct result of central government policy aimed at alleviating social injustice. At this stage it is timely to explore the role played by the growth principle in the construction of these facilities.

As has just been mentioned, public demand played a major role in the initial construction, and any eventual upgrading, of both facilities, with this to be explored in the next chapter. However, government certainly responded to the demand expressed. This can clearly be seen in regards to the provision of an aerodrome in Townsville. Local government initially operated Townsville's Airport, however they were keen to hand over the daily operations to a higher level of government, nominally central government, due to the high overall cost and low return to the ratepayer associated with the operation of the facility (Minutes of Thuringowa Council, 20/10/1934; Minutes of Townsville Council, 3/9/1938). As Townsville's airport outgrew its initial site, due to increases in the usage of air travel, which increased aircraft size and weight, the original grass landing strip could no longer meet the level of need expressed. Therefore, Townsville Council actively lobbied regional and central governments, via their local representatives, to obtain funding to construct a durable airport (Minutes of Townsville Council, 18/11/1938).

The same pattern can be seen in the correctional centre, which grew from a watch house to a short stay prison to a prison that was designed to cover the northern region of Queensland. Here, however, the demand was not so much from the public, rather from the usage of the service as people committed offences and had to be imprisoned for them as postulated by the law. As the total population of North Queensland grew, so too did the population of malefactors that committed offences under the law. Initially,

such offenders were sent south to serve their sentences; however, over time this proved too costly for the Queensland Colonial government. It was also an impost for the offender, residing in an overcrowded prison that was in dire need of repair (Brisbane Courier, 22/5/1875), quite possibly some distance away from loved ones.

The infrastructure needs that serviced these LULU developments were also driven by population demand, and dependent on the population attaining a critical mass prior to construction of the infrastructure by regional government. Population demand existed for continuation of the rail line north from Townsville to Ingham as early as 1888 (Brisbane Courier, 20/10/1888); however, this line was not built until 1915 (Townsville City Council, 1997). During the 1930's the Department of Main Roads declared it not viable to increase the height of the bridge over Ross River in the vicinity of the Murray aerodrome (Townsville Daily Bulletin, 30/8/1938). The Department did not feel that the area south-west of the Ross River had a sufficient population to warrant raising the height of this bridge, which was frequently flood prone (ibid).

Earlier in this chapter reference was made to Tracey's (2010) 20/80 rule – that twenty percent of the time spent in planning reduced costs by eighty percent. Formal planning by government is Tracey's (2010) 20/80 rule in operation, and enables development and service provision to occur on a 'least cost' to all – provider and end consumer. Town planning allows for land to be set aside for development of a certain kind to occur on. This is important, as it is the existence of this land and any supporting civil infrastructure (transport, electricity, water, sewage and communications networks) that provides the least cost environment in terms of the day-to-day operations of any facility (or home), and provision of this infrastructure is the most expensive part of the development equation. Development within the limits of the already established infrastructure costs half as much as development occurring outside the limits of the established supporting civil infrastructure (O'Connor, 2009). Delaying development of this infrastructure until the population reaches a critical mass allows government to keep the costs of maintaining this infrastructure low, as well as enabling government to continue to work to support the operations of a market economy by remaining an employer, providing constant work. In addition, government is also working to increase its utility, via the provision of jobs and maintenance of the communal infrastructure. Politicians use the creation of these opportunities at election time, seeking to increase their chances of being re-elected, or elected by promising to work for something the community demands. And so the cycle keeps going.

The development of the facility is least cost due to the existence of the civil infrastructure - transport, communications, electrical, water, sewage networks – as the existence of these reduces the daily operating cost of the facility, on land that has been set aside for such development to occur on in a plan. Public demand plays a role as well – no development will occur until the demand is there to support operation of the facility in question – be it private or public. Least cost is important to government – the reason can best be demonstrated via following the development of Townsville Airport. The original costs associated with the development of Townsville Airport during the 1930's have been located, and transferred into 2011 values via the Reserve Bank of Australia's Inflation Calculator, available on the Reserve Bank's website (www.rba.gov.au). This has been done to allow the reader to gain a better understanding of the massive amounts that are involved in such infrastructure development.

Developmental History of Townsville Airport

The development history of Townsville Airport clearly shows how demand side infrastructure development works in practice. Townsville Airport began life in 1927, when Australian Prime Minister Stanley Bruce announced £350 000 (or \$24.88 million in 2011 values) to be utilised for airport development throughout Australia (Launceston Examiner, 22/8/1927). Allocation of this funding is an instance of central government actively pursuing a growth stance of its own accord rather than directly funding regional and local government to do all this work, as it was *“actuated by the urgent necessity of bringing Australian Civil Aviation in line with developments elsewhere”* (ibid). In all, fifteen potential sites throughout Australia and the mandated territories (Papua New Guinea and The Solomons) were inspected regarding their suitability in 1928 (Brisbane Courier, 6/7/1928), and active lobbying by Townsville's civic elders (Launceston Examiner, 22/8/1927) ensured that Townsville was included in this inspection trip (Townsville Bulletin, 28/12/1929).

Central government had key requirements for any site – it needed to be relatively close to the southern capitals, and the location also had to have good rail and shipping connectivity (Le Roy, 2011). In addition, the locale's position on what was the major overseas air route – the Kangaroo Route between Australia and the UK - was also important (ibid). Townsville certainly ticked off all central government's boxes in this regard (there was rail connectivity north, south and west, the Port had recently been enlarged, and Townsville is in a good position on the Kangaroo Route), and by 1929 a grass landing strip had been established on land in what was then Thuringowa Shire

(today the Annandale Central Shopping Centre is situated on this land). In 1930 the Thuringowa Shire Council liaised with the Civil Aviation Bureau (part of the Defence Dept) regarding official licensing of this landing strip (Minutes of Thuringowa Shire Council, 21/11/1929). Such licensing was a governmental requirement prior to any strip being used as a regular place for take offs and landings – in other words, an aerodrome (ibid). This requirement was most likely due to ensuring that flying, a new and novel thing in the 1920's, was safe – for the pilot, the passengers and local residents.

Both Thuringowa and Townsville Councils cooperated in allocating a total of £375 (\$27,211) for works to ensure the landing strip met licensing requirements (Minutes of Townsville City Council, 18/3/1938). Thuringowa Council operated the aerodrome until 1937, when the land became part of Townsville Council's area of governance (Minutes of Townsville City Council, 1/8/1937). According to the historical record, 1938 was the key year in the development of the current Garbutt site for the Townsville Airport. In July 1938, the regular mail plane from the south, a Douglas DC340, was turned back to Brisbane from Mackay (Townsville Daily Bulletin, 5/7/1938). It was unable to land in Townsville, as there had been recent rain and the grass landing strip of the aerodrome was water logged (ibid). This event was the impetus for public discussion surrounding this aerodrome, which will be further discussed in the next chapter.

Townsville Council responded to this public demand by conducting a thorough review of two sites – the then current site at Murray and the now current site at Garbutt (Minutes of Townsville City Council, 3/9/1938). Both sites required construction of a concrete runway to be useable in all weathers; however, the review also showed that in terms of the safety and mechanics of flying in 1938, Garbutt was the better location for the aerodrome, as it was easier to locate from the air in all weathers and at night (ibid). This ease of location meant that air traffic into Townsville could be increased, as risk of a crash was minimal. Murray also did not possess enough room for runway construction to current commercial requirements in the east-west direction, whereas Garbutt did, in both directions (ibid). Issues also existed at the Murray site regarding all weather access to the aerodrome by land, which did not exist at Garbutt (ibid). Therefore, Garbutt was also the “least fiscal cost” site – it was close to the major civil infrastructure (road and rail links) required to support the daily operations of this aerodrome, as well as the availability of land allowing for future expansion of the facility into the future, as and when required (ibid). When this report is analysed, the focus of the report is solely on the safety and mechanics of flying in 1938. The political cost will be explored in the next chapter; however, it too was minimal.

Townsville Council, as the operator of the aerodrome, did concern itself with fiscal cost, however. The fiscal cost involved was that of constructing the required concrete runways to make the airport all weather, a requirement no matter what the site – Murray or Garbutt. Land cost was non-existent, as all that was required was a similar administrative action to that carried out with regards to the provision of housing explored earlier. Garbutt's main advantage related to it being the safer site with regard to the mechanics of flying in 1938, at which expansion could occur, if needed. However, the cost of constructing these concrete runways was estimated at £10 000 (\$789,267), well beyond the resources of Council (Aitkens, 1938). The need to spend extra to fix the issues around land access to the Murray site appears to be added as an after-thought – the aim at the time was definitely for central government to take over control and operation of the facility, regardless of where it was sited (Minutes of Townsville Council, 3/9/1938).

Accordingly, Council sought assistance from higher levels of government – central and regional (Minutes of Townsville City Council, 3/9/1938). The actual cost of the construction of the runways and other facilities was £7500 (\$591,950) (Minutes of Townsville Council, 3/9/1938). Thus we have a progression occurring, as the aerodrome outgrew its initial site, due to an increase in the usage of air travel by Australians, including the residents of Townsville, a newer, larger aerodrome was required. It was at this point, due entirely to the public sentiments expressed (which will be further explored in the next chapter) that a decision was made to increase the aerodrome's capacity, by the then operator – Townsville Council. In conjunction with this decision, Townsville Council also sought to hand over operation of the aerodrome to a higher level of government due entirely to the cost/benefit equation involved – a high cost that had little return to the people Townsville Council was responsive to – local residents. Townsville Council was seeking to have a high class community facility available to the community at minimal cost to the community it governed. This could be done via transferring the operation to a higher level of government that had far more financial resources to draw upon – central government.

Although it was not possible to follow exactly the processes involved with the siting of the Stewart's Creek Correctional Centre, least cost principles also applied to the construction of this facility. The Correctional Centre was constructed by the future inmates on land that was already Crown Land (www.epa.gov.au). In addition, the timing of the construction can also be related to least cost principles – as it became more and more expensive for what was then central government to transport offenders from Townsville south to either Rockhampton or Brisbane gaols, the correctional facility

in Townsville grew in stature. As has already been noted, this facility began operation as a watch-house in 1870 (Brisbane Courier, 22/11/1870), was upgraded to a short stay gaol in 1875 (Brisbane Courier, 22/5/1875), and then finally became a major prison to service the northern region of Queensland in 1890 (Brisbane Courier, 7/10/1886).

Earlier in this chapter reference was made to a reduced purchasing power of currency as possibly being the reason that underpinned the change in focus of the CSHA in 1972 from home ownership to provision of rental accommodation only. This concept can clearly be seen when the cost of constructing the aerodrome at Garbutt in 1938 of \$591,950 (in 2011 values) is compared to a Budget allocation of \$6.5 million (Killoran, 2013) in 2013 to refurbish the airfield. This budget allocation is almost eleven times the cost of originally constructing the aerodrome 74 years ago. Works will include resurfacing the asphalt pavement and replacing airfield lighting (ibid). Such large expenditures show why government seeks to provide services on a “least cost” basis to the end user – the community it governs.

Further research is required to understand the processes that have created this very obvious decline in the purchasing power of the currency between 1938 and 2013. This decline in purchasing power may underpin the emergence of environmental injustice as a field of scholarship, albeit unconsciously and undeclared by the researchers active in the field. This is because the numbers of people on low, almost poverty line, income levels may have increased on a per capita basis over the years. As has been noted, such people are the focus of the environmental injustice movement.

Conclusion

This chapter has shown that government was and is actively concerned with growth. It allows for growth to occur via the mechanism of planning, as well as encouraging growth to occur via making representations to industry and higher levels of government, actively seeking services and development of their area of governance. Production of Regional Plans allow for the growth of a region composed of one or more local government areas, whereas town planning provides the land for future development of all types to occur on, as and when required by the market or popular demand. Planning is also part of a “least cost” approach to siting LULU developments, and the goods or services produced by these LULU’s.

The environmental injustice in Garbutt and Stuart was fundamentally produced by government attempts to redress social injustice, utilising a 'least cost' approach. 'Least cost' is important for government due to the massive cost of providing human services and civil infrastructure people make use of when taking advantages of the opportunities offered by the market. Planning, both for growth, and to allow for growth, is a key concern of politicians at all levels, and can be seen in their public statements and electioneering campaigns (Newman, 2013; Giles, 2012; Paull, 2011 (a) & (b)). It is now appropriate to explore a new aspect of the creative processes of environmental injustice – the actions of the governed, or the populace as a whole. The actions of the governed have not been explored previously, but the populace too plays a role in the creation of environmental injustice. Chapter Five is devoted to examining how the governed contribute to the creation of environmental injustice.

Chapter Five – Governed Actions

Introduction

The previous chapter explored the role of government policy, and the actions carried out in support of achieving the policy goal set in the creation of environmental injustice was explored. This is the point at which analysis stops in the established research. The research reported in this thesis builds on the established research in the field of environmental injustice, breaking new ground in this debate by exploring for the first time the actions of the governed. What role did the populace as a whole play in the creation of the environmental injustice? This aspect of the creation of environmental injustice is the focus of this chapter. Actions and informal policy practised by the populace as a whole will be placed under the microscope to ascertain the role they played in the creation of the environmental injustice seen in Garbutt and Stuart.

An active “pro-growth/development” stance can also be seen in the actions of the governed. However, this stance is an implicit, tacit one and can be discerned via an exploration of two factors – the lack of resistance offered to development of the LULU and acceptance of the social system and structures. This acceptance of the current social system and structures is tacit and implicit, and can clearly be seen in the nature of resistance to LULU developments. Perusal of the NIMBY and siting literature reveals that any resistance to a LULU is concerned solely with the proposed location of the LULU. Residents objecting to the LULU tend to concern themselves solely with the proposed location, it is left to the developers of the LULU to speak on the need for the proposed facility (or facility expansion). This notion of resistance to the location only, not to the actual construction of the LULU to meet the need for the good or service, or employment opportunities produced from/by the LULU, is also prominent in the NIMBY stories that featured in the local media during the time this research occurred, from 2006 to 2013. Ergo, it seems that the populace seem to be only too happy to either utilise the service or purchase the good, or undertake employment offered/produced by the LULU, or for others to do so. The populace also makes demands on government for the civil infrastructure that enables them to lead a ‘least cost’ life, as well as policy creation aimed at quarantining in some way those who threaten us because of their difference.

NIMBY Resistance

As has been explored in Chapter Two, LULU’s encompass a variety of forms and their effects have been explored in a number of academic disciplines. The main academic disciplines involved in exploring the effects of LULU’s appear to be the environmental

injustice, NIMBY and siting bodies of literature, while there is health literature that explores the effects on people living in close proximity to the environmental harms, such as toxic wastes and noise pollution, emitted by LULU's. However, perusal of the NIMBY and siting literature, in particular, supports a contention that any resistance mounted to a LULU is, in the main, to the proposed site of the LULU, not to the need for the LULU itself, or the service/good produced by the LULU. NIMBY researchers have not noted any objections to the actual need for any of the LULU's studied to be constructed. Nor have they noted any correspondence on record regarding different ways of achieving the same goal without the need to construct the LULU, which can be, in itself a least cost method of solving a particular social problem. There are two hypotheses to account for this glaring omission in NIMBY protest:-

1. No protest of this type was voiced
2. It was voiced but not recorded (or printed) by the media, or the researcher studying the NIMBY protest against development of the LULU.

At his stage, it does need to be noted as well that as is the case with a LULU, a NIMBY can, and has constituted multiple forms of unwelcome development – they key aspect is that the objectors Do Not Want It in their Back Yards. The majority of NIMBY's studied tend to be developments aimed at assisting those who are unable to participate in the social marketplace for intrinsic and/or extrinsic reasons, such as services aimed at the homeless or respite/hospice facilities.

If none was voiced, then it can be argued that there was tacit, implicit support for construction of the LULU to either manufacture the good or provide a service out of the facility. Thus, it seems that objectors had no problems with the actual existence of the NIMBY/LULU – they just simply did not want the NIMBY/LULU to be built in close proximity to where they live for health, wealth or lifestyle amenity reasons. As noted earlier, the educated middle class also prefer to live amongst those will not challenge their values. Thus, the immediate presence of such human service facilities would have exposed residents to people who would actively challenge their values on a daily basis. Later in this chapter there will be a brief exploration of NIMBY protest in the Townsville area during the period this research was conducted – 2006 – 2013. Analysis of these objections, from within a rational choice standpoint, will show that NIMBY/LULU objectors mount predominantly wealth and lifestyle amenity objections to NIMBY/LULU developments only in their immediate neighbourhoods. It seems to be only in the academic literature that there is any consideration given to the notions that underpin the current economic system that ultimately results in the construction of

LULU's. In addition, the role played by the challenging of values is not acknowledged in any NIMBY literature relating to human service facilities subject to NIMBY protest.

The historical data gathered for the research reported in this thesis will show that this pattern of public resistance is long standing, and was clearly seen in relation to Townsville Aerodrome/Airport. It can also be seen in the public opposition that has been reported in the local newspaper – Townsville Bulletin – towards LULU's that have not received any attention in the academic literature. These include mobile (cell) phone transmission towers, electrical substations and high voltage power lines and the provision of public and social housing, as well as some high end expensive housing estates. Not one published letter writer has explicitly objected to the perceived need for such facilities, it is just that they do not want them built next to their house!! A second form of NIMBY resistance also exists. This too can be seen in local LULU NIMBY resistance – by all means build it, but don't use my tax dollars to do so! Perusal of academic literature on siting and NIMBY resistance has failed to uncover any instances of this form of NIMBY resistance being studied, nor has it been shown to have an impact or influence on any of the NIMBY resistance studied. However, analysis of NIMBY articles in the Townsville Bulletin does show it exists, but is not usually publicly acknowledged as being present or a factor in the resistance mounted to the LULU.

This omission may be due to perceived notions of what is socially, publically acceptable when it comes to protest – there appear to be certain sectors of society that no-one will stand up for. These groups include, but are not limited to, the aged, disabled, mentally ill, ex-prison inmates, and specified ethnic and religious groups. It seems that society does not value those who either cannot contribute (the aged, disabled, mentally ill) or violate sacred social norms in some way (the disabled, mentally ill, ex-prison inmates and specified ethnic and religious groups). These are the groups who fall through the social and bureaucratic cracks, and who need the support of others to achieve their goals in life. At this point it does need to be stated that there are some whose needs should not be supported, nominally those who knowingly voluntarily ignore accepted community standards, but this group is a possibly a small portion of those who are routinely not valued by society.

Townsville – A Brief History of Resistance

Townsville Airport

As has been mentioned in the previous chapter, Townsville's Airport began life as an airfield/landing strip in Thuringowa Shire in 1929. Thuringowa Shire initially operated

this landing strip, and liaised with the Civil Aviation Bureau in 1930 regarding completion of works required that would enable this unofficial landing strip to become a fully-fledged aerodrome. The land this aerodrome was situated on came under Townsville Council's control in 1937, and Townsville Council took over the operation of the aerodrome. This was a 'for profit' venture by Townsville Council; however, not much money was made. During the period August 1937 to September 1938 Townsville Council made a total profit, after the deduction of costs involved in the operation of this aerodrome – maintenance of the grass landing strip and the collection of landing fees from casual users of the aerodrome – once translated into dollar values of \$1.87 (Minutes of Townsville City Council, 3/9/1938), or \$75.89 in 2011 values. In 2013 this amount would not even cover the hourly rate for a qualified trade person, a further example of how much the purchasing power of the currency has eroded since 1938. The overall cost of operating this facility, and lack of immediate benefit to the ratepayer, was stated as the reason why both Thuringowa (Minutes of Thuringowa Council, 20/10/1934) and Townsville (Minutes of Townsville Council, 3/9/1938) Councils sought to hand over operation of this facility to central government.

As was mentioned in the previous chapter, the key year with regards to the aerodrome was 1938. In July 1938, the regular mail plane from the south, a Douglas DC340 named the Kyilla, was turned back to Brisbane from Mackay (400 klm south of Townsville), after offloading 19 passengers and mail bound for Townsville (Townsville Bulletin, 5/7/1938). The Kyilla was unable to land in Townsville as the grass landing strip at the aerodrome was water logged due to recent rainfall – any attempt to land in Townsville would have caused damage to this plane, due to a possibility of it becoming bogged in the soft soil of the landing strip (ibid). It was the state of this landing strip, and the looming northern wet season from November to May, that central government utilised in a quest to force Townsville Council to make a decision regarding the future operations and site for the aerodrome – quite simply if the landing strip was not made more durable and all weather via use of a concrete runway (regardless of the site), Townsville was going to be withdrawn from the northern mail run for the duration of the northern wet season (Minutes of Townsville Council, 18/11/1938). The aim of this decision, should it have to be enacted, was that of keeping the cost of delivering a mail service to Townsville low. Landing on a sodden landing strip would have meant a possibility of bogging, and therefore damaging, the Kyilla, as well as being possibly injurious to the pilot and passengers.

However, the focus of this chapter is that of simultaneous resistance to a LULU development and support for that LULU development to occur. The turning back of the

mail plane was the impetus for discussion surrounding the aerodrome in the Townsville Bulletin. Examination of back issues of the Townsville Bulletin in 1938 reveals only four published Letters to the Editor on the subject of Townsville Aerodrome – from “Citizen” (22/8/38), “Air Minded” (2/9/1938), “Douglas” (19/9/1938) and “Flyer” (20/9/1938). All four authors spruiked a common theme

- Townsville was the capital of Northern Queensland,
- The aerodrome – one of the entry points to the city – had to reflect that status,
- The current aerodrome at Murray did not reflect that status, and
- That it was up to Townsville Council, as the operator of the aerodrome, to do something about the woeful state of the aerodrome.

“Douglas” (19/9/1938) also took the opportunity to actively push the case for re-siting the aerodrome from its then site at Murray to a site adjacent to the current Garbutt site, which at the time housed a private airfield, operated by the Robinson Brothers (Townsville Bulletin, 21/04/1938). A local business running joy flights over Townsville, North Queensland Airways Ltd, was already in operation from this airfield (McDonald, 25/4/1938). Therefore, the possibility exists that “Douglas” was either one of the Robinson Brothers or the Chief Pilot of North Queensland Airways Ltd, Mr MacDonald. In fact, Mr MacDonald had already actively pushed the benefits of the Mt St John site and aired the drawbacks of the Murray site (McDonald, 25/4/1938). In addition, St John Robinson wrote to Townsville Council, offering whatever assistance Townsville Council required on the issue of the aerodrome, including the land his privately run aerodrome was operating from (Minutes of Townsville Council, 3/9/1938). This public sentiment was responded to by Aitkens (1938), as explored in the previous chapter on the pursuit of growth by government.

With regards to only what was published in the local newspaper, there was overwhelming support for improvements to be made at the aerodrome, regardless of where it was sited. All four writers expressed a need for a quality aerodrome that reflected Townsville’s status as the capital of North Queensland. It will be remembered from the previous chapter that this status was something that was actively planned for by Melton-Black (in particular) and Towns, prior to the area being officially settled in 1864 (Gibson-Wilde, 1984). The same sentiments had been expressed in 1907 regarding Townsville’s Railway Station (Townsville Bulletin, 18/7/1907). An argument can be made that this public demand for improvement in both facilities – the aerodrome in 1938 and the railway station in 1907 - constitutes public demand for local and regional government to provide the facilities (entry ports) by which Townsville

could grow, in size, stature and wealth, over the years to come. This public demand for improvement in public facilities constitutes an implicit acceptance of a pro-development stance by the people, and is a further example of the populace forcing higher levels of government to provide facilities to be utilised by/for the populace.

A grass roots community progress association did exist in Garbutt, and their actions will be explored later in this chapter. A record of correspondence received by this grass roots community group – the Garbutt Progress Association (GPA), which was active between 1932 and 1967 (Townsville City Council, 1997) – is all that survives of the records of this association. Examination of this correspondence record does not reveal any correspondence received by the GPA relating to the re-location of the aerodrome. A gap does exist in this correspondence record; however, this gap also coincides with World War II – 1940-1945. During this time the Garbutt area was inhabited predominantly by serving defence personnel (Townsville City Council, 1997), so it can be safely assumed that the GPA was not operative during this time period. There is anecdotal evidence of possible concerns surrounding the re-location of the aerodrome to Garbutt in the personal recollections gathered during the compilation of the official history of Garbutt (Townsville City Council, 1997). However, this anecdotal evidence was not used in the finished book, possibly due to the added personal observation that it was felt that the presence of the aerodrome had actually improved the living conditions in Garbutt. However, despite extensive searching it was not possible to locate any further data to confirm or refute the existence of any local NIMBY protest, such as the minutes of the meetings of the Garbutt Progress Association, or residents of the Garbutt area in that inter-war period of 1918-1939. There are no representations made by the GPA to Townsville Council on the issue of the possible re-location of the aerodrome in the printed Minutes of Council meetings in the Townsville Bulletin. It is, therefore, impossible to ascertain the extent or nature of any opposition by the residents of Garbutt to the re-location of the aerodrome to Garbutt

However, NIMBY protest regarding the aerodrome was located. This NIMBY protest was directed against the Murray site, and was of a commercial, not environmental, nature. One end of the Murray aerodrome was immediately adjacent, separated by the width of a roadway, to a large commercial meatworks at Idalia, fed by upwards of 50 000 head of cattle shipped in for processing from the Townsville hinterland (Townsville Bulletin, 30/8/1938). As the size of the planes landing at Townsville increased, they had more of an effect on the cattle being held awaiting processing at the Idalia meatworks. By 1938 the landing of the larger planes at the Murray aerodrome would cause the cattle to charge the barbed wire boundary fences of the holding paddocks,

thereby bruising and injuring the cattle, reducing the price offered by the meatworks to the graziers (ibid). Today the focus of any protest in a similar situation would be on the welfare of the cattle being held waiting processing. In 1938 this was not the case; the focus of the graziers was on the reduced prices offered by the meatworks for cattle damaged as a result of stampeding the boundary fences due to being spooked by the landing of the large planes at the Murray Aerodrome. This is a clear example of the changes that have occurred in Dawkin's (2006) moral zeitgeist (to be explored later in this chapter) over the course of the twentieth century.

As such, therefore, this protest was on commercial grounds, and the graziers protested to their peak body, the United Graziers Association (UGA). A motion was passed by the meeting requesting UGA headquarters in Brisbane to lobby regional (state of Queensland) government to, in turn, lobby Townsville Council regarding the site of the aerodrome (ibid). The timing is key, as it was during this time that the future site of the aerodrome was being discussed by Townsville Council. During this period of Townsville's history, Townsville's economic base was built around three industries – meatworks, the railways and the racing industry (Gibson-Wilde, D.M., 2010). Therefore, anything that affected the operation of this commercial meatworks would have had a flow on effect on Townsville's economy. Reduced numbers of cattle being shipped to the meatworks at Idalia due to the damage being caused to the cattle by the operation of the aerodrome would have meant job losses at that particular meatworks. This loss of income due to job losses would have meant that less money was available for spending in Townsville's other industries or commercial operations by those affected, leading to yet further job losses in these ancillary industries. Accordingly, this protest was supported by Townsville's business leaders – the Chamber of Commerce (Townsville Bulletin, 8/9/1938).

To summarise, the development patterns that underpin the provision of an airport in Townsville occurred as follows. In the 1920's a site was identified in Murray, with Thuringowa Council, the relevant LGA, stepping up to operate the facility. During the mid – 1930's a redrawing of government boundaries saw the facility move into the ambit of Townsville Council, who continued to operate the facility. However, over time, aircraft grew larger in size, and heavier, due to the popularity, speed and relative low cost of air travel in comparison to road or rail transport. This increase in the size of aircraft meant the original aerodrome site is no longer suitable. A new site that was both safer and has better potential for further growth was identified in Garbutt, on otherwise useless land on the edge of a salt pan. Public demand is expressed in the local paper for improvements to be made at the aerodrome to better reflect

Townsville's status as the capital of North Queensland. There appears to be only minimal resistance from the residents of Garbutt (which at this time was an outer suburb of Townsville, containing 20 acreage properties) (Townsville City Council, 1997)), and strong commercial resistance, in particular from Townsville's business leaders, to the aerodrome remaining at Murray. In addition, the new site at Garbutt was also the "least fiscal cost" site for the aerodrome.

Therefore, once central government applied pressure on Townsville Council to make a decision surrounding the future of the aerodrome and commence work of constructing the concrete all weather runways required, it was an easy decision to re-locate the aerodrome to Garbutt. Although "least cost" principles can be seen in the decision to re-locate the aerodrome, the only cost mentioned in the historical records utilised in this research – the Minutes of Townsville Council as printed in the Townsville Bulletin – is the fiscal cost to Townsville Council of constructing the concrete runways. This cost is necessary, is required for both the Murray and Garbutt sites, and has been identified as not being within Townsville Council's affordability.

Therefore a significant aspect of re-locating the aerodrome is of securing financial assistance from higher levels of government – nominally central and regional – to pay for the construction of the runways. This is also seen in the desire of Townsville Council to hand over the operations of the aerodrome to central government from the outset of discussion surrounding the future of the aerodrome. When central government replies to Townsville Council's initial request on the matter in the negative, Council's next request is phrased in the hypothetical – *"well, if you were to take over the operations of the aerodrome, which site would you be more interested in taking over – Murray or Garbutt?"* (Minutes of Townsville Council, 16/09/1938). The public demand expressed in the Townsville Bulletin for something to be done about the *"woeful state of the aerodrome"* would have assisted Townsville Council in this endeavour. By the time central government issues its threat to remove Townsville from the northern mail run, the required funding assistance has also been secured (Minutes of Townsville Council, 18/11/1938), making it easier for Townsville Council to vote to re-locate the aerodrome to Garbutt.

Stewart's Creek Correctional Centre

As has been mentioned in the previous chapter on pursuit of a growth stance, the Queensland government, which at that time (pre-Federation) constituted central government, responded, albeit slowly, to public demand in the upgrading of the northern correctional facilities. Due to the unavailability of records due to cost factors,

only a skeleton picture can be constructed of the history of this prison. However, what records could be accessed show that this correctional facility began life as a watch-house in 1870 (Brisbane Courier, 22/11/1870), upgrading to a short stay prison (sentences of less than 12 months) in 1875 (Brisbane Courier, 22/5/1875) and finally a major prison for northern Queensland in 1890 (Brisbane Courier, 7/10/1886).

Historical data does not record a location for the early watch-house in 1870, but it does record a location for the short stay prison constructed in 1875. This prison was located on what is today a state primary school in the North Ward area of Townsville – Central State School (www.townsville.qld.gov.au). One of the buildings of the school is the original administration block of the prison constructed in 1875 (ibid). The placing of a school on this site is another example of government provision of services to the public on a “least cost” basis. The Queensland government owns the land as it is Crown Land to begin with, which has buildings constructed on it, and these buildings can be utilised for another purpose – the education of children aged between 5 – 12 years. All that was required was an administrative action – moving the use of the land from a prison run by the Dept of Corrections to a school run by the Dept of Education.

This short stay prison was also in close proximity to where Melton-Black and Towns laid out Townsville’s earliest residential areas, some 500 metres away, along current day Eyre, Mitchell and Landsborough Streets (Gibson-Wilde, 1984). According to the records, this early prison attracted a lot of NIMBY protests from the residents of the area (www.townsville.qld.gov.au). However, a second, additional factor existed that, arguably, was more important to the Queensland government with regards to any relocation of this facility than were these NIMBY complaints. This short stay prison became very quickly overcrowded, which made administration of the facility difficult (ibid). In addition, although not explicitly mentioned as a factor, the costs involved with sending all other prisoners south to either Rockhampton or Brisbane were rising as the population of North Queensland grew in size. Rockhampton Gaol in particular became overcrowded and more and more unable to cope with the demand and was in a poor state of repair, with collapsing walls (Brisbane Courier, 22/5/1875). It was these fiscal pressures on what was then central government for Queensland that led to the decision to construct a major prison in Townsville for the entire north of Queensland. It will be remembered that earlier in this chapter a second form of NIMBY protest was referred to – build it, but not with my taxes! This can be seen in the decision to construct the new prison at Stewart’s Creek, as the majority of inmates of this short stay prison were either Cingalese or Javanese men who had run away from their employment contracts (Brisbane Courier, 22/5/1875). Members of the Queensland

colonial government did not feel it was their responsibility to fund the care and accommodation given to these men, and instead felt that this should be the responsibility of the employers the men had run away from (ibid).

Due to cost factors, little historical data is available on the siting decision of this new prison in the Townsville area. There is conflicting data on the original usage of the land on which the correctional centre was constructed on – it was either a sheep quarantine station (www.epa.qld.gov.au) or a Native Reserve (Julbu1, 2011). However, given the nature of the two conflicting uses, it is possible that both were operated by the Queensland government. Given that the majority of the Stuart area was occupied on a squatter basis by Robert Towns (Gibson-Wilde, D.M., 2010), this government occupation and use of the land identified on which to construct the new correctional centre would have meant that there would have been no cost for land acquisition; all that would have been required was an administrative action to transfer the land's usage on the Lands Register. It is also possible that commercial interests were after the same parcel of land, as Stewart's Creek was identified as a possible site by the operators of the Idalia meatworks (May, 1990). The two conflicting governmental uses, as well as the commercial interest shown by the operators of the Idalia meatworks indicates that Stewart's Creek was a desirable location on which to construct a large size facility – there was plenty of fresh water, flat land on which to construct buildings, and it was close to the rail line (www.epa.org.au).

What can be seen with the history of the correctional centre, therefore, mimics that of the aerodrome/airport 40 years later. A site is chosen on which to construct a facility that offers a public service. The facility then outgrows the original site, and requires re-location to a new, larger site. The correctional centre was identified as a NIMBY in its second incarnation as a short stay prison (sentences of less than 12 months duration). This NIMBY protest may have underpinned the location of a new site that was, at the time, far away from the settled area Townsville, centred around the mouth of Ross River and along the shores of Cleveland Bay. In 1890 Stuart was still very rural in nature, consisting of graziers, orchards and the beginnings of industry in the form of a brick works and a coal mine (Gibson-Wilde, D.M., 2010). However, a buffer zone between these land uses and the site for the new prison existed (ibid). Due to cost factors it was impossible to ascertain if there was any opposition from the residents of Stuart in 1890 to the impending re-location of the prison to Stewart's Creek (as it then was). However, once again, "least cost" principles apply to this siting decision.

The cost of operating a law and order service in North Queensland by the Queensland colonial government is kept low by increasing the size of the correctional facility in North Queensland as the population, and therefore demand, for such services in North Queensland, increases. The cost of constructing the facility is kept low as the land required was possibly already Crown Land, necessitating only an administrative transfer of land usage designation, and the facility was constructed by the incoming inmates. Political resistance existed to the North Ward site of the short stay prison, while none to the Stewart's Creek site has been recorded in the historical documents utilised to compile the history of this facility – the Minutes of the Legislative Council of Queensland as printed in the Brisbane Courier Newspaper, and other historical records available to this researcher such as the Townsville Council's website and the EPA website. Minutes of the meetings of the Thuringowa Shire Council for this period were unobtainable, destroyed by either flood or fire in the 1930's. The city of location for this new prison was all that was discussed in the Queensland Legislative Assembly, with the members of the Legislative Assembly debating the merits of both Townsville and Bowen as sites for this new prison (Brisbane Courier, 7/10/1886).

The Environmental Movement in Townsville

The research reported in this thesis is concerned with environmental injustice in Townsville. Therefore, the question arises as to the history of the environmental movement in the Townsville area. The major environmental body in the Townsville area is the North Queensland Conservation Council.

This body proved to be difficult to contact readily with regards to this research. Eventually, through contacts, a member was contacted, with whom emails were exchanged on the issue of environmental resistance in the Townsville area. David Kault (2011) stated that the NQCC was more of a mainstream (preservation of the wilderness/environment) environmental body, protesting along mainstream environmentalism lines. Such mainstream environmentalism is still the focus of the NQCC (ibid). Their first foray into urban issues surrounded the proposed development of the Sunmetals Korea Zinc Refinery in the Stuart industrial area (Ibid), which began construction in 1997 (Sunmetals Korea Zinc, 2000). The NQCC was also involved in community opposition to the proposed CHALCO Aluminium Refinery, also to be sited in the Stuart industrial area (Kault, 2011). However the nature of the protest in both cases was along purely mainstream environmentalism lines – proximity of the coastal wetlands and the Great Barrier Reef to the waste ponds (ibid). It was also mounted with the intent of increasing the membership data base of the NQCC (ibid).

This mainstream environmentalism opposition is in complete contrast to the mainly commercial opposition to the Murray site of Townsville Aerodrome, recorded earlier in this chapter, and marks a change in Dawkins (2006) moral zeitgeist, explored later in this chapter. To date, there is no record of any opposition to industrial LULU development along environmental injustice lines in the Townsville area. In addition, it appears that opposition along environmental injustice lines is not going to be pursued in the future. In interview, Julbu 1 (2011) was asked about the possibility of environmental injustice opposition to LULU development occurring. Julbu1 (2011) indicated that Indigenous leaders in the Townsville area would not be interested in pursuing environmental injustice protests to developments, seeking instead to become part of any resistance to LULU developments from within a mainstream environmentalism focus.

What clearly can be seen in the NIMBY protest evident in the Townsville area is a predominant focus on lifestyle amenity or wealth objections masquerading as mainstream environmental objections. As the following section will show, environmental objections are mounted due to the perceived public unpopularity and possible backlash over objections lodged that do emanate from either lifestyle amenity or wealth/elitism reasons. In addition, the tone and nature of the objections lodged indicates an implicit support for the development of facilities designed to meet the modern industrialised lifestyle of the western world. However, the objector would rather it not be built close to where they live, or to use their tax dollars to build it.

CHALCO

Although the CHALCO development did not occur, it is possible that this has far more to do with commercial considerations than the political resistance mounted by the NQCC, the Greens and others. It will be remembered in the previous chapter that regional government can seek to 'value-add' to the economy by placing conditions on land leases provided to third parties. This development is a prime example of this concept in action.

This aluminium refinery has a long history, dating back to 1965, when the Queensland government issued a mining lease over a body of bauxite in the Cape York Peninsula, with the provision that a stand-alone refinery be constructed by the lease holder somewhere along the Queensland coast in which to process the raw ore (Grant-Taylor & Macdonald, 2010). It can be argued that the provision for construction of a stand-alone refinery somewhere in Queensland is the actual barrier to the mining of this lease, not any environmental protests made to a possible site for the refinery. This is

despite three cities (Townsville, Bowen and Gladstone) making submissions to CHALCO, seeking to host the refinery (Andersen, 2010). The body of ore involved is low grade, requiring more intensive, possibly environmentally damaging procedures to create the ingots necessary for the next stage of processing (Grant-Taylor & Macdonald, 2010). In the current market conditions, it is impossible to process this ore at a profit (ibid). Since issuance of the original lease, the leaseholder has changed, from a French company (Pachinko) to CHALCO, and both companies appear to have found it to be uneconomical to process the ore in Australia (ibid).

Once again, we can see the established pattern of NIMBY protest regarding this development. Nowhere in the record consulted do objections to the issuance of the mining lease in Cape York exist, including from the Traditional Owners of the land involved. Given the changing moral zeitgeist, it is possible that Indigenous Elders were consulted with, and that negotiations occurred by which the mining lease was granted. The outcome of these negotiations is that royalties would have been granted to the Traditional Owners of the land. Nor is there records of any objector stating that there is no need for additional aluminium to enter the market, or to the making of products that use aluminium, such as motor vehicles. Any publicised protest solely concerns the location of the refinery, all three contender cities are coastal cities, with a risk of damage to both the Great Barrier Reef and tropical wetlands in the immediate area of all three possible sites. Once again, the lack of such objections is indicative of tacit, implicit support for the market system that demands such LULU's be constructed to manufacture the goods valued by the populace.

Recent NIMBY Resistance

As mentioned at the beginning of this chapter, several other NIMBY developments exist in the Townsville area. Such developments have been little addressed in the academic literature to date. These NIMBY's include some requirements of our industrialised lifestyle, such as mobile (cell) phone transmission towers, electrical transformers and substations and high voltage electricity lines. They also include opposition to actions dictated by policy aimed at alleviating the worst effects of the market economy, such as the provision of public and social housing. In addition, several high end housing developments have also become the subject of NIMBY opposition, nominally on environmental grounds. There is little if anything in the established environmental injustice, NIMBY or siting literature regarding housing development – the focus is on heavy industrial development (siting and environmental injustice) or on unpopular human services developments such as hospices and homeless shelters (NIMBY).

Analysis of the NIMBY literature has shown that any community opposition mounted to all these LULU developments has a focus on the proposed location only, not to the need that underpins the actual development of the LULU. The latter is the focus of the developer, and is brought to the fore during public discussion around the development of the facility. In this regard, the nature of this opposition is mirrored in the local NIMBY literature – it seems that in Townsville in the first decade of the twenty-first century, there is no problem with the development; people just don't want it next to where they live. This is because there are either health concerns, wealth concerns (possible devaluing of property, due to the proximity of the LULU), or lifestyle amenity concerns. The other form of objection to a LULU development is that of the use of public money to construct the development, with this form of objection also little researched in academic literature. Once again, however, the objector has no problems with the development proceeding, they just do not feel that their taxes should be spent on it. In both cases, it can be argued that the content and nature of the objection shows implicit support for the societal structures that require the development to proceed on the part of the objector, as there is implicit recognition of a demand for the good or service produced by the LULU, even if the objector will not make use of the good/service produced.

A second aspect is also obvious in the analysis of the literature – that the development of the LULU will proceed because government is utilising such development to provide a good or a service of some kind that the populace require and have shown a demand for, regardless of the sector developing the LULU – public or private. This too, can be clearly seen in the local media utilised as a part of this research. It appears that in most cases, the development does proceed, although modifications may be made to the appearance of the facility or government may enact special legislation that will allow for alleviation of any environmental harm associated with the development. A mechanism utilised in the Townsville area has already been referred to earlier, in the previous chapter. Regional government land uses are exempted from local government planning protocols and processes (Chrisafulli, 2011). This allows regional government, the provider of the good or the service, to construct the LULU, wherever they like, in whatever manner they decree to be appropriate, regardless of zoning or council planning protocols, without hindrance. Two recent forms of small scale LULU developments will be examined to further explore this concept – the creation of electrical substations in Oonoonba and Belgian Gardens and the creation of both social and public housing. There has also been NIMBY resistance to expensive, high

end housing estates in the Townsville area, and this too will be briefly explored at the end of this section.

The case of the Electrical Substations

In 2006 the local electricity supplier – ERGON – proposed construction of two electrical substations in the Townsville area – one in Belgian Gardens (a high income area) (Quagliata, 2007) and Oonoonba (a low income area) (Whitton, 2007). Both groups of residents wanted the proposed substation shifted away from their houses to sites further away (Quagliata, 2007; McKinnon, 2007), and talked together (McKinnon, 2007). Both protests were treated very differently with regards to their reportage, however. Belgian Gardens residents gained news coverage very early (Quagliata, 2007), with the first mention in the media of the Oonoonba substation being a Letter to the Editor (Whitton, 2007). In addition, far more articles exist regarding the Belgian Gardens substation than for the one planned at Oonoonba, by a ratio of three to one. At the surface, this indicates that the protest at Belgian Gardens was stronger than the protest at Oonoonba, but this may not be the case. Ergon addressed the resident's concerns at public meetings in both suburbs (McKinnon, 2007). In both cases, it was increasing demand for power in the immediate areas that meant new substations had to be constructed (Quagliata, 2007; McKinnon, 2007). An Ergon spokesman said that residents had been briefed when the substations were first mooted, and had indicated general acceptance at the time of the briefing (McKinnon, 2007).

However, the key point to note is that in both protests none of the community questioned the need for the additional electrical supply the substation was being constructed to meet. Any opposition was to the proposed location only, with residents wanting it to be moved further away from their homes. There may be other reasons as to why people do not protest; however, the absence of such objections around the need for additional power generation in the immediate area from the residents can also be interpreted to imply the existence of support for the development of additional electrical capacity in their immediate area. Also of note is that the public protest in Belgian Gardens appeared to be stronger and longer lasting than it did in Oonoonba. Without further research it is impossible to determine the reasons why this is the case. Finally, earlier in this section it was noted that government will seek to remediate resistance by either redesigning the facility or via enactment of legislation designed to alleviate any possible health effects of the facility. A re-design of the facility certainly happened in the case of the Belgian Gardens substation, improving the street appeal of the facility via landscaping of the exterior, in an attempt to appease the residents

(O'Reilly, 2007). No articles exist as to whether or not a similar re-design also occurred in Oonoonba.

The Case of Public/Social Housing

Public/social housing developments were of significant concern to local residents during 2007 - 2013, attracting much comment in both news articles and Letters to the Editor. Social housing is different in nature to public housing, and it was public housing that attracted much more comment.

Social housing is housing developed by government for purchase with low/er income families in mind, and mirrors the construction program started in the immediate aftermath of the signing of the CSHA in 1945. Such housing is cheaper to develop as government does not have to recoup from the buyer the cost of the land, as all land is Crown Land. What is recouped from the buyer is the cost to develop the land (the provision of the roads, electricity and communication networks, and water and sewage networks) and the cost to construct the actual house itself. This re-entering of the residential housing developmental market is a recent phenomenon on the part of regional government via the creation of Urban Land Development Areas (ULDA's) (Gilham, 2011), and most likely occurred as a direct result of the growing numbers of the middle class who were finding home ownership unaffordable.

Such an area was developed in close proximity to one of Townsville's high income areas; in fact it was Townsville's highest income area according to census data (www.abs.gov.au/census). In 2011 residents of Fairfield Waters (Idalia) objected to the development of a social housing estate on land immediately adjacent to their estate, on the basis of devaluation of their residential property value (Gilham, 2011). Needless to say, this development is now being marketed to the public of Townsville. However, once again, there was no objection raised to the chronic need for such affordable housing,. The underlying tone of the objections seems to be saying 'just please don't build it close to my expensive housing, as living next to "poor" people will devalue my expensive house'. One objector cited a price drop of \$140 000 as being due to the development of the adjacent social housing. However local Chair of the Real Estate Institute Queensland cited other reasons underpinning the price drops and auction failures, such as overpricing by the vendor (ibid). Therefore, it can be argued that such individuals hold an elitist opinion, which forms the basis for their objections. Furthermore, they are only concerned with themselves and their lives, not taking any time to think, intentionally or not, about the lives of those who will be able to actually purchase a house that would otherwise not be affordable to them.

Public housing is another matter entirely. This is rental housing provided under the Commonwealth State Housing Agreements to low income individuals and families, who cannot, due to either income or other factors, sustain a residential tenancy in the private housing market (Dumont, 2013). Several unit complexes have been constructed to fill this need for public housing in Townsville, Cairns and Brisbane, and all have been objected to in the media (Gaynor, 2010; King, 2010 (b); Ryan, 2008 (b), 2009 (a) & (b); Sandy, 2009; Strutton, 2009). The content of such complaints relates primarily to perceived notions of public housing tenants – namely their social dysfunctionality, which makes them undesirable as neighbours. In addition, as there is chronic need for unit accommodation in the City of Townsville, but also quite possibly elsewhere, these unit blocks have been constructed in a manner that does not meet Council's requirements under the local planning scheme (Ryan, 2008 (b)). Unit blocks containing up to 24 separate apartments have been constructed on plots of land that Townsville Council's planning scheme deems to be suitable for only six to seven units (ibid). This has been achieved by reducing the space requirements for balconies/verandahs and the abutment from the roadway, as well as the number of car parking spaces available for tenants and visitors (ibid).

Analysis of the objections mooted reveals residents of the immediate area have been careful in their objections to state that they are not anti-public housing. The objections mounted are towards either the perceived dysfunctionality of possible tenants (*'they scream and shout and stay up all night'*) or to the mode and manner of construction – it does not fit with the character of the immediate area. Objections to the tenants, therefore, constitute both types of NIMBY protest. There is ostensibly the surface NIMBY of "yes we can see the need, but please don't build them next to me". However, concerns such as parking are cited and mask the actual concern of the objector, which is the perceived 'dysfunctionality' of public housing tenants (MacDonald, 2010). Residents also feel that public housing should be constructed in a manner that fits into the area as it is (ibid). However, what is not stated or noted is that construction of the massive amounts of public housing required (ibid) to meet local council planning protocols, will be vastly more expensive for regional government. Each level of government is seeking to do its assigned role of standing up for its constituents. Local government is standing up for the residents who pay them rates and regional government is standing up for the marginalised and vulnerable, whom would be homeless without the provision of such public housing. At the same time, such assistance needs to be provided in the most efficient (least cost) manner possible, as many of the same people protesting about the provision of public housing as it

currently is would also, in all probability, complain about the increased cost to provide such housing in a manner that fits in with the town plan.

These objections to dysfunctional public housing tenants need to be balanced against objections and complaints against dysfunctional neighbours who just happen to be in the private rental housing market. Such dysfunctional neighbours may also serve to lower housing prices. Only one article has appeared regarding such neighbours (King, 2010 (a)), and no articles or complaints have appeared in the local media on the topic of dysfunctional neighbours who happen to own (as opposed to rent) their house. It seems people do not see a need to complain publicly about dysfunctional neighbours in the private housing market, only against the possibility of having dysfunctional public housing tenants move in next door. The difference between the two may be that people in the private rental market are perceived as being capable of contributing to society, and are there therefore, considered to be much more socially acceptable than are public housing tenants. So, the neighbours of these dysfunctional private tenants will not object publicly to their neighbours, but make more use of private protest, such as legal orders and complaints to the letting agent (if known). It does not affect them as much because their tax dollars are not being diverted towards housing such undesirables next door.

Therefore, given this dichotomy between articles on 'dysfunctional' neighbours in the public and private housing markets, it can be argued that objections to the provision of public housing constitute both forms of NIMBY protest – “please don't build it next to me, using my tax dollars”. It does need to be stated that such individually dysfunctional persons possibly constitute a small percentage of those in the housing market. However, due to the requirements to be eligible for public housing (Dumont, 2013), it is possible that there is a higher percentage of such 'dysfunctional' tenants in the public housing market than exist in the private housing market.

The Case of the Expensive Housing

Public and social housing developments have not been unique regarding community opposition to residential development. During the period of this research there has been intense community opposition to two high end residential developments – a canal estate to be built in conjunction with a cruise terminal and additional development to Townsville Port (Raggatt, 2007) and development of hillside land in Mt Louisa (Sharratt, 2007 (a)) and Pallarenda (Sharratt 2007 (b)). Community opposition to all three developments was mounted on environmental grounds; however, given the circumstances, as explored below, it can be argued that this environmental opposition

represented a socially acceptable form of opposition to the development. The possible real source of the opposition - the grounds of elitism – is generally not considered to be socially acceptable. This is important when Townsville's predominantly working class demographic is considered (www.abs.gov.au/census). The development of Townsville Port shows this concept perfectly.

In 2007 a major development was mooted for the Townsville Port precinct (Raggatt, 2007). The plans for this development included expansion of the capacity of the Port, development of a Port Access Corridor between the Stuart industrial zone and the Port, and a cruise ship terminal and entertainment precinct, which included a 700 dwelling canal estate (ibid). Initially some port users complained about the potential of the development to significantly impact on current and future operations of the port (ibid). Reading between the lines of this article is that the expected impact on port operations would emanate from the residents of the proposed canal estate. As a result of this, the Environmental Impact Statement for the development was strengthened; making it clear to potential buyers that the Port was there first, so do not complain about the fact that you bought expensive property in such close proximity to a working port (ibid). This development is still planned for, however, now it appears the canal estate has been removed from the plans (Raggatt, 2011). With the demise of this residential housing estate, much of the opposition voiced in the Townsville Bulletin has now died to a whisper, emanating from a small number of people who are protesting the Port expansion from a mainstream environmental position. This fact supports the argument that the majority of the early protest was directed against the canal housing estate only, and was not on environmental grounds, but rather on class based grounds, and can be considered to be anti-elitist in nature.

Popular support for a Pro-Growth Stance

So far this chapter has explored the role played by NIMBY resistance in the creation of environmental injustice. Analysis has shown that NIMBY objections tend to relate only to the proposed location of the development, and not the notion of the development itself, nor to the need for the development. In the previous chapter, it was shown that a pro-growth stance on the part of government played a role in the creation of environmental injustice. The previous chapter also incorporated an examination of how population growth, and demand for provision of a good or service emanating from a LULU led to the LULU outgrowing its original location, necessitating a move to newer, larger location. Both the lack of objection to the need for a LULU and an increased demand for the services or goods produced by the LULU constitute an implicit consent for development of the LULU and the societal structures that require the LULU be

constructed to provide the good or service. Are there any other methods by which the governed, or the people, agitate for growth to occur?

Once again, the short answer is “yes”. Many of Townsville’s residential areas supported community grass roots progress associations to varying degrees, including both SLA’s studied in this research. Of the two, Garbutt appears to have had the stronger, and longer lasting, community association. The Garbutt Progress Association ran from 1932, when Garbutt was an outer suburb of Townsville, to 1967, by which time Garbutt was in the middle ring of Townsville’s urban area (Townsville City Council, 1997). An examination of the correspondence received by (in response to correspondence sent by) this community group reveals its concerns were with the “liveability” of Garbutt. Letters were written and received regarding two separate areas of Garbutt’s “liveability”

- 1) the state of the civil infrastructure in Garbutt - roads and verges, footpaths, drainage systems to handle floods and heavy rainfall, street lighting; and
- 2) the provision of services to the residents of Garbutt - public transport (bus service), public communications (provision of public telephones), and mail delivery and despatch (provision of mail boxes).

The only environmental issue to arise in the correspondence record is that of stench emanating from a hide manufacturer in the industrial section of Garbutt (on the western side of Ingham Road) in the inter war (1918-1939) period. There was also some correspondence regarding the construction of the public housing estate in Garbutt in the late 1940’s; however, this related to safety concerns from the residents - a lack of lighting and adequate fencing around the development. There was no correspondence whatsoever relating to the moving into this public housing of large numbers of Indigenous people.

Stuart, too, had a Progress Association. Its records were un-locatable; however, traces of their concerns do show up in minutes of meetings of the Townsville Council. The concerns raised to Townsville Council by the Stuart Progress Association mirror those of the Garbutt Progress Association, and are also concerned with the “liveability” of Stuart. It will be recalled from the previous chapter that the majority of the Stuart area was slated for industrial development in the inaugural town plan in 1964. The objections made to this town plan have been obtained and perused (Minutes of Special Meeting of Works Committee, 1965). The majority of the objections relate primarily to the proposed zoning of a particular parcel of land, with the objector seeking to change this zoning (ibid). Some changes Council approved, others they did not, on the same

basis that developments had been refused prior to implementation of this town plan – *“that the development would prejudice the orderly and proper growth of the locality”* (ibid).

However, it is important to note at this point that not one objection was raised to the concepts that underpinned zoning (Minutes of Special Meeting of Works Committee, 1965). Not one objection was raised to the majority of Stuart being zoned for industry (ibid). The Chamber of Commerce did object to the overall amount of land allocated for industry – they felt not enough land was made available (ibid)! Council considered this objection, and felt otherwise – that enough land was available to cater for growth in Townsville’s industrial sector during the period the plan covered (ibid). The issue of the environmental impact (toxic emissions) from the industries in Stuart on the residents of the area was raised within the Council during the process of devising this inaugural town plan (ibid). It was felt by Council that emission legislation enacted by the next level of government – regional - would be a sufficient safeguard for the residents of Stuart (ibid). The nature of the objections to this inaugural town plan support a contention of implicit support for the current market based society.

A final action of the governed has also been uncovered that is interweaved with people’s predilection for living amongst and mixing with whom they feel most comfortable, with this aspect to be explored further in the next chapter. Brown & Brown (2003) argue that holding a valued role of some kind is essential for quality of life. Ergo, if someone does not hold a valued role in society due to differences, such as membership of a minority of some kind – be it due to intrinsic or extrinsic reasons, they can feel they are a victim of injustice. In Chapter One, it was mentioned that psychological research has shown that these feelings of injustice are accompanied by changes in bio-chemical reactions within the brain, providing support to an institutional discrimination argument of causation.

Dawkins (2006) refers to the ‘moral zeitgeist’, or a code of behaviour that governs how others are viewed, and Dawkins (2006) successfully argues that this ‘moral zeitgeist’ has changed over time. Unlike the other factors explored so far in the research reported in this thesis, this factor has changed over the course of the twentieth century (ibid). It is possible that this change may have underpinned the emergence of environmental, and possibly social, injustice as fields of both scholarship and activism, so it does need to be briefly explored.

[Dawkins Moral Zeitgeist](#)

Dawkins (2006) states that powerful 'in-group loyalties' and 'out-group hostilities' exist, and will remain in existence. Varying markers of group definition, such as rival sporting teams, and different languages, races and tribes, are utilised to determine who is in the 'in-group' and who is in the 'out-group' (ibid). It can be argued that other markers, such as disability and sexual preferences can be added to this list of 'in-group' and 'out-group' definitions, with both having become more prominent in recent times. Dawkins (2006) also refers to differing interpretations of what is moral behaviour, and how these 'mores' have changed over decades via a consensus akin to the Germanic term of zeitgeist. Dawkins (2006) noted that early twentieth century Britain (and many other countries) would be judged as being racist by today's moral standards. Most white people considered black (in other words, all non-white) people as being inferior in all respects. People, who, within the context of their specific period of time in history, were considered to be liberal and progressive, are today seen as being incredibly discriminatory in their attitudes and beliefs (ibid). This zeitgeist has moved forward across time, changing moral views via simple things, such as conversations with others, books, news articles and today via things such as social media (ibid). It is impelled forward via powerful individual leaders who stand up for their ideals of what is moral and persuading others to move along with them (ibid).

Another factor in moving the moral zeitgeist forwards will be further explored in the next chapter – education. Along with possession of an education comes an increased understanding that all share a common humanity with others who may be different to us. Dawkins (2006) points out that, at various times in recent history, blacks, women, Jews and Gypsies have been subjected to cruel treatment because they were not perceived by the dominant sectors of society (including government) as being fully human. The moral zeitgeist also moves slowly, with this concept clearly seen in the history of women's right to vote. Dawkins (2006) noted the period under which female suffrage occurred as spanning the entire twentieth century. This process began in New Zealand in 1893, and has continued on to Kuwait in 2006 (ibid). It is indeed possible that there are still societies, nominally in Africa, which still do not provide women with the rights to vote, 120 years after this process began. Female suffrage is actually relatively recent in one of the most modern, westernised societies, occurring in Switzerland in 1971 (Dawkins, 2006). These changes in the moral zeitgeist over the past 100 years have also played a role in Indigenous history, which will be explored in the next chapter. As the moral zeitgeist has changed, due to inspirational leaders and education of the wider society, so too is what has been considered to be an 'out-group'. The gradual acceptance of these 'out-groups' due to the emergence of the

inspirational leaders who can communicate with the dominant society has allowed for changes to be made in the lives of those members of the 'out-groups'. Dawkins (2006) expects this change in the moral zeitgeist to continue, although in what direction cannot be predicted at this point in time. This change in the moral zeitgeist so far has also led directly to the growing concerns held by some regarding the environment – both as a whole and the immediate environment we live in.

These slow changes in the moral zeitgeist mirror the progress of scientific research. Radin (2009) presents a scientific model, and argues that there are four separate stages of scientific enquiry. When applied to human society, this model provides a progression as to just how Dawkins' (2006) concept of the moral zeitgeist may have changed over the years.

1. The idea is flat out impossible
2. The idea is possible, but weak and uninteresting
3. The idea is important, and the effects are strong and pervasive, and
4. I thought of the idea first.

Radin (2009) further argues progress through the four stages relates primarily to shifts in our expectations and perceptions. Applying these four stages to developments within human society, in Stage One people's expectations prevent them from seeing what is actually out there – that these "out-groups" do exist, and are of the same common shared humanity. In Stage Two people begin to see these "out groups" as members of a common shared humanity, as expectations have been changed due to repeated exposure to high profile members of such groups interacting appropriately within the norms of the dominant social strata. Stage Three is when policy aimed at including such "out groups" starts to become enacted, while Stage Four involves much revisionist history on the part of society, with many individuals seeking to forget that they were ever hostile to such "out groups".

Under this model it can be argued that when it comes to social injustice and inequity, 'western' society is currently in Stage Three, where policy is being enacted to alleviate the injustice suffered. However, such policy is always underpinned by the notions and values of those at the apex of Dumont's (2006) "Triangle of Normality". These are the people who determine what is normal and what is not. As the next chapter will show, recent policy direction with regards to Indigenous policy in Australia has had a focus on participation by Indigenous people within 'western' society – there has been an emphasis on education and job creation. However, such participation is predicated on the adoption by Indigenous people of mainstream 'western' cultural values of

competition and individualism that are alien to traditional Indigenous cultures. Therefore, such a policy direction can be considered to be discriminatory, and is also often not worthwhile, as sometimes the members of the 'out-group' (such as those who live with disability or mental illness) can find it very difficult to adopt such behavioural norms without the provision of ongoing supports. In this way injustice can be perpetuated, as although a case can be made for certain types of difference not being accepted, to not accept the vast majority of difference between people is a breach of basic human rights, as it denies validation of the person (Brown & Brown, 2003).

Conclusion

This chapter has explored the actions of the populace in the creation of the environmental injustice seen in Garbutt and Stuart. The people have shown implicit support for the notions that underpin industrialised society via their objections to LULU's, specifically what they are objecting to. In the main NIMBY objections fall into two categories, both which state I am OK with this development – just do not build it next to me or use my tax dollars to build it. Comparisons between the early concerns of the Garbutt and Stuart Progress Associations with modern local NIMBY objections do show an increasing concern with the environmental effects of LULU's; however, such objections emanate primarily from a mainstream environmentalism base. Conversations with the Indigenous Elders interviewed as a part of this research indicate that objections of this type will continue, and that Indigenous Elders, at least in the Townsville area, are unlikely to pursue any environmental injustice agendas. This stance may relate to the egalitarian nature of Australian society. In addition, a change in the moral zeitgeist has occurred, one that allows for the inclusion of what was previously an 'out-group' of society – minority populations. However, policy enacted to alleviate the unjust conditions of the 'out-groups' is still enacted and implemented according to the values and behavioural norms of the 'in-group', which may exacerbate and perpetuate injustice and inequity.

Two additional, minor contributing factors that underpinned the creation of the environmental injustice were also isolated – associations between education and income and a propensity for people to mix with and live amongst those they are most alike. The next chapter explores the influence of these factors.

Chapter Six – Our Associations

Introduction

The previous two chapters have explored the actions of both government and the governed in the creation of environmental injustice. The environmental injustice found to exist in Garbutt and Stuart via an exploration of the demographic data was created over time via interactions of these two groups of actors. Both groups actively drove a “pro-growth/development” stance. Central government acted as a remediator, seeking to implement policies aimed at creating equity amongst Australians as a whole, while regional and local governments both drove the growth of their regions and sought via policy and legislation to protect society from the worst excesses of the current market based societal system, all done on a least fiscal cost basis. The populace demanded the provision of the goods and services required to live a modern lifestyle at the least fiscal cost.

As noted in Chapter Two, one significant and two additional contributing factors to environmental injustice were isolated. This chapter is concerned with an exploration of these two additional factors. The first of these two additional factors is that of the presence of income inequality between people. Research has found a consistent association between a person’s educational attainment level and their median hourly wage, as well as between the educational attainment levels of parents and their children. The second of these two factors relates to a propensity for people to live amongst and mix regularly with those they are most alike. Finally, a new factor in the creation of environmental injustice will be explored. At the end of the previous chapter, it was mentioned that recent policy creation and implementation for Indigenous people has been focused on assisting the population to be able to participate within a ‘western’ style society, via an emphasis on education and job creation. The final section of this chapter will explore why this emphasis on education and job creation has been necessary – the effects on Indigenous people of two hundred years of history since the Invasion/Colonisation of Australia by the British under Captain Arthur Phillip in 1788. What role did/do these factors play in the creation of the environmental injustice seen in Townsville?

The Associations made with others

Exploration of the second factor – personal propensities as to whom the residents of Garbutt and Stuart choose to mix with and live amongst was outside the scope of this research. However, Goudie (2000), found that people in Garbutt and Stuart looked for the “least cost” location for their lifestyles, living close to family, friends and recreational

activities. There is consistent data from psychological research that indicates that such propensities may be due to the fact that many do not perceive the world as it actually is, but as they would wish it to be (Radin, 2009). People construct mental models of a world reflective of their expectations, biases and desires that is also comfortable for their egos, does not threaten their belief systems and is also consistent, stable and coherent (ibid). Therefore, it makes sense that people will choose to mix with and live amongst those whom they are most alike, as such people do not threaten their belief systems, allowing them to maintain a world view that is consistent, stable and coherent in nature. This world view may be the reason why people do not explicitly fight against discriminatory structures and policies – the prospect of any change to these belief systems is too frightening. Therefore, the question raised by Frug (1996) and this research regarding the use of zoning in shaping the demographic of residential neighbourhoods requires additional untangling in order to determine the operative variable – zoning or the propensity to construct a world model based on what we wish the world to be and to seek out those who do not threaten it any way.

This tendency to live amongst those whom we are most alike can be clearly seen in analysis of population data obtained from the census. In Townsville (and in neighbouring Thuringowa) the census does show that like lives amongst like. Examination of education and employment data in all Townsville's SLA's shows that each SLA seems to consist predominantly of either white (managerial and other "professional" occupations) or "blue" (trades and other manual occupations) collar residents (www.abs.gov.au/census). Additional statistical testing to confirm the significance of this was not undertaken due to the overall complexity required to conduct such testing. Frug (1996) noticed similar patterns within the United States context and Goudie's (2000) findings support the census data.

Goudie's (2000) research also isolated another key factor utilised in deciding where to live – proximity to usual destinations, nominally the place of work. Goudie (2000) split Townsville and Cairns into three rings – inner, middle and outer suburbs, including the SLA's of Garbutt and Stuart, and interviewed residents on topics including factors that underpinned housing locational choice. Price, although still important, was actually a close secondary (or tertiary, dependent on whether the respondent resided in an inner/middle or outer suburban ring) factor involved in residential locational choices (ibid). As has been already noted, the key factor for residents in all three suburban rings was proximity to daily destinations (ibid). Goudie's (2000) data also supports the real estate dictum regarding residential locational choice – "*age, wage, location*" (Moyle, 2011). This dictum sees people's residential locational choices as being

dictated by their needs at any given point in their lives, as well as what they can afford. Similar factors were also found to underpin residential locational choices in the city of Brisbane, with residents seeking to locate housing within a fifteen minute travel distance from their place of employment (Shearer, 2012). Data also indicated that people would make sacrifices or change their lifestyle in order to obtain an affordable property that met their needs within the travel distance (ibid).

Historically, collection of “lifestyle” indicators such as income, education and employment are recent additions to the collection of population data in a census (Informing a Nation, 2005). Accordingly, there is not much data of this type available on the early residents of Garbutt and Stuart. However, what data is available shows that both areas had a predominantly rural industrial base – owner operated small scale market gardens and dairies in Garbutt (Townsville City Council, 1997) and grazing properties, a brickworks and a mine in Stuart (Gibson-Wilde, D.M., 2010). Such industries were reflective of Townsville’s early industrial base (Gibson-Wilde, D.M., 2010), and modern census data indicates that workers employed in such industries, who usually have minimal non/post school qualifications; tend to be in possession of the lowest median income levels. However, what is clear is that even in these early days people were living close to where they worked. With the possible exception of the site of the correctional centre being a Native Reserve, all of these early residents were also white – the original Indigenous inhabitants had long since been driven out during a “clearing out” process or subject to a massacre (Rasmussen, 2012) – this will be further discussed later in this chapter.

This trend of living close to work has continued on into the twentieth and twenty-first centuries. The census data collected in 1996 and 2006 supports Goudie’s (2000) findings. In addition, as has been found to occur in Brisbane (Shearer, 2013), analysis of the industry of employment data shows that Townsville’s residents are also living close to where they work (www.abs.gov.au/census) – even in Townsville where nowhere is more than a fifteen minute drive away. The SLA’s of Murray and Idalia are in close proximity to the Townsville Hospital, James Cook University and Laverack Army Base – Idalia is the furthest away in terms of distance to these developments. The main industries of employment for the residents of these SLA’s are health, education and defence. Defence can be considered a special case, as the Defence Dept provides rental housing for serving personnel with families, however serving personnel can also choose to rent in the private housing market. All three SLA’s do contain a large employer provided component in their rental housing markets;

however, census data does not provide a basis on which to construct a ratio of employer provided versus private rental market housing for defence personnel.

Income and Education

The first additional factor noted as being instrumental in the creation of environmental injustice was that of income inequality. This can be considered to be important as the key hypothesis of the environmental injustice movement relates to the demographic composition of residential neighbourhoods in close proximity to LULU developments. Such neighbourhoods tend to be composed primarily of inhabitants who are primarily of a minority background, and are in receipt of a lower level of income, when compared with the residents of areas further away from LULU developments. Chapter Three has shown that such an association does exist in Townsville and Chapters Four and Five have explored the actions of both government and the governed in the creation of this environmental injustice – tacit, implicit support for, and actions to maintain, a market based society that sees the consumption of manufactured goods or services as the path to peace, prosperity and happiness for all (Louis & Magpili, 2001). So far, this chapter has shown that in Townsville people do live amongst, and possibly mix with, those with whom they share a similar background and values, with similar patterns also being seen elsewhere, in particular the cities of Thuringowa, Cairns and Brisbane. The next section will focus on the association between income and education levels.

The Association between Education and Income Levels

The first aspect of this variable to be explored is income. What factors determine income levels? Once again, consistent, world-wide research has shown that an association exists between an individual's educational attainment level and their hourly median wage (U.S. Census Bureau, 2002; Ryan & Sartbayeva, 2011; Summerfield & Tobin, 2003). The higher the educational attainment level achieved, the higher the hourly median wage earned (ibid). An examination of the demographic data from the 1996 and 2006 Censuses of the Australian People shows that this association between income levels and educational attainment levels also exists within the confines of the Townsville LGA. It also exists within the confines of the neighbouring LGA to Townsville – Thuringowa. Townsville LGA's highest income SLAs of Murray and Idalia, (along with the SLAs that make up Townsville's highest taxable income postcode of 4810) are composed primarily of white collar professionals with tertiary qualifications or diplomas, and possess minimal Indigenous inhabitation. SLA's composed primarily of manual and trades, blue collar inhabitants, such as Garbutt and Stuart, have lower median income levels than do Murray, Idalia and the SLA's that make up the 4810

postcode. The SLA's with the highest percentage of Indigenous residents are those with the largest public housing estates, irrespective of overall median income levels, as mentioned in Chapter Four.

Garbutt's position as the lowest income SLA in Townsville is fundamentally underpinned by the vast public housing estate that exists in Garbutt. Garbutt's 2006 residential demographic is primarily rental accommodation, at 54% of the total housing market. Within this large rental market the biggest landlord is the Queensland Housing Commission, the sole provider of public housing in Queensland, which controls 63% of the rental market in Garbutt (www.abs.gov.au/census). Analysis of Garbutt's workforce participation figures reveals that approximately 40% of Garbutt's population over the age of 15 years does not participate in the labour force, a situation that is applicable in both 1996 and 2006 (ibid). Although it is impossible to determine this via census data, the presence of the enormous public housing estate in Garbutt means that an argument can be made that this sector of Garbutt's population is in receipt of Centrelink benefits.

A cross comparison of Centrelink benefits (www.centrelink.gov.au) with the major marker of poverty in Australia – the Henderson Poverty Line (www.melbourneinstitute.org.au) – shows that pensions, such as Aged and Disability, are paid at a rate equivalent to this Poverty Line. Other forms of benefit, such as Unemployment, are substantially lower than this Poverty Line (ibid). This non-working portion of Garbutt's population creates a left-skewed bell curve, reducing the median household and family income in the Garbutt SLA. This left skewed bell curve is what fundamentally underpins Garbutt's position as Townsville's lowest income SLA for both census years and income types. However, once these Centrelink incomes have been noted and corrected for, via the removal from the figures of any income at or under the poverty line level, Garbutt's median income rises to become equivalent with that of the next lowest income SLA in Townsville, Magnetic Island. Magnetic Island is in the 4819 postcode, which it will be remembered was Townsville's lowest income postcode in both census years studied.

The SLA of Magnetic Island (and the only area in the 4819 postcode) possesses a similar population demographic to Garbutt, (www.abs.gov.au/census), with similar numbers of non-participatory residents in both census years. However, there is no public housing market what so ever on Magnetic Island (ibid). Therefore, all of Magnetic Island's non-participatory population over 15 years is most likely to be either a fully dependent child/spouse or a retiree who may be in receipt of additional income

over and above the Age Pension – census data does not allow for a determination of this kind to be definitively made.

Magnetic Island has also had its' NIMBYs, with one in particular being the operations of the Red Baron, a small open seaplane that offers joy flights over Cleveland Bay (www.redbaron.com.au, 18/08/2013). Initial complaints against the operators of this seaplane related wholly and solely to the safety of other users of Horseshoe Bay on Magnetic Island, where the sea plane took off and landed (Ryan, 2008 (c)). Once the operations of the seaplane were moved further out into Cleveland Bay, such objections ceased. However, this did not stop a small minority of island residents from continuing NIMBY on the basis of lifestyle amenity grounds masquerading as environmental grounds. This protest is similar to the NIMBY protest against the high end, expensive housing recorded earlier. This can clearly be seen in the fact that in 2008 one half of all complaints lodged with Queensland's Environmental Protection Agency, a party to the Red Baron's operating license, were found to be false in nature. All were made relating to times when the Red Baron was either at rest in the Port of Townsville or flying in another city altogether (ibid). The residents making these vexatious complaints had also recently lost an appeal in the federal Administrative Appeals Tribunal (ibid). On defeat of their actions, they simply began complaining to another agency - the EPA (ibid). Such NIMBY protest can be argued as emanating from lifestyle amenity reasons on the part of the objectors, and the Red Baron is still flying (www.redbaron.com.au, 18/08/2013).

Given the pattern of NIMBY resistance on Magnetic Island, and the outcome, it can safely be argued that wealth also attracts NIMBY/LULU developments, which will proceed because government intervenes on the part of the developer, who is acting within the market to provide a good or a service. Thus government is stepping in to support the operations of the market economy in this situation as well. Accordingly, the argument can be made that the real issue for the residents of Garbutt (and the inmates of the correctional centre) is one of lack of equity of access to opportunities to enrich their lives, such as pursuit of an education, or feeling valued by their peers.

In Chapter Four reference was made to the use of 'trickle-down' theories applied to social policy, and that this use of 'trickle-down' theories in formulating social policy was based on an erroneous assumption – that assistance in one area of a person's life meant that they would be motivated to improve their life in other areas. The example provided was that relief of housing stress via provision of affordable housing of a set minimum standard meant that the person or family could direct their efforts into

improving other areas of their life. Recent research suggests that parental educational attainment, nominally that of the father, although if he is absent then it is that of the mother, influences the educational attainment levels achieved by children (Ryan & Sartbayeva, 2011). This is because education does much more than provide knowledge; it also improves interpersonal skills, resilience to handle change effectively and increases personal development (ibid). Additional research has found that individuals employed in low skill, and therefore low wage occupations tend to cycle in and out of the workforce, interspersed with periods living on welfare benefits (Stewart & Swaffield, 1999). Within popular opinion, such parents are blamed for their children also failing (Viellaris, 2011). Such thinking is reflective of current New Right political ideology, which sees such parents having failings that are their fault that they must conquer if they are to succeed (Fenna, 2004). Following from the above, the argument can be developed that poverty of both income and opportunity, is intergenerational in nature. Poorly educated parents do not have the knowledge to assist their children's educational aspirations. In addition, as development of some social skills is linked with possession of an education, it means that often children do not learn the crucial socialisation skills that enable them to make a success of their external lives in the home (Ryan & Sartbayeva, 2011). Exploration of this aspect was outside the scope of this research, and it was unable to be ascertained the role played by this aspect in the creation of the environmental injustice found to exist in the Townsville LGA.

So, what does the above mean for the creative processes of environmental injustice? Firstly, it will be remembered the basic hypothesis of the environmental injustice movement revolves around the proximity of low income, predominantly minority neighbourhoods to LULU developments of an industrial nature. Second Bowen's (2002) conclusion (that environmental injustice is really about the over-representation of minorities in the lower socio-economic strata) seems to be stating that Bowen (2002) feels that environmental injustice is actually a rebranding of social injustice arguments that are not perceived as being relevant and powerful to those in a position of power anymore. Once again, not enough demographic data exists in the public domain to determine if Indigenous people are also over-represented in the lower socio-economic strata in Australia as well. However, the strong positive correlation found between large Indigenous populations and public housing estates in Townsville ($r(24)=0.824$, $p<0.001$) (www.abs.gov.au/census) suggests this over-representation is also the case in Australia. Having determined that such an over-representation does also exist within the Australian context, it is clear that this part of the hypothesis cannot be explored without an examination as to why this is the case. Examination of the census data in

this regard also supports an association between a lack of education and being on a low income level, regardless of a person's skin colour. Historical reasons underpin this association between being Indigenous and on a low/er income; and it is this aspect that is explored in the next section.

The Over-representation of minorities in low income statistics

Chapter Three found that environmental injustice does exist in the Townsville LGA, while Chapters Four and Five found that this was primarily due to an accommodation type that involved either limited individual choice (public housing in Garbutt) or state coercion (correctional centre in Stuart). As mentioned earlier, Bowen (2002) has argued persuasively that the environmental injustice research discipline is fundamentally about the over-representation of minority ethnic populations in the low income statistics. Any exploration of environmental injustice in Australia would not be complete without a brief examination of why this is so.

The first section of this chapter has shown that the Townsville area mirrors the data found in consistent world-wide research – that there is an association between educational attainment level achieved and median hourly income earned. Census data relating to educational and workforce participation of Indigenous people in Australia reveals a population that is under educated, and therefore, under employed, in comparison to the non-Indigenous population.

Table Two – Indigenous/non-indigenous employment and education comparison

Indicator	Indigenous	Non-Indigenous
Workforce Participation	57%	76%
Worked 40hrs +	36%	49%
Worked full time	57%	66%
Self employed	6%	17%
Occupation skill level		
Low skill	59%	44%
medium skill	22%	26%
High skill	15%	29%
Educational attainment		
Level not stated	12%	5%
Left prior to yr 10	29%	15%
Completed yr 10	27%	23%
Completed yr 12	19%	44%
Post/Non-school qualification	22%	37%

(www.oesr.qld.gov.au)

The data above shows that Indigenous people in Australia have relatively lower educational attainment levels than does the non-Indigenous population, and are consequently much more likely to be in low skill level and therefore low income jobs, if able to gain employment at all, compared with non-Indigenous people. This current position of life for an Indigenous person in Australia can be related directly back to the history of Australia since the Invasion/Colonisation of Australia in 1788 (wording dependent on the cultural framework from which you examine the event); and the policy frameworks that have governed the daily lives of Indigenous Australians since that time forth. Conversations with all the Elders/Traditional Owners interviewed as a part of this research indicated that this history is the largest single factor underpinning Indigenous disadvantage today. For any exploration of environmental injustice to be truly comprehensive, there must be a brief exploration of these policy frameworks, and the actions committed under these frameworks.

A brief exploration of Indigenous History

Indigenous people have divided their history post 1788 into five separate and distinct time periods – Invasion and Resistance, Protection and Segregation, Assimilation, Integration and Self Determination (Education Queensland, unknown date). The titles accorded the five periods of Indigenous history show that Indigenous people consider there has been a progression within Dawkins (2006) moral zeitgeist since 1788 regarding the way in which the dominant white population see and value the worth of Indigenous people. Of the five periods, it is the first two that have had the most effect on the lives of modern Indigenous people, and are fundamentally responsible for their current low socio-economic status. These will be the focus of this section.

Invasion and Resistance – 1770 – 1890

Cook's discovery of Australia in 1770 was the beginning of the invasion of Indigenous lands and the disrespecting of the people. Cook was actually under strict orders from the government of Great Britain not to raise the Union Jack (the flag of Great Britain) without the consent of the inhabitants (Pilger, 1986). From that point on, it was all downhill for Australia's Indigenous peoples. Governor Arthur Phillip, the Commander of the First Fleet, which arrived in 1788, was initially respectful to the Eora clan, whose lands they settled on (Australian Info International, 1988). That respect soon changed as the settlers, many of whom were convicts, took food, supplies and women, from the Eora, without asking (ibid). In 1790 the Second Fleet arrived on the shores of Botany Bay, and the very first 'punitive' expedition was mounted against the local Indigenous

inhabitants (Rasmussen, 2012). Wholesale massacres of Indigenous people began in 1804 (ibid).

This period of Indigenous history was a time of enormous, uncontrolled violence against and towards Australia's Indigenous people, and was due entirely to the white man's desire for additional land on which to settle and house an increasing population. White settlers in Australia subscribed to the concept of Terra Nullius – or Empty Land (Reynolds, 2002), thereby making this Invasion a racist act. Reynolds (2012) compared the settlement of Western Canada and Queensland – events that are contemporaneous (1850-1900). In Western Canada the taking of the land from the traditional owners was done via legal mechanisms – treaties were drawn up between the white man and the traditional owners (ibid). Such treaties, due to their very nature, also implied the prior existence of the original inhabitants and their ownership of the land (ibid). This was not the case in Queensland – here the land was taken by force (ibid) – after either a “cleaning out” period of five to six years, or a massacre (Rasmussen, 2012). Queensland had ‘nigger hunt’ permits, which allowed any settler to shoot - dead - any Aborigine, no questions asked (ibid). The effects, and beliefs of this time, survived long past the ‘official’ end in 1890 to this period of Indigenous history. As recently as 2010 a man residing in Gympie (200 klm north of Brisbane) attempted to renew his ‘nigger hunt permit’ (ibid). Reynolds (2012) estimates that over 10 000 people were killed during the settlement of the northern frontier.

The current distrust by Indigenous people of law and order, and the white man's way of doing things, also dates from this time. Australia's Native Police were created in 1845 in the neighbouring colony of New South Wales, and remained active Australia wide officially until 1910, and unofficially until 1950 (Rasmussen, 2012). This force became the main instrument of control over the lives of the Indigenous peoples (ibid). Some members joined up willingly, believing that their families would be looked after, but many were kidnapped and press ganged into service in the Native Police (ibid). The fear engendered by this body means that today it can take up to two years for Police Liaison Officers to become fully accepted in the communities in which they live (ibid).

Little historical data exists on the attitudes of the white population during this time. Many of those who lived in the cities may not have known about the conditions on the frontier. The condition of the Aborigine was ‘out of sight, out of mind’. The “clearing out” processes meant that by the time white settlers moved into an area en masse, no Indigenous people were in the area. In this way, their values would not have been challenged by daily exposure to what was at the time, a very different lifestyle. In

addition, compilation of the 'official' histories of an area, such as Gibson-Wilde's (1964) study of the earliest years of Townsville's history, did not include any information around this process. Gibson-Wilde (1964) begins her history with an examination of the character of Melton-Black, and gives no space to discussion of the early 'squatters' in the Townsville area, such as Towns and the owners of Waterview Station, which occupied the present day Garbutt area (Gibson-Wilde, D.M., 2010). This was also the time of Social Darwinism, which saw the Aborigine as being on the lowest rung of a 'greater chain of being', with the white man at the apex of the chain. That such history has come to light is due entirely to the changes in Dawkins (2006) moral zeitgeist and early Indigenous leaders speaking out bravely against the injustices suffered daily.

This early pattern of massacres and 'cleaning out' was repeated in the Townsville area. Kevin and Mannie Ross (2011) spoke of a massacre occurring at the current day site of the Sunmetals Korea Zinc refinery, and were able to provide a 'westernised' surname for the family that traditionally owned the Stuart area. The Wulgurukaba, who occupied Garbutt, were pushed out to the Rowes Bay area (Julbu 1, 2011), and the Bindal Birri-gubba were pushed out to the current Roseneath/Alligator Creek area (Ross, M & K., 2011).

Segregation and Protection – 1890 - 1950

The next period of Indigenous history post Invasion was that of Segregation and Protection, which officially lasted from 1890 to 1950 (Qld Dept of Education). The Sale of Opium and Protection of Aborigines Act was passed by the Queensland Colonial Government in 1890 (Reynolds, 2000). The purpose of this legislation was that of control of the lives of Indigenous people – the legislation allowed for Indigenous people to be moved by force onto government native reserves or mission stations run by the Church (ibid). On these reserves and missions their lives were strictly controlled – no aborigine was allowed to marry, they had to seek permission to travel outside of the mission/reserve, and carry identification cards at all times – at a time when the white man was not forced to carry such identification, could marry and travel unfettered (ibid). A sense of learned helplessness, as defined by Reber (1995), was engendered in the people during this time period, and is still evident in the people today (Julbu1, 2011; Ross, M & K, 2011; Hoolihan, 2011; Savage, 2011).

Another action under this policy framework was the removal of children from their parents, by the government, often forcibly. These children were then adopted out to white families or, if unlucky, remained in care for the duration of their childhood. These children were known as the Stolen Generation (www.humanrights.gov.au, 24/08/2013),

and many were told that their parents had either died or no longer wanted them (ibid). Once again, this action had a tremendous effect on the people, including psychological side effects on some of the children taken (ibid). Indigenous children were not the only children stolen from their parents during this time period – English children were also removed from their parents, also told that their parents were either dead or did not want them anymore, and ‘transported’ to Australia, where they too wound up in either foster care of some kind or in Children’s Homes operated by the Church (www.migrationheritage.nsw.gov.au, 24/08/2013). However, the fact that Indigenous children were also removed from their different traditional cultural lifestyle (www.humanrights.gov.au, 24/08/2013) exacerbated the effects of the Stolen Generation policy

Once again, the actions that occurred under this policy framework post-dated the official end to the Segregation and Resistance period in 1950. Rassmussen (2012) was born in the early 1970’s and recalled that officials could enter her mother’s house at any time, and look up her skirt to ascertain if she was wearing any underwear, a gross invasion of her privacy that would not have been contemplated if the family were white (ibid). If she was not, she was deemed to not be a suitable mother, and her children could be taken away from her (ibid). Such actions would have had a definite effect on the people, and how children were raised. Julbu 1 (2011) recalled their father’s reaction when they became part of a group of Indigenous professionals working to set up an Indigenous health service in Townsville in the early 1970’s *“old girl, better stop that, gunna bring trouble, you know”*. Such effects work in combination with the low education levels held by Indigenous people to make it difficult for Indigenous children to attain an education that will allow them to improve their class from lower to middle class. All Indigenous Elders interviewed as part of this research agreed that this lack of education was the greatest challenge to be addressed, more so as people move from their communities to urban areas, seeking opportunities for their children that do not exist in the rural areas of Queensland in which most of the communities are located

This lack of education is long standing and chronic. Julbu1 (2011) recalled being asked to assist an Indigenous man return to his home on a rural cattle station. He had come to Townsville for a funeral, and had no way of returning home (ibid). He was expected to find temporary work to save up enough money for a bus fare home; however, he had lived all his life on the rural cattle station, working in a manual capacity as a stockman, and could not read or write (ibid). Today in remote communities in the Northern Territory, many children are in a legal limbo – unable to live with their mothers

due to substance abuse issues, farmed out to grandparents who are unable to deal with them (Toohey, 2013). These children are also unable to be removed from the care of their families for placement into stable home situations for two reasons:–

- 1) the inability to locate someone in the community who would be considered to be a respectable adult capable of raising the child, and
- 2) fears of repeating the Stolen Generation (ibid).

These children, possessing the high level of autonomy common in Indigenous culture, many of whom are severely traumatised as a result of living in these communities, find it difficult to settle into the rigid discipline demanded of and by the western education system (ibid). This only further impedes their capacity to gain that all important education (ibid).

Hoolihan (2011), in his role with an Indigenous community housing association, sees many of these families as they move from the communities into Townsville. Hoolihan (2011) comments that many find it difficult to do things that the dominant western structures expect adults, in particular, to do – budget their money, take care of their house and encourage their children to go to school (ibid). Patterns of behaviour were set in the communities, where schools have low attendance rates (Toohey, 2013). One school in the Northern Territory runs a breakfast and lunch program, and has an attendance rate of 60% (ibid). Currently, the majority of the money and policy is directed towards improving the conditions in the remote communities, yet according to census data, this is not where the majority of Indigenous people live (Ross, 1996). In 1996 73% of Australia's Indigenous people resided in urban areas such as Townsville, only 27% reside in remote communities (ibid), a complete reversal of the population spread in 1966 (ibid). The mainstreaming of Indigenous welfare services adds to the problem, as Indigenous children living in an urban area such as Townsville see few role models of achievement on a daily basis, with the exception of sporting stars. This is a situation that is slowly changing via the Closing the Gap policy (www.coag.gov.au) and the creation of the Deadly Awards, which honour Indigenous achievement across all fields of life – sport, business, music and the arts (www.deadlies.com.au).

Once again, it is only fairly recently that the white man has become aware of some of the policies, and actions under these policies during this period of Indigenous history. This is entirely due to education from Indigenous people who have attained that all important western education about their lives. However, once again, the vast majority either do not know, or actively care, as it does not affect them personally. It is also possible that to face up to the actions committed under these policy frameworks

requires a significant challenge to personal viewpoints. As noted earlier, psychological research has shown that as rule people do not like their viewpoints challenged, and will actively resist such challenges (Radin, 1997).

Conclusion

This chapter has examined the associations that underpinned the creation of the environmental injustice in Garbutt and Stuart. Research has shown an association between a person's educational attainment level and median hourly wage, which is supported by the census data in relation to the Townsville LGA – residential areas composed primarily of white collar, professional occupations possess higher median income levels than do the residential areas composed primarily of blue collar, manual and trades occupations. Other research has shown how the transmission of disadvantage due to low educational levels can be inter-generational in nature. In addition, research has indicated that people tend to live amongst those whom they are most alike. This pattern exists in the Townsville area, as confirmed by earlier research by Goudie (2000) and the census data. This data shows clear stratification within Townsville's residential areas – white collar people living with other white collar people, blue collar people with blue collar people, families with other families and singles/couples with other singles/couples. Finally, census data shows that Indigenous people possess much lower levels of education, and are therefore much more likely to be in a low skill, low wage occupation than is the case for the non-Indigenous population. An additional exploration of the history of Australia's Indigenous peoples has shown that this is primarily due to the policy frameworks and actions committed under these frameworks since the Invasion/Colonisation of Australia, which began in 1770. It is this history that has led to the current low socio-economic position of Indigenous people in Australia, thereby committing them to residing in public housing (such as exists in Garbutt) or places them into the orbit of the correctional system as prison inmates (Stuart).

The established environmental injustice research is also simplistic in its approach in another area; that of housing costs. This established research postulates that the lowered housing prices that exist in residential areas in close proximity to LULU's are due entirely to the presence of the LULU, and nothing else. Consistent research shows that there are many factors that have an effect on housing costs, such as land topography and the strength of the economy of the area (Stack, 2007), ambient air quality (Anselin and Lozano-Gracia, 2007), road traffic (Bateman, Britain & Executive, 2001) or something considered desirable, such as the presence of a good quality school (Sirmans, Macpherson & Zeitz, 2005) to name but a few. Stuart and Mount

Louisa are prime examples of this, both are in close proximity to a LULU, yet both also contain elevated hillside land with sweeping views of the surrounds. The industrial area is not visible from the hillside land in Stuart. It is possible that land closer to the LULU will be less expensive than land further away from the LULU; however, examination of this aspect was outside the scope of this research.

However while income inequality between people of various educational attainment levels (and whether or not they are employed in the private or public sector) exists, there will always be some people in possession of lower levels of income than others. The question that needs to be asked by government and society is whether or not these low income people are also disadvantaged due to either a lack of education, or someone to advocate for them. With LULU's/NIMBY's constituting a very broad spectrum of land uses, while the populace demand the goods produced by or services offered from LULU's (via the mechanism of purchasing/using same), they will always need to be built/expanded upon. Therefore, environmental injustice, in its broadest sense of low/er income people living in close proximity to a LULU, will continue to exist. These facts underpin the Recommendations made in the next chapter.

Chapter Seven - Where to From Here

Introduction

The research reported in this thesis has been concerned with an examination of environmental injustice within the Australian context. Two case studies, within a medium sized regional city (Townsville), have been conducted to both ascertain the existence of environmental injustice and to identify the mechanisms by which any environmental injustice uncovered may have been created. Cases were examined within an overall framework of environmental justice theory, with discussion underpinned by a rational choice institutionalism theory analytical approach. Census data for the SLA's of Garbutt and Stuart shows relatively high percentages of Indigenous residents and relatively low levels of household and family income living in close proximity to two LULU developments – Townsville Airport (Garbutt) and Stuart Creek Correctional Centre (Stuart) during 1996 - 2006. Accordingly, the requisite conditions exist that allow for a conclusion to be made that environmental injustice exists in Australia. Additional qualitative research has uncovered the social, political and economic factors that have created this current environmental injustice.

The qualitative research shows that this environmental injustice is unintentional. The environmental injustice has arisen as a consequence of interplay between a least cost approach to the siting of contentious facilities, and social and political factors. The political factors included attempts by government to correct some of the wider social injustices that still exist, at the least possible cost. Therefore, the environmental injustice that exists in Garbutt and Stuart is inexorably linked to the existence of social injustice – without the existence of the latter the former would not exist. Other key social and political factors found to exist were a pro-development/growth mantra on the part of both government and the people, which ultimately leads to demand for the construction of LULU's, both to produce manufactured goods or to provide services to the community as a whole. Other social/political factors present were personal preferences surrounding the nature of the people lived amongst and mixed with; and the existence of income inequality, which is directly related to the level of non/post-school qualifications a person has.

In addition, the historical approach utilised has shown that in the Townsville area people who fit the modern profile of being on a low income have always resided close to where they work. Some of these early workplaces may also fit the modern concepts of a LULU, such as a meatworks, tannery, fertiliser manufacturer and a prison. However, at the time the two LULUs studied – Townsville Airport and Stuart Creek

Correctional Centre – were initially sited, the neighbouring residential population was entirely white. These areas did not possess an Indigenous population due to earlier, racist, “clearing out” actions and massacres, undertaken with the aim of gaining title over the land. The latter half of the Twentieth Century has seen two major changes which have led to a greater environmental impact on the lives of the people living in close proximity to LULU’s. These changes may also have underpinned the creation of the environmental injustice movement.

Firstly, technological development has caused the effects of these LULU’s on nearby residents to change – from relatively low impact (smell from the tannery in Garbutt during the interwar period) to a relatively high impact (the noise pollution in Garbutt from the operations of the airport and the toxic by product emanating from the industries in Stuart). The second change is a social one, and relates to changes in Dawkins’ (2006) moral zeitgeist in two areas. The first area of change in this zeitgeist relates to changes in the level of trust held by the populace that government will protect their interests. Prior to the 1960’s massive public protest aimed at government was unusual. This can be seen in the differences in protest against two of the LULU’s studied – Townsville Airport in 1938 and the Sunmetals Korea Zinc Refinery in the 1990’s. The opposition to the airport was commercial, emanating from a specific sector of the business community (the graziers who sent the cattle to the meatworks for processing) and directed at one of the two sites under evaluation; whilst almost 70 years later, the opposition to the refinery was environmental, and emanated from the wider Townsville community.

The second area of change in the moral zeitgeist lies in the gradual transition of minority peoples from being considered to be members of an ‘out-group’ to members of the ‘in-group’. This change in the moral zeitgeist is due to policy aimed at correcting for the inequity and social injustice suffered by the members of the ‘out-group’, such as the encouragement to Indigenous people to pursue an education aimed at improving life chances and choices available. However, differences do exist between the Australian and the U.S. contexts, which relate primarily to the label applied to the nature of the resistance/protest to unwelcome developments in the immediate area. As of the time of writing, no opposition to LULU development in the Townsville area has emanated from within an environmental injustice perspective (the demographic composition (low income/high minority) of the host community), and rather instead has emanated from within a mainstream environmentalism perspective. Further, conversation with the Indigenous Elders/Traditional Owners interviewed indicates that no opposition of this type, as seen in the established literature, will be mounted in

Townsville – all Elders/Traditional Owners interviewed indicated that they would join in any mainstream environmental opposition to a LULU development. Finally, this research has also found that Australia's Indigenous people are also over-represented in the low income socio-economic group of Australian society, due primarily to low educational achievement levels. These low educational attainment levels are due primarily to two policy frameworks that historically governed the lives of Indigenous people – Invasion and Resistance (1770-1890) and Segregation and Protection (1890-1950).

As discussed in the second chapter on Theory and Method, environmental justice scholarship emanates from within a variety of disciplines utilising many methodologies (Turner & Pu Wei, 2002). Researchers in this field are seeking to explore the relationship between the siting of Locally Undesirable Land Uses or LULU's, usually of an industrial nature, and their proximity to, and effects on, residential areas that are composed primarily of low income, minority inhabitants (ibid), as well as the possible mechanisms by which this relationship may have arisen (ibid). Two theories have arisen to explain the relationship – market forces versus institutional racism (Been, 1994) There are related bodies of scholarship relating to exploration of the siting processes (Mitchell, 2007; Lesbirel, 1987; www.piercelaw.edu.au, Ret 15/01/2010) and the NIMBY effect (Dear & Gleeson, 1991; Pendall, 1999; Takahashi, 1997; Wilton, 2002; Dear, 1992, Strangio, 2001; Lake, 1993). Much of the literature on environmental injustice emanates from the United States, and in particular the southern states, and the methodologies utilised have been criticised with regards to their abilities to provide definitive answers on which a framework for change can be based (Pulido, 1996; Bowen, 2002).

Theories and Framework

This thesis addresses three questions:

1. Does environmental injustice exist in Australia?
2. If so, what are the causative mechanisms?
3. Can the Australian context be compared with the existing literature?

Arising out of these questions, two key hypotheses were derived:

1. That environmental injustice in Australia occurs when LULU developments are co-located with residential areas composed of predominantly low/er income,

minority (Indigenous) inhabitants in comparison to residential areas not so co-located with LULU developments.

2. That the primary causative processes are related to a market push that is responsible for locating LULU's in least cost sites, interacting with social and political factors, such as social and distributional inequities (and attempts by government to remediate same), government support for LULU's, a pro-development and growth mentality, and personal preferences. In essence, therefore, creation of the environmental injustice located was not intentional, and arose as a result of the interplay between all the factors mentioned.

Mixed quantitative and qualitative methodologies were utilised to fully explore both hypotheses, within a case study format. In this manner, the causative processes could be deconstructed, in order to ascertain the role played by the various factors. The resultant analytical discussion was underpinned by rational choice theory, as this allowed for the motivations of the key actors in the siting decisions to be examined. Rational choice theory provides a good platform by which to examine motivations, as it postulates that when faced with a number of alternatives, an actor will choose the alternative that maximises their utility (Ward, 2002). When applied to institutions, such as government, rational choice theory sees the institutions as systems of rules and boundaries within which an actor operates to maximise their utility, as well as that of the institution they are part of (Lowndes, 2002).

The focus for environmental justice theorists is the "built" environment, the spaces where we live, work and play on a daily basis (Schweizer, 1999). Accordingly, it was appropriate to conduct two case studies on LULU developments with neighbouring residential areas in a medium sized city. Been's (1993, 1994, 1997 with Gupta) major unit of analysis of census district could be utilised within an Australian context, whilst Hamilton's (1993, 1995) least cost argument was deemed to be the most useful in explaining the siting mechanisms. Finally, the historical approach taken was underpinned by Boone and Modarres (1999) study of the City of Commerce, California, the historical development of that city, and the role played by zoning ordinances in the causation of the environmental injustice in that city.

Key Findings

Both case studies support a determination of the existence of environmental injustice occurring in Townsville, North Queensland, Australia. The census data also supports a determination of the links between the existence of environmental injustice and the

much broader, multi-faceted, social and distributional injustices, as it shows that there are many low income, Indigenous residents living in SLA's that are not co-located with any LULU developments (if anything some of the residents in the private housing market would consider the public housing itself to be a LULU). There is a strong positive correlation ($r(24)=0.824$, $p<0.001$) between having a large Indigenous population and the presence of public housing within an SLA's rental housing market. The exception to this rule is Stuart, which contains the Correctional Centre.

Both LULU's – Townsville Airport and the Stuart Creek Correctional Centre - were located utilising a least cost approach to the siting. What made the sites least cost was a combination of the presence of civil infrastructure (transport, communications, electrical, water and sewage networks), land of sufficient size to allow for both current and expected future usage. Lack of resistance from the neighbouring residents worked to make the siting of the LULU on this land easier to achieve, further reducing the cost. There appeared to be no elements of discrimination, or conscious devaluing of the residents nearby, involved in any of the siting decisions what so ever. Therefore, the resultant environmental injustice cannot be considered to be in any way intentional in nature, and arose entirely out of infill over the years. Land cost was not a factor – all lands in Australia are Crown Lands and both LULU's were developed by government. Accordingly, all that was required was an administrative action to change land usage designation by the Lands Administration Board in Brisbane.

The historic data uncovered as part of this research shows the siting decisions to be due to the first of Szasz and Meuser's (1997) siting criteria, with the resultant environmental injustice to be due primarily to infill after the LULU was constructed. In addition, this infill arose primarily out of central government attempts to remediate for the uneven effects of the market economy and social injustice at the lowest cost. Finally, the data available on the siting processes and decisions does not support a determination of any role played in these siting decisions by either institutional racism or classism.

Several additional social and political factors were identified as being a part of the causative processes of the environmental injustice, as explored below:-

- Personal preferences held by Townsville residents when deciding where to live (Goudie, 2000). These personal preferences worked in combination with a least cost approach to siting by people, as cost was identified as an important, but secondary, factor in housing locational choice decisions (ibid).

- Clear links between the levels of educational achievement and median income – the higher the qualification achieved, the higher the median income earned. Additional research identifies an intergenerational transmission of low educational qualifications and therefore, low median incomes. As noted by Been (1993), and confirmed by Goudie (2000), income is a factor, albeit secondary, in people's housing locational choice. As such, it works to entrench the existence of environmental injustice and the linked social injustices. Census data confirms low educational achievement levels for Indigenous people in Australia, with most not finishing school, when compared to the white population. These low education levels mean that Indigenous people are more likely, when employed, to be in a low skill position that pays low wages. Further research utilising more sophisticated quantitative and case study research which addresses conceptually and empirically this issue of variations in the magnitude of environmental injustices
- The presence in each case study of accommodation where an individual's housing locational choice was either very limited (public housing in Garbutt), or state coerced (Correctional Centre in Stuart). In each case the intent of government was to correct for the inequities imposed by the marketplace and social inequality, not to create further injustice on the residents of both facilities. It was not possible, beyond the association referred to in the beginning of this section, to ascertain the effect of the social housing in Garbutt on Garbutt's Indigenous population figures; however, it was possible for Stuart. Corrective Services internal data (Unpublished Annual Reports 1996 & 2006) reveals that 44% and 65% of the population of the Correctional Centre in 1996 and 2006 respectively, is Indigenous. Stuart Creek Correctional Centre is located in the middle of Stuart's industrial area, thereby turning the social inequities and injustice suffered by prison inmates into environmental injustice for the inmates of this correctional centre. The public housing in Garbutt, developed and managed by regional government, sited in line with the least cost principles outlined above, also turned the social inequities and injustice into environmental injustice for the people residing in the public housing in Garbutt. Inhabitants of other correctional centres and public housing estates remain subjected to the wider, multifaceted social injustices.
- Overall support for the development of the LULU's combined with a lack of popular resistance to both LULU's by neighbouring residents. Examination of the local newspapers – The Townsville Daily Bulletin, and the Brisbane Courier - reveals a popular demand for the development of both LULU's by both

government and the populace governed. The only resistance on record related to the now previous, then current, site of both facilities. In the case of the aerodrome this opposition was also on commercial grounds, and emanated from non-residents of the area.

- The existence of a pro-development/growth mantra amongst both the people and the government. Such a stance supports the status quo of a society that see the pathways to peace, prosperity and happiness as being an ability to participate in a market economy built around consumption of manufactured goods. As mentioned earlier, such a stance completely ignores other factors found to be crucial in quality of the life lived, such as playing a valued role in society (such as friend, partner or worker), a sense of connectedness and spirituality and health, denied to many due to their form of difference from what is considered to be 'normal'. Quite simply, while we the people demand the goods and services produced by the LULU's, society will have to continue to provide the land on which to house them. As many of these LULU's possess large workforces or are utilised by many people, they will need to be in large cities that can provide the infrastructure that supports their daily operations.
- Two new policies (enactment of a public housing scheme and inclusion of Indigenous peoples) were identified as being part of the causative processes underpinning the environmental injustice uncovered in Garbutt and Stuart. Both were devised and implemented by central government, acting in pursuit of an equity goal, seeking to reduce the social injustices that existed. Creation and implementation of both policies is a clear example of government seeking to increase its' relevance in the lives of the people, by improving them, and were formulated within the context of a society that sees the path to peace, prosperity and happiness as being a vibrant consumer economy (Louis & Magpili, 2001). Both also had the unintended side-effect of turning existing social inequities and injustices into environmental injustice for a small sub-group of the disadvantaged population the policies were seeking to assist.
- The existence of the two hundred years of history since Invasion/Colonisation in 1770, the effects of two policy frameworks devised to govern Indigenous affairs (Invasion and Resistance and Segregation and Protection), and the actions committed by individuals and government under these policy frameworks. The former has led to a massive distrust of government by Australia's Indigenous people, and the latter has created a population unable to participate in the modern market economy. Current policy frameworks are redressing the entrenched issues of disadvantage that affect Indigenous

people. However, arguably, unless Indigenous specific service provision is maintained, the gains made in alleviating the entrenched disadvantage will become harder to achieve.

This research has also managed to provide a definitive answer, applicable in many - though not all - cases to the question of which came first – the LULU or the low income, possibly minority people. The historical approach undertaken has revealed that a progression exists – early pioneers will move into an area that has nil or minimal infrastructure, and lobby for some basic infrastructure, such as transport corridors. Development of these transport corridors sees more people move into the area. At this stage a major project of some kind is developed, taking advantage of the presence of both the infrastructure and the people. Development of the major project attracts more people, usually seeking the jobs involved in either constructing or operating the development. Once developed, such transport corridors can also provide a least cost approach to the provision of additional civil infrastructure, such as water, communications, electricity and sewage networks, which increase the desirability of the area to both LULU developers and residents. These influxes of both employment opportunities and residents due to the existence of civil infrastructure work to create additional, future influxes of both employment opportunities and residents, attracted by the lower costs available in the area for both daily living (the residents) and operation (the employment opportunities). These settlement patterns can be clearly seen in the histories of both Garbutt and Stuart.

Least cost approaches to development mean that areas with strong civil infrastructure will be developed prior to any outlying land, as development of any additional infrastructure doubles the cost to develop the land (O'Connor, 2009). It was the early presence of the railway that underpinned the early development of Stuart in comparison to Garbutt. Once the northern railway had been finalised in 1911, Garbutt's closer proximity to the core of Townsville, then centred on the mouth of the Ross River, as well as the fact that the transport route to the city was unimpeded year round, meant that the focus of development shifted from the southern side of Townsville to the northern side. Additional development on Townsville's southern/western side did not occur until the transport access was similarly unimpeded by the construction of a higher level road bridge in the late 1940's/early 1950's. The first of the new industrial development in Stuart was construction of the Copper Refinery in 1956 (Invitation to Official Opening, Copper Refinery Ltd, 1959). This refinery was Townsville's first large scale industrial LULU, and as such needed to be situated out of the way of the majority

of Townsville's residents, but not so far away as to make employing the large workforce required difficult.

The presence of income inequality, in combination with personal preferences exercised when it comes to housing locational choice, then leads some areas to be composed primarily of low/er income residents. As income is linked to educational qualifications, those on low/er incomes often do not possess the capacity or desire to protest the siting of a LULU development – currently many Indigenous people are on low/er incomes due to their incapacity to participate, however there are other groups that are also affected. These include individuals living with either disability or mental illness, the aged and sole parent (most typically, the mother) families also fall into the low/er socio-economic sector of society. These are the people who end up residing in social housing or incarcerated in correctional centres, which may, or may not, be co-located with industrial LULU developments. Society owes such a people a responsibility to ensure that they are not left behind in the march towards a brighter future for humanity.

Policy Recommendations

Fair Siting Protocols

Been (1993) argued for enactment of fair siting regimes, which see planners allocating space for LULU development adjacent to high/er income, low/er minority population wealthier areas. In response to this proposal several jurisdictions have enacted such regimes (Baxter, Eyles & Elliott, 1999; Taylor & Wyckoff, 2009; Galland & McDaniels, 2008). However, Been (1993) also states that it is possible that the market will correct any anomalies created via enactment of fair siting regimes. Unfortunately, due to the long timeframes over which any development occurs, this hypothesis of Been's (1993) has not been tested empirically. Should Been's (1993) hypothesis find support in the future, then reliance on fair siting policies as a method of alleviating environmental injustice is flawed, in the same manner as was the case with the policies identified earlier as being instrumental in the causation of the environmental injustice. All fair siting regimes will do is ensure the continuation of environmental injustice, allowing environmental injustice to become even more entrenched, and occurring in more areas, than is currently the case. The social injustice, with the associated disadvantage, that underpins environmental injustice will remain. Therefore, additional policy measures must also be adopted if we are to truly reduce the occurrence of environmental injustice.

Recommendation 1

The research reported in this thesis has found that there is an association between LULU's and areas of low income, predominantly minority (Indigenous) inhabitants in the regional city studied. The research has also found in one of the case studies that zoning allowed for additional LULU development in that area; exacerbating the environmental harms residents of the area were exposed to. Although it is possible that enactment of fair siting regimes are a flawed method of alleviating environmental injustice, as outlined above, a fair siting regime still represents a least cost method in the short term of alleviating environmental injustice. It is for this reason alone that it is recommended that planning authorities work towards developing a fair siting regime and procedures that work to redistribute the environmental harms, placing them more evenly throughout the community. Developers seeking to site in an established area must show that their project will not increase the environmental harms neighbouring residents are exposed to on a daily basis. Such an approach means that environmental issues will still exist; however, and to reduce the impact of LULU's further requires an additional raft of policy measures, as outlined below.

Recommendation 2

Land zoned for heavy industrial development is increasingly becoming the responsibility of regional government, especially in Queensland, due to the high cost involved with the initial development of the land to enable large scale industrial facilities to be placed on that land. It can also be argued that large scale commercial development, such as a shopping centre, also has a potentially unacceptable environmental impact on the neighbouring residents due to the increased traffic flow in the area. If current planning practices that see such large developments occur in extremely close proximity to residential neighbourhoods continue into the future, then developers and planners should work to allocate buffer zones between the development and any residential area. In this manner, any adverse impacts on residents arising from the development will be somewhat mitigated. Some far sighted developers are already engaging in this practice, and are to be congratulated for doing so. Local government planners need to ensure into the future that such buffer zones between LULUs and residents are maintained. An example in the Townsville area is the Sumentals Korea Zinc refinery in Stuart – the developers of this facility ensured purchased a significant amount of land adjacent to the plant to prevent infill from occurring.

Recommendation 3

This research has shown that contentious facilities are such primarily due to the environmental impact of the development on neighbouring residents and/or the environment. This is especially so with regards to manufacturing plants and refineries. Such LULU's emit toxic waste and by product in either liquid or gaseous forms. Liquid or solid waste needs to be stored, often for some time, and while waste can be broken down to become more harmless for long term storage; often such processes produce hazardous by product. Therefore, it is recommended that developers of contentious facilities utilise technology to reduce these environmental burdens associated with waste and by product. If such technology is not available, then the development should not occur until such a method has been developed. People and the bio-system they live in should be more important than anything else, and should be the focus of major investment. Without a habitable planet to live on and meaningful relationships and connections with others, all the money in the world is of no use what-so-ever.

Recommendation 4

The research reported in this thesis has found that environmental injustice is linked with the existence of wider social inequalities, disadvantage and therefore injustice. Therefore, eliminating environmental injustice is clearly linked with the elimination of disadvantage and social injustice. It is therefore recommended that LULU developers of both sectors – public and private – compensate communities affected by the siting of contentious projects. This compensation should take the form of investment in the community, via the provision of support for the members of the community to become more fully involved in their community. This support should take the form of provision of both community facilities and educational programs that ensure that any disadvantage suffered by members of the community is not transmitted inter-generationally. Pulido (1996) and Bowen (2002) have argued that the existing environmental injustice literature, which is mainly U.S. based, is really about the over-representation of minorities, especially African Americans, in the low socio-economic group. Therefore, any money spent on educating the inhabitants of the neighbouring residential areas, both in the U.S. and Australia, as well as other countries, will also assist with reducing this over-representation, thus assisting in the further reduction of environmental injustice.

Recommendation 5

The research reported in this thesis has shown that policy pursued with good goals in mind can have unintended negative effects as a result of the implementation process.

This is because the social, or non-economic cost, and effect on daily lives, that will be imposed on people, especially those belonging to the vulnerable, marginalised citizens, Those who live with disability or mental illness, the aged and minority populations are often overlooked in the policy formulation process. This occurs for two reasons – the lack of social value assigned to such people and therefore, the want of someone to stand up for them. The possible ramifications of any policy on this group of citizens needs to become more explicitly a part of the policy formulation processes. To assist in this I recommend adoption of the seven principles outlined below in a proposed Policy Makers Manifesto, based on Winston's (2011) Scientist's Manifesto. Winston's (2011) Manifesto is based around an expression of values and the worth of all mankind and of the ecosystem.

1. Communication is central to the process of policy formulation and implementation. This communication needs to be open, honest and a two way process. Clarity needs to be striven for at all times, with language comprehensible to the layman.
2. Democratic governments need to remember that they are “of the people, by the people, for the people”. This means that they have a duty to act for all their constituents, not merely the vocal minority. In a world where disadvantage exists, and will most likely always exist, governments have a duty of care to look out for the most vulnerable, marginalised citizens, as they often cannot look out for themselves. The current focus on early intervention in the lives of such people assumes that support will not be required over the entire term of the life span, and this is erroneous. The marginalised and vulnerable are nominally members of a minority of some kind – be they living with a disability or mental illness, aged, ethnic minorities, etc. Much policy relates to, and will have an impact on, these minorities who cannot compete in the marketplace, and require support mechanisms. Government needs to ensure that any policy that is enacted will not leave such people worse off, or subjected to additional injustices, once implementation has occurred.
3. Policy makers should posit ethics first and foremost during the policy formulation stage. If ethics are embedded into the policy at this stage, then implementation will not cause any disadvantage to arise to any marginalised, vulnerable group of citizens. Incorporating ethics into the formulation phase of the policy cycle will ensure that those responsible for implementing the policy do not behave in arrogant “I know best for you” fashion, and will allow every citizen to live with dignity. Social policy in particular should be aimed at

ensuring that every citizen has an opportunity to live a life that is fulfilling, and has a valued social role, no matter who they are or what disadvantages they may live with.

4. Policy makers need to realise that everything is interlinked – fiscal policy can have effects that may be deleterious on social policy (a desire to balance the budget can lead to cuts in support services required by individuals who live with disability, thereby affecting their capacity to participate). Policy makers need to find the balance between competing goals, especially where the marginalised and vulnerable will be affected unduly due to an emphasis on one of the competing goals/policies.
5. Policy makers should be aware of the potential for any conflict of interest, and seek to avoid being compromised. In all aspects of policy formulation, the focus should be on the common good, not the aspirations of the actor involved in formulating the policy. Policy makers need to become more critically reflective in their practices, and seek to unpin their own needs and desires from the policy process.
6. Policy makers should learn from each other. Sometimes ineffective policy implemented in another jurisdiction can teach us lessons to ensure we do not make the same mistakes, and that our policy is much more effective in meeting the goals set. Much policy is also formulated on the basis of utilising a “trickle down” approach – by changing the conditions for those who can make use of the market and participate, it is assumed that eventually the effects will “trickle down” to those who find participation difficult for any number of reasons. This is not necessarily the case – there will always be some people who need constant support and assistance to participate, and policy makers have a duty of care to this sector of the population to ensure that they are not left behind.
7. Policy makers in the westernised, industrial world have much to learn from the First World Nations about how to live in harmony with both one another and the environment. We need to take care of both ourselves and our world as we but custodians for the next generation. We ignore this knowledge at our own peril.

Limitations and Scope for further research

The research reported in this thesis has been subjected to several limitations, which has opened up scope for further research to occur.

1. **Data limitations** – The qualitative analysis undertaken as part of the research reported in this thesis was based on the collection of a large quantitative and

qualitative data base, utilising the best publically available data. However, despite this, some limitations do exist, and relate primarily to the manner in which the data gathered was itself obtained. The quantitative data was gathered via a self-reporting process, during two of Australia's biennial censuses, conducted by the ABS. The ABS reports a tendency to either understate, or not report at all, income levels by respondents. In addition, only the median income figures are publicly available. As a preponderance of incomes at either end of the total income range can skew the median figure recorded, a median figure is not representative of the true income received by the majority of the SLAs inhabitants. The same issues arise with regards to Indigenous population figures recorded, as these too are collected on the basis of self-reporting. However, the ABS does issue Quality Declarations with regards to data gathered in the census. The only issue with the qualitative data arose with the gathering of the historical data required to tell the stories of Stuart and Garbutt. Some data, particularly relating to Stuart, was unobtainable due to cost factors, with other data relating to both Stuart and Garbutt being unobtainable as it could not be located, despite extensive searching. However, it is considered that enough data existed on both areas to enable a fairly comprehensive story to be told, which allowed for some determinations to be made. Finally, this research did not make use of other variables, such as housing costs, as the data was not available publicly.

2. **Methodological Approach –**

- a. The case study methodology makes it difficult to generalise the findings of this research, with both case studies being part of the same major regional city. Other cities may have differing histories which may affect the results obtained. However, the methodology can be utilised in similar studies in other cities in order to ascertain if any commonalities exist in the formative processes of environmental injustice.
- b. Due to the differing political environment operative between Australia and the United States, it was difficult to compare the findings of the research reported in this thesis with the findings of the established research. However, enough literature existed to ascertain that similar causative processes appeared to be at work in the formation of environmental injustice in both Australia and the United States.
- c. Variance was found in the severity of the environmental injustice that existed in Townsville. Of the three SLA's that existed in close proximity to heavy LULU concentrations, the environmental injustice was found to

be severe in two cases (which were closely studied) and mild in the third. Further research utilising more sophisticated quantitative and case study research which addresses conceptually and empirically this issue of variations in the magnitude of environmental injustices will be required in order to flesh out this aspect. Also of note in this area was that the concentration of Indigenous populations in all three areas was found to be related to the presence of accommodation that was of limited choice or state coerced in nature. Both these aspects of this research have ramifications for the environmental injustice empirical base.

- 3 **Perspective** - Bowen (2002) states that the environmental injustice literature is really about the over-representation of African Americans in the low socio-economic group of society. This research has also found that a similar position was also found to exist in Australia. The research reported in this thesis has undertaken a wide ranging, comprehensive examination of environmental injustice in Australia. Research undertaken with a narrower focus, and differing underlying political ideology, will, by necessity, have different results and recommendations. There is significant scope to expand the current inadequately developed underlying theoretical foundations of environmental injustice research (Bowen, (2002), by conducting research in Asian countries, such as China, and Eastern and Western Europe utilising a similar methodology.

- 4 **Overall Approach** – The research reported in this thesis made use of a positivist foundationalist approach, within a centre-right ideological belief, and was intended to be a comprehensive exploration of the topic of environmental injustice in Australia. The underlying assumption was that a cause and effect relationship could be discovered, and that there was more than one contributor to the creation of environmental injustice. Perception of where the fault lies will differ, sometimes significantly, according to the perceiver, with some perceivers allocating entire fault to external mechanisms with no exploration of the role played by internal mechanisms. The opposite can also apply – the perceiver will allocate fault only to internal mechanisms, with no allowance for externalities that may impact.
 This research made use of simple quantitative data measures combined with qualitative methods such as in-depth interviews and analysis of historical documents such as news articles, compiled histories and Council minutes.

Much of the conclusions surrounding the historical decisions have been made on the basis of this printed material – no interviews were possible as the actors were deceased. Nor were the current residents of Garbutt and Stuart interviewed for their interpretations on the issue of whether or not they felt a sense of environmental injustice. In actual fact, one Elder declined to be involved due to their misconceptions surrounding the goals of this research. Even after explaining the goals of this research with this individual, they still felt that I was attempting to do a study I was not attempting to do. These perceptions may be due to the effects of the history recorded in Chapter Six. A different theoretical or ideological perspective may have completely different conclusions on the topic of environmental injustice.

Finally, the research reported in this thesis is concerned primarily with the causative mechanisms associated with the occurrence of environmental injustice. It has been found that two of the causative mechanisms are the existence of income inequality and social injustice, and that discrimination arises from within the psyche of someone/group struggling to explain why they are not achieving their desires, quite often due to the personal preferences of another group of people dominating their thoughts and actions. Davey (1997) argues that injustice is inevitable, and cannot be avoided, quite possibly due to the fact that people exhibit bio-chemical reactions on exposure to injustice (Rosenbaum, 2013). Indeed, communism as an ideology has shown the world that equality is difficult to achieve, however, in the view of this author, a world without the existence of social injustice is both achievable and doable. To develop such a world requires all of humanity to acknowledge the intrinsic worth and right to exist in the world of every other person who inhabits the world, and to acknowledge the rights of every other person to have the quality life underpinned by the principles espoused by Brown and Brown (2003) – that all people, regardless of ability or otherwise, deserve to lead a life whereby they can feel valued as a person, contributing in some way to society. To achieve this life requires everyone to do two things. The first is to become critically self-reflective and examine our own roles in what is affecting us as a person, and the second is to be both open and tolerant to new and possibly very different ways of living, and to support those who need support to achieve Brown and Brown's (2003) version of a quality life. To paraphrase Voltaire *"I may not agree with what you say/possibly do, but will defend to the death your right to say/possibly do it"*. I would close by stating that it is my hope that this is the direction that Dawkins (2006) moral zeitgeist takes mankind in the future. How is this to be accomplished – we start with the children, who are, after all, the future.

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