

***Exploring the relationship between  
localisation and sustainability***

by

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A thesis submitted to the Charles Sturt University in fulfillment for the degree of  
**DOCTOR OF PHILOSOPHY**  
School of Environmental Sciences  
Charles Sturt University  
**August 2015**

## ***Abstract***

### **'Exploring the relationship between localisation and sustainability'**

Localisation is believed to occur where a country, region, community or town own and source their essential life requirements such as water, food, energy and housing materials from renewable resources locally, minimise imported resource dependence and prioritise social and environmental health, local ownership and governance participation. It is believed that localisation may be globally adopted to regain sustainability, allowing healthy, globally diverse communities and cultures to flourish. Localisation would involve (particularly for high income countries) more constrained (localised) production and consumption, entailing minimisation of the redistribution of resources and cheap labour from low to high-income countries. This redistribution historically occurred through colonisation, and is more recently occurring through globalisation involving international trade and 'development' programs. A paradigm shift away from the currently dominant force of globalisation toward localisation would require high-income countries to prioritise social and environmental health by locally providing their own resource needs, and to decrease their reliance upon international trade.

Within the context of the need for sustainability strategies that can facilitate a paradigm shift away from unsustainable and dominant globalisation, and by developing a way to measure localisation, this research correlates localisation and sustainability at national and global levels, and provides qualitative interview analysis from top sustainability scoring places. A modified version of the Bhutanese Gross National Happiness Index was developed and utilised to identify top sustainability scoring Bhutanese districts, and interviewing was carried in these places to explore whether localisation is relevant to sustainability planning and implementation there. The interview results importantly contribute to final recommendations regarding the potential for localisation to provide successful planning and implementation strategies to achieve the required paradigm shift toward sustainability.

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## ***List of abbreviations***

BLI - Bhutanese localisation index

BSI - Bhutanese sustainability index

Globalisation - Economic globalisation

GNHC - Gross National Happiness Commission

GNHI - Gross National Happiness Index

GLI - global localisation index

GSI - global sustainability index

IMF – International Monetary Fund

Localisers - Localisation proponents

LI - localisation index

SI - sustainability Index

UN - United Nations

WB - World Bank

WTO - World Trade Organisation

### **Please note:**

This thesis is addressing localisation, as distinct from localism. As outlined by Hopkins (2010, p.239) *“localism...focuses on political structures, the devolution of governance, the application of subsidiarity to democracy, while localisation focuses instead on the practicalities of building more localised economies, in terms of food, energy, manufacturing and so on, which may necessarily include governance”*.

As explained in the literature review, globalisation is generally associated with economic, corporate or neoliberal globalisation. The use of the term globalisation in this thesis will refer to this form of economic globalisation unless otherwise specified.

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## ***Acknowledgements***

I would like to express my gratitude to the Environmental Sciences Department at Charles Sturt University (CSU) and the NSW Office of Environment and Heritage, for the funding of this project. It is an honour and a pleasure to have been afforded the time and freedom, to pursue in depth this fascinating topic of such immediacy. I would further like to thank Johnathon Howard and Brent Jacobs for thinking outside of the box and supporting the spirit of creativity, by allowing me to pursue this topic that I brought in from left field of the one that they were planning to fund.

My extreme thanks go to Doctors Johnathon Howard and Ben Wilson from CSU, as my Supervisors. To Johnathon for his tireless and patient editing, and for coming up with some ideas that completely changed the direction that the project took. One of these seemed inconvenient at the time, and had me hone in on one country. I ended up settling on Bhutan, which otherwise would likely not have happened. This became an invaluable turn in the course of the project.

Many thanks to Ben for his astute perceptions regarding the potential scope of this project, and for his quick grasp of the statistical possibilities as these emerged. His support enabled the project to become bigger in scope than seemed possible. And I am very grateful that when there was a major hiccup near the end, Ben provided his full support to ensure my successful completion.

I would also like to thank Wayne Robinson for his patient assistance with statistical advice and knowledge regarding index formation. I had a steep learning curve in this arena, and Wayne's expertise and guidance was invaluable to the project outcomes.

Thank you to Doctors Helena Norberg-Hodge, Rob Hopkins, Ted Trainer, Thomas Princen, and Michael Schuman and Judy Wicks, on whose work this thesis was built. They were very generous with their time and advice in agreeing to provide interviews for the research, and they have invaluable contributed to the outcome. Extra thanks to Helena for providing such inspiration, and also her interest and gentle opinion from time to time.

Thanks to Tenzin Wangmo from the Gross National Happiness Commission for her kindness and generosity. Without her help, the Bhutanese leg of this project could not have happened. And thank you to the GNHC for having me with them and providing full assistance, twice. I hope that this work is of use.

Finally I would like to thank my family and friends for their patience, support, encouragement, enthusiasm and interest over the course of this project. It would have been a lonely road without them. Particularly my Dad, whose concurrent PhD has made for lots of helpful discussion and sharing of research ideas. And I can never thank my muse Honey enough, for her company and stoic endurance of my endless days on the computer, when there was so much fun to be had outside in the real world.

# Chapter 1 Introduction

## 1.1 Research background

Though sustainability is now a critical challenge for humanity, its meaning and interpretation has become one of the most contested in modern times (Turcu, 2012). This enables widespread denial of the urgent need for a paradigm shift, as opposed to the continuation of business as usual despite long-standing, dire scientific warnings (MEA, 2005a; Rees, 2010; Stern, 2007). Such a shift would undermine economic-globalisation, and this presents a significant barrier to the exploration or adoption of transformative measures (Rees, 2010).

The widely accepted sustainability definition, “Meeting the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987, p. 87), lends itself to misinformed or deliberate misinterpretation of essential aspects of sustainability such as socio-ecological health and equality (Daly, 1990; Doyle, 1998; Norberg-Hodge, 2008; Trainer, 2010b). These life-essentials have no accurately determinable economic value, making them difficult to adequately measure or address using economic value, and results in their frequent dismissal as low priority (McMurtry, 2012). This dismissal ensures continued worldwide degradation of local environments and societies, the consequences of which now present great challenge for the adoption of transformative sustainability measures (ABC, 2012; Brennan, Cass, Himmelweit, & Szebehely, 2012; Graymore, Sipe, & Rickson, 2010; Royal Government of Bhutan, 2012d). An unsustainable reliance on imported as opposed to local resources entails further challenge, and has become entrenched through either choice or necessity (Shuman, 2010; Trainer, 2010a).

Many believe that the required sustainability paradigm shift will entail (particularly for high income countries and people) a move to constrained production and consumption (Abdallah, Thompson, Michaelson, Marks, & Steuer, 2009; MEA, 2005a; Norberg-Hodge, 2008; Rees, 2010; Royal Government of Bhutan, 2012d; Trainer, 2012). It is believed that this will decrease threats posed to ecosystem health by reducing toxic pollution, carbon emissions and socio-ecological exploitation (North, 2010; The Royal Society Science Policy Centre, 2012, p. 9; WWF, 2010, pp. 4-5). Constrained consumption whereby regions provide for their own needs from local resources, is thought to decrease the need for international trade and globalised production, which may in turn may provide ideal conditions for connectedness, socio-ecological health and increased equality (Abdallah et al., 2009; J. Hicks, Burgman, Marewski, Fidler, & Gigerenzer, 2012; Knight & Rosa, 2011; McCartney & Hanlon, 2009). Some believe that such a shift might be achieved through localisation, and that this would enable global sustainability improvements (De Young, 2012; Hopkins, 2010; Norberg-Hodge, 2000; Trainer, 2010a).

## 1.2 Research gap – exploring the relevance of localisation to sustainability

Contrasting with globalisation, localisation is said to occur when essential life requirements such as water, food, energy and housing materials are utilised from the local ecosystems in which they occur, by socially healthy communities (Douthwaite, 2004; Norberg-Hodge, 2001). It is then in the interest of local communities that are directly dependent upon the health of the ecosystems upon which they rely, to ensure that these and the community structures that affect them, function well (J. Hicks et al., 2012). Because of the need for localised communities to live largely within the means of local ecosystems, localisation is described as being predicated on socio-ecological health (Douthwaite, 2004; Norberg-Hodge, 2001).

Due to the potential for localisation to facilitate healthy, connected communities that entail constrained consumption and minimal socio-ecological deterioration, some see localisation as a way to be sustainable (De Young, 2012; Douthwaite, 1996; Hopkins, 2010; Max-Neef, 2010; Norberg-Hodge, 2001; North, 2010; Trainer, 2012). Some researchers strongly suggest investigating this potential (Curtis, 2003; Frankova & Johanisova, 2012; Hopkins, 2010). However in describing localisation literature, Hopkins (2010, p.17) notes there is, “...little that pulls it together to look at how, strategically, it would apply to the intentional relocalisation of one settlement”. Frankova (2012), Curtis (2003) and Fields (1998) state that clarification of the meaning of localisation may assist in making the concept more accessible for such investigation. Further to this there is no discussion in the literature regarding quantifying or measuring localisation, so that localised places might be identified.

This thesis seeks to consolidate localisation literature and expertise, clarify a definition and determine a way to identify and measure localisation. It might then be possible to locate and determine whether the most localised places correlate with those that are most sustainable. If so there would seem added imperative to investigate localisation as a sustainability strategy, and to determine the causality of this relationship. Causality between localisation and sustainability might then be investigated in the most sustainable places to see how they achieve this, and whether localisation provides the means.

## 1.3 Research aims and objectives

The aim of this thesis is to, *Critically examine the relationship between localisation and sustainability*. The main research objective is to: *Explore the potential for localisation to inform sustainability planning and implementation*. The research question being employed to achieve this is: *‘What is the relationship between sustainability and localisation, and how localised is best practice sustainability?’* The key objectives to achieve this aim and answer this research question are:

- *Research objective 1: Succinctly and holistically define localisation.*
- *Research objective 2: Determine and locate best practice sustainability in order to determine how localised this is.*
- *Research objective 3: Determine suitable metrics with which to measure localisation, in order to correlate localisation and sustainability.*
- *Research objective 4: Develop a LI for 1 country and correlate this with a sustainability index for the same country.*
- *Research objective 5: Develop a global LI with which to correlate a global sustainability index (GSI) for the same countries.*
- *Research objective 6: Examine the causality of relationship between sustainability and localisation.*

#### 1.4 Potential research applications

The consolidation of localisation descriptions to form a concise, holistic definition may make this valuable field more accessible to researchers. Further to this localisation measurement may provide a way to identify localised places, and assist determination of the relationship between sustainability and localisation. This would enable the formation of working localisation case studies for innovation diffusion that might be adapted to unique local conditions elsewhere, in the form of concrete guidance for individuals, communities, policy-makers and governments wishing to plan and operationalise localisation.

#### 1.5 Research structure

Chapter 2 will provide an overview of economic globalisation, sustainability and localisation literature. This provides context for the overall research, and the challenges of researching in this field of enquiry. It also outlines sustainability and localisation research, and identifies gaps in these fields of knowledge. The chapter begins to address *Research objective 1: Succinctly and holistically define localisation*; and provides context for Chapters 4-5 interviews with localisation experts, and Chapters 7-8 regarding sustainability assessment. A critique of globalisation and the resultant socio-ecological crisis as context for the need for sustainability, begins to answer *Research objective 2: Determine and locate best practice sustainability in order to determine how localised this is.*

Chapter 3 outlines why and how an exploratory, stepwise, critical realist social science methodology is used to examine the overall research question, *What is the relationship between sustainability and localisation, and is best practice sustainability relatively localised?* The research aim and objectives are explained and in accordance with a critical realist approach, this exploration challenges current economic and social structures, exploring social actions that create an agenda for change or reform and potentially enhance lives.

Chapter 4 further addresses *Research objective 1: Succinctly and holistically define localisation*. The chapter describes interviews with 6 world-recognised localisation experts, and examines how localisation might be concisely and holistically defined. Relevant literature is used to supplement the definition.

Chapter 5 explores *Research objective 3: Determine metrics with which to measure localisation*, again drawing upon the expertise and responses of the interviewed localisation experts. The responses are summarised to provide rich detail about measuring localisation using the suggested metrics, and to make clear the exact meanings of these metrics. A localisation metric set and the method used to form these, is described.

Chapter 6 explains the process used to begin to answer *Research objective 4: Develop a LI for 1 country and correlate this with a SI for the same country*, and *Research objective 5: Develop a global LI with which to correlate a global SI for the same countries*. The chapter describes how the developed localisation metrics were used to form regional and national scale LIs for the 20 districts of Bhutan, and for the 103 countries for which the relevant data is available. The process of gathering localisation metric data is described, as are data sources and methods used to weight, rank and score localisation metrics.

Chapter 7 further addresses *Research objective 2: Determine and locate best practice sustainability in order to determine how localised this is*. This provides context for correlating localisation and sustainability with an outline of current sustainability measurement methods at regional and national levels, and identification of how and why the selected SIs were chosen for correlation analysis. It also explains why Bhutan was the ideal country in which to both quantitatively and qualitatively investigate the relationship between sustainability and localisation, regionally.

Chapter 8 begins to answer *Research objective 6: Examine the causality of relationship between sustainability and localisation*. Localisation and sustainability are correlated regionally and nationally using the selected SIs and formed LIs, and the results are reported and discussed. Index strengths and weaknesses are also outlined.

Chapter 9 further addresses *Research objective 6: Examine the causality of relationship between sustainability and localisation*. This chapter reports the interviews carried out across Bhutanese regions, and the results are used to explore whether localisation is relevant to sustainability planning and implementation factors as experienced particularly by regions of best practice sustainability in Bhutan. This chapter then provides information about practical sustainability implementation, and whether localisation is relevant to this.

Chapter 10 ends the thesis with discussion regarding the overall findings and conclusions of this research project. The chapter covers the contribution of this research to the fields of localisation and sustainability, the addressed research gaps, and potential future uses of the research findings.

## **Chapter 2 Globalisation, sustainability and localisation**

This chapter explores and critically analyses globalisation, socio-ecological crisis, sustainability, and localisation literature. The context of this exploration is: i) the current socio-ecological crisis resulting from globalisation; ii) a resultant need for effective and transformative sustainability measures; and iii) calls for localisation as a transformative sustainability remedy. This sets the scene for all chapters, exploring alternative trajectories to that of globalisation in the form of localisation as a transformational sustainability strategy.

### **2.1 Globalisation and its impact on localisation and sustainability**

This section provides context for exploring the relationship between localisation and sustainability, as globalisation is believed to result in negative impacts that undermine sustainability and local communities (Mander & Goldsmith, 2001; Norberg-Hodge, 2012; Shiva, 2005). This globalisation critique explores views that as a result, sustainability strategising based on globalisation is ineffective and destructive, and highlights the relevance of calls to investigate the contrasting strategy of localisation (Curtis, 2003; De Young, 2012; Frankova & Johanisova, 2012; Mander & Goldsmith, 2001; Norberg-Hodge, 2012; Shiva, 2005; Trainer, 2010a). The critique also explores the impacts of globalisation as especially evident in traditional and/or Indigenous nations and cultures most recently absorbed into the global economy. Support for globalisation is also summarised.

#### **2.1.1 Definition and origins of globalisation**

Hines (2003, p.1) describes corporate (economic) globalisation as “...the ever-increasing integration of national economies into the global economy through trade and investment rules and privatisation, aided by technological advances”. Ramos (2010, p.160) succinctly describes globalisation as, “...the integration of markets into a global economy”. Hines (2003, p.5) states that it is crucial to distinguish economic globalisation from globalisation as a global flow of technology, ideas and information that support sustainable local communities, or “supportive internationalism”. Lamberton (2005) explains that this form of globalisation results in the sharing of knowledge, ideas and international cooperation that does not require large-scale environmental destruction. This thesis focuses on economic globalisation, and refers to this as globalisation.

Globalisation has quickly become the prime objective of governments globally (Abdallah et al., 2009; Cavanagh & Mander, 2004; Haque, 1999; Rees, 2010). Haque (1999) claims it is the ability of globalisation to facilitate seemingly limitless economic growth that now makes it central to the policy objectives of most governments, in contrast to 99.9% of human history consisting of no-growth (Rees, 2010). Economic growth is described as globalisation-predicated, and now drives government policy globally to enable continued market expansion (Haque, 1999). Indeed it is noted, "...we live in a world of increasingly complex interdependencies, and the outcome relies on the capacity of institutions, process and actors - whether at local, nation-state, transnational and/or global levels - to develop solutions that further imbricate states and political processes into developing a relatively stable world characterised first and foremost...by economic growth" (Cerny, 2009, p. 7).

The original 1944 Bretton Woods agreement signifying the formalisation of globalisation and economic growth strategising, was based on the principle of comparative advantage whereby nations specialise and trade in that with which they are most naturally endowed (Cavanagh & Mander, 2004; Norberg-Hodge, 2000; Ramos, 2010). Comparative advantage quickly became obsolete with the advent of mobile global capital and trade liberalisation, and a global economy based on absolute rather than comparative advantage then emerged (Cavanagh & Mander, 2004; McCarthy, 2004). Absolute advantage and the resultant disadvantage that this involves for most countries and people, continues to be enforced by the World Bank (WB), The International Monetary Fund (IMF), the GATT and The World Trade Organisation (WTO) (Cavanagh & Mander, 2004; McCarthy, 2004). These central institutions of the United Nations (UN) are described as the global bureaucracy of neo-liberalism and globalisation (Cavanagh & Mander, 2004; McCarthy, 2004).

Following the Bretton Woods Agreement and the resulting process of globalisation, currently 54% of the world's population live in urban areas highly dependent upon external resources for most of their needs, with 66% projected for 2050 (UN, 2014; WCED, 1987). Due to these effects many of those in rural areas are also now highly dependent on external resources, as they no longer have access to land to provide for their own needs, or they are so indebted they cannot afford to consume their own produce (Norberg-Hodge, 2000; Shiva, 2007). Ramos (2010) claims that this global cultural change is occurring as the WB fund mega development projects across the world, and the IMF push growth oriented policies everywhere.

Trainer (1996) states that until the 1960s markets and market relations still played a minor or non-existent role, and that traditional local economies changed as market relations quickly became dominant. Trainer (1996, p.6) reports this changed emphasis to be a fundamental mistake due to the resultant lack of "social embeddedness" (social relations in economic transactions), likely to facilitate "...the rapid disintegration of society and its ecological foundations". Norberg-Hodge (2000) also claims that a destructive tendency of globalisation is to divide local communities from the natural world and each other, in order that economic growth and 'efficiency' are prioritised. A fundamental shift from

economies embedded in local communities and their natural environments to a centrally administered global economy based on absolute advantage, globalisation and economic growth, is then claimed to have occurred.

## **2.1.2 Support for globalisation**

### ***2.1.2.1 The Kuznets curve' hypothesis***

The Kuznets curve' hypothesis is promoted by some environmental economists, the WB, WTO and other global bureaucracies. The hypothesis suggests that while globalisation may initially accelerate environmental degradation, continued growth will result in better environmental quality. The theory implies that as mature economies increase in wealth and move beyond industrial production, production efficiency improves and people can afford increased environmental protection (McCarthy, 2004). Such improvements are believed indicated by increasing forest cover and reduced CO2 emissions per unit of production, in "mature" economies (McCarthy, 2004, p. 328). The Kuznets curve' hypothesis suggests that policies limiting growth and globalisation will prolong the phase of environmental destruction (McCarthy, 2004).

### ***2.1.2.2 Ecological modernisation***

The second main school of thought regarding positive globalisation effects is that of ecological modernisers, who contend that the "...ongoing, internal dynamics of capitalist modernity can be harnessed to improve environmental quality" (McCarthy, 2004, p. 328). These dynamics include market-based measures such as environmental product certification and ecological taxes. The theory also relies on, "...the rapid proliferation of international environmental NGOs, treaties, and institutions...the emergence of an international civil society and global environmentalism' capable of restraining the excesses of capitalism and steering growth along more environmentally benign paths" (McCarthy, 2004, p. 328).

### ***2.1.2.3 Global bureaucracies of globalisation and supporters***

Some believe that economic growth and the globalised economy are important and necessary prerequisites for increased material living standards and income, and that they also alleviate poverty and inequality (Lomborg, 2013; McCloskey, 2012; UN, 2012b). The UN (2012, p.1) describe economic growth as, "...creating greater opportunities for all, reducing inequalities, raising basic standards of living, and fostering equitable social development and inclusion...". The Global Monitoring Report states that in order to end poverty and improve the lives of the poor, "Economic growth will prove paramount" (World Bank and International Monetary Fund, 2015, p. xi).

Lomborg (2013) cites the benefits of economic growth to include: better education; living longer; a reduction in the cost of poor health; pollution reduction; and increased carbon dioxide in the atmosphere boosting agriculture and preventing more deaths from the cold than it causes deaths related to the heat, and reducing the demand for heating. McCloskey (2012, p.23) believes, "...the descendent in today's Glasgow of the dairy maid or the cook, in whom the old intelligence shines, is richer because the society in which she lives has moved from \$3 to \$125 a day. She has hugely greater scope, capabilities, potential, real personal income...She leads a life fuller in work, travel, education, health, acquaintance, imagination".

The belief that globalisation is a triumph is evidenced in various reports. For example the UN Human Development Index (HDI) Report (2011) notes, "The remarkable progress in human development over recent decades..." (UN, 2011, p. iv). The UN reports this progress to include global improvements in education levels, access to goods and services, and expansion in people's power to select leaders, influence public decisions and share knowledge. The IMF and WB Global Monitoring Report (2015, p.2) states, "Growth is the major driver of poverty reduction", and the Millenium Ecosystem Assessment (2005) reports human wellbeing to have steadily increased.

### **2.1.3 Globalisation impacts on local communities**

#### ***Introduction***

Despite widespread globalisation, this has long been described as destructive of local cultures and environments, and as result to be causing a dangerous socio-ecological crisis whereby local, self-reliant economies, communities and environments decay or collapse as they are displaced by monetary economies, media and consumer ideologies (for examples see Daly, 1990; Doyle, 1998; Holmgren, 2009; Keynes, 1933; Mander & Goldsmith, 2001; Max-Neef, 2010; Norberg-Hodge, 2008; Norberg-Hodge, Gorelick, & Page, 2011; Scholte, 2008; Schumacher, 1973; Shiva, 2005; Trainer, 2010a; Victor & Jackson, 2012). This description is consistent with the three caveats that accompany the Human Development Index (HDI) report (2011), which claims remarkable human progress and income growth. These caveats include the association of income growth with: deterioration in key environmental indicators; worsening income distribution in much of the world; and considerable variation in the relationship between HDI increase and empowerment (UN, 2011). The UN (2011) acknowledges these caveats only as 'harmful effects', others describing them as omnipotent, insidious and the most pervasive influence on the planet today (McMurtry, 2012; Rees, 2010; Swyngedouw, 2004). Due to these effects, many claim that sustainability strategising based on globalisation is ineffective and destructive, and call for urgent alternative measures as sustainability's main aims include environmental protection and inequality reduction (Cavanagh & Mander, 2004; Lamberton, 2005; Martinez-Alier, 2008; Meadows & Randers, 2004; Norberg-Hodge, 2003; O'Riordan, 2012; Shiva, 2005; WCED, 1987).

### **2.1.3.1 Unintended consequences**

Kissinger (2010, p.2617) notes, “While globalisation shrinks the world it also increases the distance between cause and effect”. Norberg-Hodge (2014) claims that as a result of this distance globalisation is facilitated by its tendency to obstruct peoples’ vision of, and responsibility for the consequences of their actions (Norberg-Hodge, 2014). This contrasts with the socio-ecological feedback thought to be facilitated by local proximity, lack of feedback preventing people from linking their everyday experiences to the global consequences that many claim are threatening the viability of life on Earth (D’Souza, 2002; Daly, 1990; Doyle, 1998; Jackson, 2012; Norberg-Hodge, 2008; Robinson, 2004; Trainer, 2010a; Zaccai, 2012).

The negative impacts resulting from globalisation are then often the unintended consequences of local actions that have distant and global results (Norberg-Hodge, 2014; White, 2010). White (2010) describes these consequences to include food insecurity, climate change, peak oil and financial instability. This “out of sight, out of mind” effect allows rich nations to avoid the results of their over-extended consumption patterns, globalisation then benefiting some people, while at the same time and often unintendedly, negatively impacting others (White, 2010, p. 104).

### **2.1.3.2 Short-termism**

Dunlop (2008, p.15) describes the market economy to be resulting in a corporate environment where “perverse incentives” lead to: paranoia with short-term performance; the dispensing of valuable corporate memory capable of long-term thinking; and research environments where funding focuses on short-term projects to the detriment of long-term, fundamental research. Twinn (2012, p.127) also describes a situation whereby short-term returns to satisfy institutional shareholders tends to “squeeze out” longer-term needs. Twinn (2012, p.124) explains that this squeeze is experienced by small business in the form of fee competition, Academe as funding streams that “use tick-box criteria and ranking systems”, and industry and government which are increasingly subject to “outsourced and largely superficial judgments” on the determination of a worthwhile project.

Dunlop (2008, p.15) describes these current political settings driven by short-term profit and political agendas, as ‘short-termism’. Some claim that short-termism makes the addressing of socio-ecological concerns from the long-term, intergenerational perspective required for sustainability, very challenging (Dunlop, 2008; Twinn, 2012; UNEP, 2011). The sustainability frameworks required for intra and inter-generational equity are then compromised by the occurrence of short-termism (Dunlop, 2008).

### **2.1.3.3 Externalities**

Shiva (2005) claims that economic advantage and productivity gains of global industry hide the 'externalities', or hidden costs of their production methods. These externalities include soil erosion and depletion, groundwater exploitation, and extinction of biological, cultural and knowledge diversity (Shiva, 2005). Daly (2013) further outlines such externalities to include, "...nuclear wastes, climate change...biodiversity loss, depleted mines, deforestation, eroded topsoil, dry wells and rivers, sea level rise, the dead zone in the Gulf of Mexico...plastic trash in the oceans, the ozone hole, exhausting and dangerous labor, and the unrepayable debt from trying to push growth in the symbolic financial sector beyond what is possible in the real sector". These globalisation externalities comprise extensive socio-ecological damage.

Daly (2013, p.22) explains that externalities have no market price, and that as a result they are usually ignored or at least quickly forgotten. When past growth benefits are outweighed, according to "...the logic of maximisation embodied in equating rising marginal cost with declining marginal benefit" (Daly, 2013, p. 22), we all then pay the cost becoming poorer as, "...growth in the physical dimensions of the human economy pushes beyond the optimal scale relative to the biosphere" (Daly, 1990, p. 5). Daly (2013) explains that as a result, aggregate growth of the economy now likely costs more than it is worth, and the externalities resulting from globalisation make the benefits unviable.

### **2.1.3.4 Negative economic impacts**

Increasing national debt

Countries often attempt to afford the infrastructure required to sufficiently homogenise export industries to attract global corporate activity and investment, by loaning large amounts of money from the IMF and WB (Norberg-Hodge, 2000). They are then subject to governance and development changes as dictated by these global bureaucracies (Norberg-Hodge, 2000). If demand decreases for the exports in which that country specialises, it is likely to sink further into debt and become increasingly at the mercy of 'structural adjustment' programs administered by the WB and IMF to increase international 'competitiveness' (Norberg-Hodge, 2000).

Norberg-Hodge (2000) claims that structural adjustment programs result in nations decreasing social and environmental spending to further fund infrastructure-development, and further reducing restrictions on global capital and investment. Loan repayments that may be equivalent to a large percentage of the country's annual budget for just the interest, "...require surpluses that can only be generated by trading away natural resources or a significant portion of national output. Entire nations are then impoverished by a vicious debt cycle, they are also ensnared into ever greater dependence on the global economy" (Norberg-Hodge, 2000, p. 7). Globalisation and government debt then rise,

making it increasingly difficult for nations to protect local socio-ecological concerns from international finance and capital, and replacing local with global systems of trade (Norberg-Hodge, 2000).

#### Market instability

Cavanagh and Mander (2005) outline that economic theory has long recognised the inherent instability of global markets. This instability is due to prices for goods initially increasing to artificial levels far exceeding local production costs as demand increases, and then falling to far below local production costs with increasing global production (Cavanagh & Mander, 2004). Depressed prices result in economic destabilisation for the many countries, "...ever-more tightly...tied to this complex volatile global economy over which they have no control" (Norberg-Hodge, 2000, p. 8). The economic costs of globalisation are then borne by the many individuals who suffer reduced income as their local economy is subject to global market volatility.

#### Corporate subsidisation

Cavanagh and Mander (2004, p.292) claim that most large corporations depend on a "...complex regime of public subsidies, exemptions and externalised costs". The externalised costs include indirect subsidies such as the benefits from substandard working conditions and wages, and freedom to pollute and overexploit public natural resources (Cavanagh & Mander, 2004). It is estimated that corporations extracted \$2.6 trillion in such subsidies in 1994 in the US alone, five times more than their reported profits, and that by extrapolation the global costs of these externalities and subsidies may annually exceed \$10.7 trillion (Cavanagh & Mander, 2004). McMurtry (2012, p.56) states, "Only infusions of limitless public-debt support keep the system afloat and they do so by impoverishing the public bodies they predate". These costs are borne by the public who subsidise corporations via taxes, wage-reductions, damages resulting from hazardous, substandard work environments, environmental remediation and rising prices for increasingly scarce local resources (Cavanagh & Mander, 2004).

#### Increasing financial speculation

Norberg-Hodge (2000) claims that "unfettered speculation" has resulted in money becoming the most traded global product. There is, "...roughly \$1.3 trillion...gambled (daily) on international currency markets - 30 times more than the daily GDP of all the developed countries combined. More than 95 percent of this involves pure speculation, leading many experts to conclude that the system is so unstable its eventual breakdown is assured" (Norberg-Hodge, 2000, p. 8). The cost to all people of financial speculation in tightly interwoven and dependent global markets is the threat of global financial crisis (Norberg-Hodge, 2000).

### **2.1.3.5 Negative governance impacts**

Local self-governance and provision are required to integrate appropriate governance-scales with “real”, “human-scale” needs (Loorbach, 2010; Schumacher, 1973). The many complex problems of globalised, industrial societies are described as requiring long-term solutions and strategies that need to be developed at this ‘human-scale’ (Loorbach, 2010; Schumacher, 1973). Further to this the governance of global issues such as climate change is claimed insufficient due to the misinterpretation of objective science by politicians, who are driven by the short-term agendas inherent to globalisation (Dunlop, 2011b, p. 37). Furthermore, globalisation leads to increased global bureaucratic and corporate intervention, decreasing the national government autonomy and local governance participation, believed essential to sustainability (McCarthy, 2004; Norberg-Hodge, 2000).

Governance insufficiencies result from increasing pressure by global bureaucracies to change and standardise national laws and government processes to suit the needs of global corporate activity, capital and ‘free’ trade (McCarthy, 2004; Norberg-Hodge, 2000). This is described as involving the increasing standardisation of national governance processes to suit the needs of global corporate activity, which erodes the electoral power of citizens as all factions of their national political parties conform to corporate requirements (Norberg-Hodge, 2000). This also affects environmental governance, as expanded market activity results in insufficient environmental protection and remediation of degradation (McCarthy, 2004). Increasing global bureaucracy for globalisation then compromises important sustainability requirements, including local governance for long-term benefit, socio-ecological health and democracy.

### **2.1.3.6 Displacement of local knowledge**

According to Shiva (1999), the shift from local to global has involved the Western system of knowledge replacing local knowledge systems. Though now viewed as universal, Shiva (1999) claims that Western knowledge is also a local system with its social basis in a particular culture, class and gender. Shiva (1999, p.2) claims that globalisation is then, the “...globalised version of a local and parochial tradition”. Santos (2006, p.12) similarly describes globalisation as “presided over by” and “anchored” in “techno-scientific knowledge...of Western-based science”, whereby “what counts as knowledge” and “what it means to be human” are assumed and maintained by the discreditation of all other forms of knowledge or ways of being.

Shiva (1993) claims that the newly globalised local tradition is that of Western scientific capitalist patriarchy, based on tangible, scientifically verifiable claims as opposed to socially constructed, traditional and local ‘unscientific beliefs’ (Shiva, 1999). Ramos (2010, p.64) describes this capitalist patriarchy as “...masculine, white, middleclass, heterosexual, urban, and highly mobile...which

propagates a false universalism and homogeneity based on masculine, Western, scientific and neo-liberal ways of knowing". McCarthy (2004, p.328) summarises neoliberalism as, "...faith in markets and civil society over the state; faith in capital to regulate itself voluntarily; and a firm conviction that economic growth can overcome nearly any obstacle".

Ramos (2010) notes that liberalist traditions are based on a "monoculture of linear time", that negate alternative and non-linear accounts of reality that maintain globalisation and exclude alternative discourses. Shiva (1993) claims that global enforcement of the neo-liberal tradition erases the space for local traditions to exist, and that they are destroyed as a result. Shiva (1993, p.3) claims that this is a process of homogenisation that creates a monoculture of the mind, universalising world knowledge in the form of "worldwide... intellectual colonisation". Hung (2013) believes that traditional and Indigenous values, knowledge, and opinions are incorporated by this tradition only where they do not compromise Western bureaucratic rules or goals.

Guri (2007, p.3) further describes that the globalisation process is facilitated by Western, global educational systems that are "systematically universalising" world knowledge, to the exclusion of all non-Western forms of knowledge. Santos (2000, p.12) notes, "... globalisation owes its hegemony to the credible way that it discredits all other knowledge systems...anchored...", by Western, modern science and technology and principles of coherence and efficiency claimed to underlie market laws. Guri (2007, p.3) expands on these observations, "The tendency has been to dismiss the philosophical thought of non Western communities as having little analytical or scientific merit in confronting issues of economic growth". Globalisation is then believed to enforce Western knowledge, thereby excluding non-Western local traditions, beliefs and ways of being, and blocking these from contributing to sustainability discourse.

### **2.1.3.7 Negative cultural impacts**

#### Global media

Some describe the cultural impacts of globalisation as a collective process of homogenisation (Cavanagh & Mander, 2004; Hung, 2013; Ramos, 2010; Shiva, 2005). Cultural homogenisation is described as being intrinsic to the process of globalisation, the effect being to denigrate local traditional cultures and speed up global Westernisation and market standardisation (Mander & Goldsmith, 2001; Norberg-Hodge, 2000). Barnet and Cavanagh (2001) claim that this process is facilitated by corporate media and the entertainment industry, with the globe now 'wired in' to music, news, movies and television programs, many of these originating in America and other high income countries.

A homogenous culture presented by the global media is described as being consumed especially by impressionable youth, everywhere (Barnet & Cavanagh, 2001; Norberg-Hodge et al., 2011; Raptan, 2001). Norberg-Hodge (2010) claims

that particularly in low income countries, this is alienating young people from their own culture as images of expensive, designer lifestyles appearing to be the norm in the West, can make their own culture appear backward and unglamorous. Further to this, Page (2014) claims that transnational corporations can enter countries at will and spend millions on advertising and media.

#### Western education

Some claim the process of globalisation and cultural homogenisation is facilitated by the globalised Western education system (Akomolafe & Dike, 2011; Guri, 2007). This system is described as “systematically universalizing” world knowledge that is not Western in origin (Guri, 2007, p. 3). Local cultures are then made irrelevant as they are replaced by Western belief systems (Guri, 2007).

#### Market harmonisation

Bridger (2001) believes that cultural homogenisation is exacerbated by local attempts to attract mobile global capital with familiar, western conditions and infrastructure. Additionally global bureaucracies administer laws and regulations that facilitate a western, highly centralised and homogenous market economy (Norberg-Hodge, 2012). WTO global trade rules promote homogenisation in the form of ‘harmonisation’ as part of trade liberalisation and increased market predictability, an important attraction to investors (Janicke, 2008; Lawrence, 2005). Cultural homogenisation is then exacerbated by market ‘harmonisation’ for globalisation.

#### Global media

Increasing cultural intolerance is reported to result from contemporary development patterns of globalisation (CIA, 2012; Cuthill, 2010; Norberg-Hodge, 2000; Shiva, 2005). This development comprises cultural homogenisation, with images and strategies of Western urbanisation being portrayed by the media and implemented by governments and global bureaucracies without alternative (Norberg-Hodge, 2000). The process of cultural homogenisation may be clearly seen in accounts relating the experience of traditional cultures in the face of globalisation. For example the recently (1999) introduced global media in Bhutan encourages the adoption of western lifestyles (Raptan, 2001). The effects of this are reported to include: conspicuous consumption; erosion of traditional values, languages and cultural practices; and changed interactions between family and neighbours (Raptan, 2001).

#### Land restrictions

Cadigan (2011) and Hung (2013) describe that the process of cultural domination in New Zealand, Australia and Taiwan, is enforced by effectively banning cultural traditions and practices through land restrictions. As a result

indigenous people lose the connections that tied them to specific and particular places (Hung, 2013), and opposition to the harmful effects of globalisation on these places and people is effectively removed. Globalisation is then enforced through removal of people from their land, removing opposition and destroying local culture.

Scholte (2008, p.1476-77) claims that as a result of this process, “...social structures of Western modernity (capitalism, industrialism, rationalism, urbanism, etc.) are spread across all of humanity, in the process destroying pre-existent cultures and local self-determination”. Hung (2013, p.260) relates an example of this with the establishment of National Parks in Australia, which involved the “...radical exclusion of Indigenous people”. It is then believed that local cultures are destroyed by the imposition of Western social structures.

Loomis (2000, p.896) describes indigenous people who have not become part of “modern (Western) society”, as having been “literally marginalised” by ‘development’ and, “...pushed into the hinterlands of jungles, forests and mountainous areas”. Shiva (1999, p.3) claims that local indigenous cultures are dismissed “in the field of the globalising vision”, as primitive and unscientific. Cadigan (2011, p.302) describes the Māori experience in Aotearoa New Zealand, whereby the process of people arriving from diverse cultures is referred to as multiculturalism, and “...results in all cultures being ignored equally, with an unwritten expectation that they will defer to the norms of the dominant or Pākehā (white settlers) culture”.

#### Globalised intellectual property rights

Shiva (2007) claims that globalised intellectual property rights are destroying local biodiversity and culture. Shiva (2007) believes that if people have rich biodiversity and intellectual wealth, then they can meet their health care and nutrition needs using local resources and cultural practices. Shiva (2007) explains that if these rights have been transferred to intellectual property rights holders, the community end up paying royalties for what was originally their own, and as a result they become materially poor. Shiva (2007, p.309) claims that cultural and (resulting) biodiversity, and the “collective and cumulative” innovation of diverse cultures and communities, have been the basis of local culture and economies, and the meeting of their food and health needs.

#### Cultural intolerance

It is believed that cultural homogenisation processes leads to feelings of cultural and personal inferiority and hopelessness for many in low-income countries, resulting in increased fundamental, ideological and religious extremism (CIA, 2000; Norberg-Hodge, 2000). It is reported that this leads to increased violence (CIA, 2000; Norberg-Hodge, 2000). Guri (2007, p.7) believes that appreciation of diverse cultures leads to increased understanding and tolerance, and that this is absent from “...the present globalisation process that seems to be intolerant of other cultures and worldviews” (Guri, 2007, p. 7). Guri (2007) and Loomis

(2000) further describe that cultural intolerance and negation is resulting in a universalised world knowledge system, which will be unable to provide alternative cultural wisdom for survival if this monoculture should fail.

### **2.1.3.8 Negative spiritual impacts**

Ramos (2010) describes that the contemporary lifestyles and cultures that accompany globalisation, tend to result in people feeling more universally homogenous and mobile (Ramos, 2010). Norberg-Hodge (2000) claims that as a result of this, people are less connected to any specific place or particular community, and this negation of the local harms our wellbeing and spiritual health. Negation of the local occurs as globalisation results in the nearby being perceived with contempt, while that which is far away is instantly accessible through the media, and often portrayed as exciting and enticing (Norberg-Hodge, 2000).

Norberg-Hodge (2000) believes that being connected to and understanding our local natural environment and community is essential in order for us to understand our interconnection with all life, and thus the importance that all life holds for our spiritual and physical wellbeing. Negation of the local then results in people having little awareness or understanding of their own environment. This decreases their ability for interconnection and their understanding of the importance of this (Norberg-Hodge, 2000).

Many indigenous worldviews explain why interconnection is so important to people, and why damaging this harms our spiritual health (Hung, 2013). The land is a physical and spiritual entity which humans are a part of, and this spiritual dimension is central to people being an interconnected part of the land (Hung, 2013). For example Indigenous Australians describe that they are, "...very strongly connected culturally, in multiple and complex ways, to particular sites and country that comprised our 'tribal' homeland. We have obligations and responsibilities for particular areas of land" (Hung, 2013, p. 63). Indigenous Australian people have closely identified with the particular land, animals and plant species to which they belong, and there is not a "dichotomy" between people, culture and nature as is common in European or Western culture (Hung, 2013).

Indigenous Australian Dreaming stories and songs are intimately related to particular land, and "forms their framework" (Hung, 2013, p. 64). The stories and songs carry information about the climate, game habits, edible plants, and ecological relationships between species indicating seasonal times for harvesting. Through the Dreaming, Indigenous knowledge is then embodied in particular places, kin relations are "inscribed onto land", and land determines both physical and spiritual values (Hung, 2013, p. 64). Hung (2013) reports these locally specific spiritual values, to be common to Indigenous cultures. Land bonds Indigenous life and culture together, and as such is the "...physical and symbolic basis for almost every aspect of life. Social relations are expressed,

managed and negotiated through relation to lands, and political standing is legitimated and authority grounded in landholding. Knowledge is structured by its relation to place, and is taught, held in memory and performed according to this organisational framework” (Hung, 2013, p. 64). In Australia some 500 separate Indigenous language groups each have their own distinct stories and rituals specific to that place (Callicott, 1994). For Indigenous Australians, land as comprising specific places that are home to specific people, then plays a crucial role in social and political relations, and “...in the cultural construction and transmission of knowledge” (Hung, 2013, p. 63).

Loss of land due to processes of globalisation as the British took over Australia, resulted in the loss to Indigenous people of their livelihood, home, spirituality, knowledge and culture (Hung, 2013). Loss of specific land areas or localities due to globalisation processes, then involves loss of physical and spiritual connection to these places, and the knowledge and culture that this encompasses (Hung, 2013). In Australia processes of urbanisation, national park establishment and private ownership have resulted in the traditional practices and culture required for spiritual health, becoming inaccessible particularly to Indigenous people due to their forcible removal from the places where they carried out these practices (Hung, 2013). It might be perceived that these same impacts affect all people who are not connected to a specific place or area of land, and that indigenous people may be more aware of these impacts due to their traditional cultural practices.

Cadigan (2011) reports that in Aotearoa New Zealand, removal of Maori people from the land as a result of the process of contemporary land management processes that accord with globalisation and growth, government bureaucracy, scientific rationality and ‘efficiency’, has resulted in severe spiritual consequences for Maori people. These consequences include loss of ‘mana’, or loss of the ability to cause things to happen and achieve life goals (Cadigan, 2011). As a result it is increasingly difficult particularly for Maori men, to perform tasks, relate appropriately in relationships, acts of violence increase, and a, “cycle of violence, addiction, and psychological illness” has resulted (Cadigan, 2011). Cadigan describes that local Maori culture has been unable to withstand globalisation, resulting in damaging spiritual consequences.

Lamberton (2005, p.54) explains that economic prioritisation is a Western cultural emphasis, “...to appease a wealth accumulating and consumer oriented society”. Guri (2007) points out this emphasis results in the inability of Western economics to adequately value spiritual and cultural priorities. Non-western conceptions of development that emphasise spiritual and cultural wellbeing are then over-ridden or negated by this economic emphasis (Guri, 2007). Guri (2007) claims that the dominance of Western development that does not accord with non-Western epistemologies leads to neglect of the spiritual aspect of being, and its relevance to development. Spirituality is then neglected in and by the dominant Western, globalised culture (Guri, 2007).

Daniels (2009b, p.958) relates a Buddhist perspective on globalisation and spirituality, whereby if consumption is associated with “high levels of

biophysical intervention and disruption”, suffering increases as a consequence. The impacts of the original consumption and production extends out from the consuming individual, “...across society and nature (the “three realms”), and back, to have commensurate longer-term welfare effects upon the originator” (Daniels, 2010, p. 958). Thus the individual, unaware of the many ripple effects of their globalised consumption, will additionally suffer the spiritual consequences of these wider effects.

Globalisation is then described to result in harmful spiritual effects, due to disconnection from local places or land, and community or people. It is believed that these effects prevent us from perceiving our interconnectedness, and from understanding our place in this connectedness. Spiritual and physical disconnection from local places and people is then believed to have negative environmental, cultural and social effects as people lose the ability to adequately understand and care for themselves, others, and the environment as a result of this disconnection.

#### ***2.1.3.9 Decreased wellbeing and equity***

Globalisation and economic growth affect equality and wellbeing. Some believe that there is a positive effect (Lomborg, 2013; McCloskey, 2012; UN, 2011), whilst others aim to determine whether this link is actually highly destructive of society, the environment and wellbeing (Ekins, 1993; Helliwell, 2007; Jackson, 2005a; Knight & Rosa, 2011; Max-Neef, 2010; Wilkinson & Pickett, 2009). These researchers believe that economic growth results in decreased wellbeing, due to consumption-based socio-ecological destruction.

Some suggest that consumerist values contribute to the, “...high prevalence of unhappiness and mental illnesses such as depression, anxiety, narcissism, substance abuse, insecurity, poor interpersonal relationships, low or contingent sense of self-esteem, and...the tendency to ignore emotionally satisfying behaviors such as social engagement and affiliation” (Rogers et al., 2012, p. 62). These reports align with claims that beyond a modest level, increased consumption or per capita GDP does little to increase and may actually decrease wellbeing, comprising needs such as food, shelter, equality, happiness and life satisfaction (Daly, 2013; Knight & Rosa, 2011; Lane, 2000a; Veenhoven, 1991; Vemuri & Costanza, 2006). Economic growth is then related to diminishing social return and decreased wellbeing.

Describing diminishing returns to social health Ekins (1993, p.274) claims, “...economic growth undermines its social foundations”. Diminishing returns result from increasing inequality, reported to accompany rising material wealth and consumption (Knight & Rosa, 2011; Max-Neef, 2010; Wilkinson & Pickett, 2009). Increasing inequality decreases trust, resulting in social ills such as a breakdown of community and increasing alienation, depression and suicide (Helliwell, 2003, 2007; Jackson, 2005a), and “...a "culture of inequality" that is more aggressive, less connected, more violent, and less trusting” (Marmot &

Wilkinson, 2001, p. 252). Equality is reported to be an important component of and prerequisite for wellbeing (Wilkinson, Pickett, & De Vogli, 2010).

Inequality between countries resulting from globalisation is quantified: “Eighty per cent of the world’s gross domestic product belongs to the 1 billion people living in the developed world; the remaining 20 per cent is shared by the 5 billion people living in developing countries” (MEA, 2005a, p. 1). Inequality between countries tends to rise as low income, traditional countries join the WTO and begin to participate in the global economy, penalising the already disadvantaged (Wangdi, 2010). It is further reported that many low income countries export food while local people go hungry (Trainer, 2010a).

Inequality within countries is also reported. Max-Neef (2010) claims that income equality and real income decline in nearly all (globalising) countries that adapt to rapid trade liberalisation. Douthwaite (2004) explains that this is because each country tends to export goods that use the highest proportion of its most abundant and cheapest resource, which for most low income countries is unskilled labour. As international market competition forces export prices down, the earnings of these workers are most exposed to international competition, and will experience the greatest decrease. For example Wangdi (2010) reports that as has occurred in other low income countries, Bhutanese WTO accession would likely benefit only industrialists and cash croppers, and put the country at risk (Wangdi, 2010). This risk comprises exposure to sudden increases in food prices, as was the experience of Bangladesh in 2008 when the imported rice that the country had been made dependent upon by WTO agreements, suddenly increased by 60% (Wangdi, 2010). Bhutan have still not joined the WTO.

Inequity is reported to increase as the gap between rich and poor widens, Mexico currently experiencing the widest gap, followed by Turkey and the United States (Cavanagh & Mander, 2004; OECD, 2016). Haque (1999) claims that globalisation diminishes role of the state in anti-poverty programs and welfare subsidies, leading to increased poverty and inequality in many countries. This includes increased numbers of urban poor and rural landless, with the resultant building of more slums and increased urbanisation (Haque, 1999). Norberg-Hodge (2000) claims that this process erodes traditional rural communities and leads to, “...overcrowded slums, loneliness, alienation, family break-up, poverty, crime, and violence” (Norberg-Hodge, 2000, p. 8).

Cadigan (2011, p.303) reports that as the income gap widens in Aotearoa New Zealand Indigenous Māori remain, “...at the bottom of the heap”. Cadigan describes that this unequal development has resulted in: social services becoming overloaded and failing; a collapsing health system; benefits and wages not keeping pace with increased living costs; and due to the level of foreign investment in industry and property, severely reduced resource availability to the Crown to settle Māori claims. Cadigan also claims that as a result of the disadvantaging effects of globalisation Maori smoke more than any other New Zealand group, and suffer from alcohol and drug abuse, over-representation of reported breast cancer, diabetes, high blood pressure and obesity.

Such reports lead to criticism of ecological modernisers, who claim that these assumptions are unfounded as they rely on the ability of: markets and civil society to determine state direction; capital to voluntarily self-regulate; and economic growth to overcome equity issues (McCarthy, 2004). And while globalisation supporters claim that current development patterns based on globalisation and growth are successful, it is also reported that while there are some improvements in low income countries, these benefits are usually short-lived and go the local elites and corporate executives (Cavanagh & Mander, 2004). Furthermore the HDI (2011) outlines three caveats of human development success including: income growth being associated with deterioration in key environmental indicators; worsening income distribution at the country level in much of the world; and considerable variation in the relationship between HDI increase and empowerment. Claimed human development success resulting from globalisation might be perceived as questionable when so seriously undermined.

Negative global wellbeing and equality effects both within and between countries, are then claimed to result from globalisation. These effects are sometimes described in relation to the replacement of traditional local communities and cultures, with globalisation. These effects are believed evidenced across the globe, as globalisation engulfs and damages local communities, cultures, equality and wellbeing (Cavanagh & Mander, 2004; Norberg-Hodge, 1992; Rapten, 2001; Shiva, 2005).

#### ***2.1.3.10 Decreased social cohesion***

Mishan (1977) claimed that social disintegration was resulting from globalisation since as far back as the 1950s. More recently Cuthill (2010) describes contemporary development (globalisation) to be responsible for widespread social and community breakdown over the last 30 years. Some believe that this is due to the unequal distribution of economic benefits whereby beyond a modest threshold, economic growth drives excess consumption and decreases social cohesion due to status-based consumption and individualism (Knight & Rosa, 2011; Trainer, 1996; Wilkinson et al., 2010).

Ekins (1993) claims that increasing individuation occurs as community is undermined by globalisation and people work longer hours, routinely change location for work, and have less time for family and community (Ekins, 1993). An increased emphasis on individual accumulation of material goods is then believed to occur at the expense of social cohesion, driving status-based consumption and fueling increased consumption as people attempt to replace social needs with material goods (Knight & Rosa, 2011). As people increasingly prioritise monetary reward over social values, trust decreases and morality breaks down, economic growth undermining social conditions and decreasing social cohesion (Ekins, 1993).

Cadigan (2011) reports that in Aotearoa New Zealand, globalisation has resulted

in Indigenous men aligning themselves with individualism as they struggle to regain identity and avoid “invisibility” in their now globalised culture and economy. Individualism then contributes to increased anti-social behavior, decreased appropriate communication and functioning in relationships, and increased acts of violence (Cadigan, 2011). The community care role that Maori men traditionally played is then replaced by the rise of individualism as promoted by globalisation, and community breakdown (Cadigan, 2011). Supporting this report, Abdallah (2009) reports Happy Planet sustainability index findings indicate that excess individual consumption accompanying economic growth (globalisation), has an undermining effect on social cohesion and critical social conditions such as family, friendship, community and trust for both present and future wellbeing.

Consumerist values are also reported to contribute to the currently high prevalence of unhappiness and mental illnesses (Rogers et al., 2012). These illnesses include “...depression, anxiety, narcissism, substance abuse, insecurity, poor interpersonal relationships, low or contingent sense of self-esteem, and the tendency to ignore emotionally satisfying behaviors such as social engagement and affiliation” (Rogers et al., 2012, p. 62). Decreased social cohesion and social illnesses are then believed to occur as globalisation promotes excess consumption and individualism, replacing socially cohesive local communities with global consumerism.

Colclough and Sitaraman (2005) explore social cohesion in the context of community and social capital, and the more instrumental or purposive dimension of relationships accompanying contemporary development. These instrumental relationships may be thought of as social capital, “...an investment and use of embedded resources in social relations for expected returns” (Colclough & Sitaraman, 2005, p. 479). Colclough and Sitaraman (2005, p.480) illustrate the difference between social capital and community using the example of a local community comprising an affiliation of horse enthusiasts, “...as distinguished from a highly diffuse social capital network that becomes manifest when one of the horses in the stable is stolen”. Social capital operates within communities.

The potential threat that social capital may present to social cohesion and healthy community, is illustrated in a study of a new type of community as represented by Silicon Valley in the U.S. (Fields, 1998). The key difference in this new form of intentional community is to do with trust, which in Silicon Valley is a, “...specific, performance-generated trust that accrues to particular people or companies that have resources to assist in achieving goals” (Fields, 1998, p. 490). The “utilitarian basis” of this form of trust is described as becoming apparent when performance fails, and trust quickly disappears (Fields, 1998, p. 490). Here social capital exists without community, social capital networks having facilitated economic growth and personal mobility without a community of place. This type of community, “...is spatially divided along class, status, and ethnic lines; people don’t know their neighbors, and companies work together in pursuit of their own individual interests, but without the generalised trust that adheres to community membership. Trust is extended until one’s performance fails to provide the

resources necessary to reach the goals of the network” (Fields, 1998, p. 491). Colclough and Sitaraman (2005) claim that in Silicon Valley, trust is based on who you are rather than what you do.

Colclough and Sitaraman (2005, p.494) explain that in 1958, Weber similarly described a form of social capital whereby the “inclusiveness and exclusiveness” of social capital networks may create, “...monopolies over positions of economic and political power and influence’ over communities, groups and classes”. Examples include fascist, racist, feudal, hierarchical and unjust societies (Pretty & Smith, 2004). Weber regarded this form of social capital as a potential threat to community (Colclough & Sitaraman, 2005, p. 494).

Colclough and Sitaraman (2005) further explain the emergence of this contemporary community and the social relationships that facilitate it. “Modernisation with its rapid social change, increasing diversity, and ever-growing uncertainty has not destroyed community. Instead it has increased the need for it and produced a variety of community types to meet this end. Communities of place may be on the decline, but new communities within place are emerging” (Colclough & Sitaraman, 2005, p. 494). In these new communities within place, social capital builds economic return on relationship investment, rather than trust and social or community return which may or may not entail economic return, and is tied to that specific social or community setting.

As a specialised, prosperous, industrial region Silicon Valley is built on strong social capital, without the “dense networks of civic engagements” common to community (Fields, 1998, p. 29). It does not have the type of trust that is built over time through dense social networks and reciprocal relations, or social cohesion, which “...transcends other possible divisions or conflicts that may arise...based solely on membership in the community—the shared sense of belonging to a larger social group” (Colclough & Sitaraman, 2005, p. 492). It rather maintains performance-based, utilitarian trust that must be earned through goal related performance that vanishes if these goals are not achieved (Colclough & Sitaraman, 2005). It is observed that many of the Silicon Valley residents “...appear to be left out completely from the bonds of community in this “world of strangers” where engineers move from one job to another and neighbors routinely come and go” (Colclough & Sitaraman, 2005, p. 490).

Social capital then varies in type or quality, and as described by Cohen and Fields (1998), the type of social capital that exists in a community affects types and levels of trust and social participation, determining in part the health of a community. Thus “...social capital can also have its dark side” (Pretty & Smith, 2004), and may reinforce the status quo whereby monopolies consisting of political power and influence, utilise social capital networks and maintain the unsustainable.

Silicon Valley may be an extreme and concentrated example of global development patterns that entail priority being placed on economic growth at the expense of sustainability, wellbeing, social capital and the environment. However Silicon Valley is described as a popular case-study that policy makers

attempt to emulate as a way to achieve economic growth (Fields, 1998). If such development threats accompany globalisation, this might be seen as a threat to socially cohesive local communities.

#### **2.1.3.11 Increased violence and criminality**

Increased violence and criminality are believed to accompany globalisation (Cavanagh & Mander, 2004; CIA, 2000; Norberg-Hodge, 2000; O’Riordan, 2012; Rogers et al., 2012; Wilkinson et al., 2010). The Central Intelligence Agency (CIA) (2000), report that regional gaps between winners and losers will increase due to the effects of globalisation. As a result there will be resulting chronic volatility, “...deepening economic stagnation, political instability and cultural alienation. Globalisation will foster political, ethnic, ideological and religious extremism, along with the violence that often accompanies it” (CIA, 2000). Rogers et al. (2012, p.61-62) claim this violence is a worsening trend resulting from a global focus on economic growth as opposed to human wellbeing.

Norberg-Hodge (2000, p.9) explains that as a result of colonial policies and pervasive media promotion of the West as the best, “...urban is sophisticated... rural is backward...imported is good, local is crap...”, this “artificial ideal” will prove impossible for most. Norberg-Hodge (2000, p.9) believes that for many people, “...a profound sense of failure, inferiority and self-rejection...” then follows. When combined with the loss of culture, homelessness, poverty, cultural uprooting and hopelessness resulting from the effects of globalisation, fundamentalism, ethnic conflict and resulting violence occurs (Norberg-Hodge, 2000). Globalisation is then reported to be causing inequalities and loss of local cultural identity, resulting in racial and ethnic conflict and increasing violence.

#### **2.1.3.12 Negative environmental impacts**

The environmental effects of globalisation are commonly described in relation to ecological limits. This is because the Earth is a finite ecological system resulting in material constraints to growth, that make continued consumption growth physically impossible (e.g. Daly, 2013; Gowdy & McDaniel, 1995; Jensen, 2011; Martinez-Alier, Pascual, Vivien, & Zaccai, 2010; Trainer, 2011). Ecological limits to globalisation are described as comprising available resources and the ability of ecological systems to function when their thresholds are exceeded.

Relating the environmental effects of globalisation, a clear relationship between economic growth and environmentally harmful Greenhouse gas (GhG) was first demonstrated in a study including 137 countries across 21 years (Tucker, 1995). More recently this relationship was reported in a study showing that between 1990 and 2003, a 1.5% per annum increase in production and inputs closely mirrored the increasing ecological footprint of Wales (indicating increased GhG) for the same period, and that this trend was replicated elsewhere in the UK (Stockholm Environment Institute, 2008). The Stern Review (2007) also states

that GhG emissions are driven by economic growth, and strongly correlates CO2 emissions per capita with GDP.

Contrary to supporters of the Kuznets curve hypothesis, McCarthy outlines that ecological footprinting demonstrates those in highly industrialised countries to have increasingly negative impacts on the global environment, and that the theory is based on an unrepresentative, small sample of industrialised countries. Further to this reduced per unit measures do not show increases in a countries' total emissions, which are continuing to increase in high-income countries (Lim, 2011). Daly (2013, p.22) explains that even if the Kuznet theory were possible, as yet there is no supporting empirical evidence, "On the contrary, there is plenty of casual evidence for anyone who has not been anesthetized by the official party line."

Haque (1999, p.210) states that the consumerist culture accompanying globalisation is considered a main cause of "environmental disorders" that constitute "a major ecological threat". Haque (1999, p.210) describes this culture as comprising environmentally damaging, "...industrial expansion, mass production, mechanised agriculture, toxic chemicals, and the excessive use of fossil fuels". Additionally social researchers report that the "strong materialistic values" associated with the inequality arising from economic growth, tend to result in negative environmental attitudes and few ecologically friendly behaviors (Wilkinson et al., 2010).

Cadigan (2011, p.302) claims that through exemption clauses in free trade agreements, foreign investors are able to ignore or "at best" comply with "severely watered-down" resource consents leading to, "...the rape and pollution of the environment irrespective of the objections of the indigenous people". Shuman (2010) also describes a process whereby US economies that are highly dependent on non-local businesses make continual environmental compromises to retain important firms and prevent them from relocating to less regulated places. Wilson (2001) describes that these short-term, profit-maximising global market systems lead to long-term environmental damage.

Haque (1999, p.199) claims that globalisation is likely to: expand industrialisation and increase environmental pollution; further globalise consumerism and encourage the consumption of environmentally hazardous products; increase GhG and chlorofluorocarbon emissions that worsen the greenhouse effect and deplete the ozone layer; and over-exploit natural resources, depleting nonrenewable resources. Norberg-Hodge (2000, p.10) describes that such environmental impacts are leading to environmental breakdown as globalisation intensifies the, "already serious ecological consequences of industrialisation...we have already exceeded the biosphere's capacity to absorb the impact of industrial activities". As a result local communities are less or no longer able to utilise and depend on local resources to supply their needs, increasing dependence on global resources, and further reinforcing the globalisation of local communities (Norberg-Hodge, 2000).

### **2.1.3.13 Interconnected, converging crisis of extreme magnitude**

Due to the dependence of humans upon ecosystem services, social crisis are inextricably linked to concurrent environmental crisis (Duraiappah, 2011; Heinburg, 2008; Max-Neef, 2010; MEA, 2005a; O’Riordan, 2012; O’Riordan, 2013; Raudsepp-Hearne et al., 2010; Todorov & Marinova, 2011; Westley et al., 2011). Conversely Udo (2011, p.471) states, “Environmental problems are always the result of interactions between society and nature, of economic, social and political systems with natural systems”. Humans are a part of the natural environment and what happens to one invariably affects the other, though these effects are not easily anticipated.

For example as a result of climate change, already disadvantaged people in low income countries will be vulnerable to exacerbated drought and reduced food production ability (MEA, 2005a). The Stern Review on Climate Change (2007), claimed by some to be conservative (Ackerman, Stanton, Hope, & Alberth, 2009), estimates that the welfare or consumption per head cost of human induced climate damage through 2200 could amount to as much as 20 percent of world output. Hines (2003) reports global natural resource exports to be causing local environmental degradation that results in the number of environmental refugees exceeding those of armed conflict (Hines 2003). These social crises are reported to be resulting from the environmental impacts associated with globalisation.

Rogers et al. (2012) explain that because social and environmental crises are interconnected, solutions for one problem may exacerbate another. For example the demand for bio-fuels as a less expensive alternative to fossil fuels, is reported to be a key factor in increasing global food prices that negatively affect poverty (Rogers et al., 2012). Similarly policies that encourage consumption to boost economic growth, increase demand for and resultant pressures upon natural resources (Rogers et al., 2012, p. 61).

Many authors emphasise that the magnitude of current global socio-ecological impacts resulting from globalisation represents a crisis. Max-Neef (2010, p.200) describes a global situation whereby many crises are, “converging simultaneously” to reach their “maximum level of tension”. Heinberg (2008) describes this as peak everything, whereby over the course of this century we will experience a decline in many parameters including: population; grain production; climate stability; fresh water availability; arable agricultural land; wild fish harvests; and extraction of metals and minerals. Bosselmann (2012, p.23) relates, “...the ongoing crippling effects on human wellbeing of poverty, violence and war, along with water and food security concerns”. O’Riordan (2012 p.1-2) states, “There is no precedent in our lifetimes for such wholesale calamity across so much of the human race”.

Max-Neef (2010) claims the current global crisis is a situation likely never before experienced in human history. Erlich and Erlich (2013) explain that although virtually every civilisation has collapsed, some recovering, these collapses happened in isolation from other civilisations that persisted elsewhere without being affected (Ehrlich & Ehrlich, 2013). This contrasts with the current crisis

whereby due to the effects of globalisation we are all “embedded” and our problems, “...interact in two gigantic complex adaptive systems: the biosphere system and the human socio-economic system” (Ehrlich & Ehrlich, 2013, p. 1).

Todorov et al. (2011) claim that the scale (including time dimensions that affect future generations) of current socio-ecological problems is due to: profound effects from globalisation; the effect of the human-made world now being comparable to that of natural systems; and the tools used to handle policy formulation, decision-making and governance being focused on short to medium rather than long-term, intergenerational perspectives required for sustainability. These concerned parties warn the magnitude and scale of the effects of socio-ecological interconnections and limits, cannot continue without catastrophic consequences.

#### **2.1.3.14 Tipping points**

Socio-ecological thresholds, claimed by some to be threatened and at further risk, pose limits beyond which society and the environment may not be able to effectively function (O’Riordan, 2013; Stern, 2007). These limits are reported as thresholds and potential tipping points (Dietz, Rosa, & York, 2009; Dunlop, 2011c; Hopkins, 2010; McCartney & Hanlon, 2009; MEA, 2005b; O’Riordan, 2013; Raudsepp-Hearne et al., 2010). Tipping points are described as critical thresholds that when overstepped cause a new and unpredictable state to emerge due to, “inherently rapid reinforcements of change in Earths systems” (O’Riordan, 2013, p. 25). Critical thresholds currently at risk include pollution or poison levels exceeding the ability of global or local ecosystems to absorb them, and social cohesion becoming so degraded there is no longer sufficient trust for communities to operate without extreme violence and criminality (Rogers et al., 2012; Suzuki & McConnell, 1997; Wilkinson et al., 2010).

The effects of overstepping social and environmental thresholds are difficult to predict. For example exceeding 2° Celsius above pre-industrial levels is “largely accepted” among climate experts, as a tipping point that is “opening the door” to “unstoppable feedback effects” (Stiglitz, 2009, p. 81). These effects include methane from melting permafrost, and CO<sub>2</sub> and methane from decaying tropical forests and greenhouse gases released by warming oceans and other sources (Stiglitz, 2009, p. 81).

The exact or combined effects of these risks, are unknown (NEF, 2010; O’Riordan, 2013). It has though been estimated that if the Amazon rainforest begins to release the approximately 120 billion tones of CO<sub>2</sub> that it currently sequesters, this could trigger “runaway climate change” (NEF, 2010, p. 20), and it is estimated that if ice-sheets were to melt, sea levels would rise by 6-7 metres (Dunlop, 2011a). The effects on social systems are “inconceivable”, and “...environmental change is accelerating and pushing the planet towards tipping points” (UN, 2012a, p. 20).

### **2.1.3.15 Lack of leadership incentive to change**

Growth principles of profit and production maximisation accompanying globalisation, have been observed to impact on natural resource management leadership. For example Lawrence (2005, p.159) notes that in Australia, many primary producers whose “modus operandi” is to increase production sit on advisory boards that are responsible for environmental protection and sustainability. When faced with new knowledge regarding environmental degradation, these advisors have been found to oppose or deny evidence that calls for a “...radical re-assessment and re-alignment of production regimes (which) is literally off the agenda” (Lawrence, 2005, p. 159). This would threaten short-term profits, which will not be compromised for long-term environmental benefits from which current decision makers perceive themselves as unlikely to benefit. As noted by Jensen (2002, p.43), “...it's difficult to get man to understand something when his salary depends on his not understanding it”.

Ayers (2008) claims that important economic actors such as government and corporate leaders have no incentives that are compatible with decreasing GDP, economic growth and accompanying environmental damage. For example a study by Adams et al. (2007) examining barriers to sustainability in the Costa Rican coffee industry, found that the most significant sustainability challenge relates to the governing institutions including business inertia and a lack of political will to promote anything other than the most conservative approach. This results in policies aimed at improving the environmental performance and sustainability that focus on increased production and certification measures, rather than socio-ecological considerations (Adams & Ghaly, 2007).

Socio-ecological health may then be unprotected by local resource managers and leaders who benefit from globalisation. Some believe that this is because the income of these managers and leaders relies on an environmentally destructive system. This involves local resource managers and leaders being coopted in the interest of short-term economic profit, leaving local environments unprotected.

### **Summary**

Globalisation is reported to have many negative local and global socio-ecological, governance and economic consequences. A global crisis is resulting from these ‘externalities’ and the complex and interconnected causes and effects of socio-ecological systems, threatening life on earth. The scale of the impact and magnitude of social and environmental damage are thought to be due to the profound effects of globalisation. It is claimed that this crisis will deepen if the damaging effects of globalisation are not addressed, resulting in unpredictable socio-ecological tipping points and causing a new state to emerge that may be uncondusive to current human development forms.

## **Overall summary and conclusion**

Globalisation is described as a recently emerged phenomenon that dominates governments worldwide. Some report increased material wellbeing, others claiming that globalisation is the global imposition of a specific local, Western, capitalist, patriarchal scientific tradition. The imposition of this tradition is reported to have been achieved using obsolete principles of global trade based on the absolute advantage of those who own and control mobile global capital. It is claimed that this dominant and exclusive system of advantage is maintained by global systems of bureaucracy and the globalised western education system, through the dismissal and negation of non-Western ways of knowing and developing.

Globalisation is criticised as socially, culturally, spiritually and environmentally destructive, resulting in negative governance and economic effects that are principally borne by the majority who are disadvantaged by globalisation. Low-income countries and traditional and indigenous people are reported to be disproportionately disadvantaged, and all effects are described as worsening trends. These trends are exacerbated by the tendency of globalisation to prevent people from easily seeing the distant consequences of their actions, and by the phenomena of short-termism.

The long-term needs of the environment and of intra and inter-generational equity considerations are also compromised by globalisation. However globalisation proponents emphasise positive claims regarding human development achievements including increased wealth, environmental health, human wellbeing, education, democracy and access to goods and services. These claims are accompanied by caveats comprising severe consequences that include environmental deterioration, increasing inequality and disempowerment. Warnings regarding these caveats call for urgent and effective measures to address the current global crises before irreversible, dangerous change occurs. The suggested measures require transformation of the global economy in order that local communities, culture and economies may thrive.

## 2.2 Sustainability: principles, controversy, implementation and strategies

### Introduction

This section addresses *Research questions 2a, 2b and 2c*. It does this by: exploring conceptions of sustainability; examining the need for sustainability; and looking at the contexts and influences determining sustainability as it is currently implemented.

Sustainability is usually perceived as the addressing of combined social and environmental concerns and limits, although what these are believed to comprise varies (Davidson, 2011). Despite a common understanding and agreed principles, many differing beliefs exist regarding what the needs of the present entail, what those of future generations will be, and how to interpret and apply sustainability principles according to these needs (Inyang, Schwarz, & Mbamalu, 2009; Lamberton, 2005). Further to this many believe that, "...no-one knows exactly what 'sustainable human settlements' look like" (Turcu, 2012, p. 3), and whilst many sustainability proponents focus on constraining economic growth (Jackson, 2012; Lamberton, 2005; Meadows, 1974; Norberg-Hodge, 2000; Trainer, 2010a), others believe globalisation to be socially beneficial, and "neutral or even good for the environment" (Ayres, 2008, p. 285; MEA, 2005a).

As a result of differing beliefs, widely contrasting interpretations of sustainability are being implemented around the world to varying effect. Huge (2012) notes, the "...socioecological crisis is a reality, yet, the meaning of the concept to respond to that crisis remains contested". Academic explorations and warnings regarding this crisis issue from many disciplines, particularly social and natural sciences (Cowell & Parkinson, 2003; Jeffery, 2007; Max-Neef, 2010; Morris, 2012; O'Riordan, 2012; Ramos, 2010; Suzuki, 2002). These warnings report a socio-ecological crisis requiring urgent sustainability measures.

O'Riordan (2012, p.2) summarises current social research to indicate a "dysfunctional sustainability deficit" regarding addressing globalisation effects. Lamberton (2005, p.54) notes that sustainability is a "predominantly *economic* concept", Prasad (2005) further explaining that when economic growth, short-term profit and political agendas dominate sustainability discourse, the long-term actions required to provide for sustainability and intra and intergenerational needs, may be portrayed as radical and impractical. Short-termism, pragmatism and economic profit are then believed to compromise these requirements (Dunlop, 2008; Twinn, 2012), and "As sustainable development is gradually embraced by the political mainstream, its meaning drifts ever further from the ideal of ensuring a sustainable environment toward the seductive temptation of ensuring sustainable material growth" (Rees, 1990, p. 18). This comprises the confusing of environmental and social needs, with desires for economic growth, profit and excess consumption (Lamberton, 2005).

Some believe that the compromising of sustainability results from its western

cultural origins in emphasising economic growth and consumption, and that this compromise is the nature of the challenge (Lamberton, 2005; Prasad & Elmes, 2005). Contention surrounding this compromise then detracts from progress, making clarification of sustainability requirements a crucial task in addressing socio-ecological crisis. “To reorientate society towards sustainability, a clear vision based on a coherent philosophy is needed to act as a compass point to guide and evaluate transition strategies” (Gray, 2007, p. 791).

### **2.2.1 Sustainability definition and principles**

There are many current definitions of sustainability. The original and widely accepted definition is, “Meeting the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987, p. 87). This original definition further specified that sustainability is an ongoing process of change (WCED, 1987). The WCED (1987) described that sustainability needs include clean air and water, healthy soil, access to non-renewable resources, and individual and social wellbeing. Accordingly if these needs cannot be met now or in the future, we are unsustainable.

Waas et al. (2011) and Hüge et al. (2012) outline a set of core sustainability principles as generally agreed upon by sustainability scholars. These scholars believe that the core principles are equally important (Waas, Hüge, Verbruggen, & Wright, 2011). Examination of these principles in relation to current global sustainability strategising highlights the confusion and contention surrounding them.

The normativity principle acknowledges that what sustainability is believed to comprise, is subjective and socially constructed (Hugé, Waas, Eggermont, & Verbruggen, 2011; Waas et al., 2011). Sustainability meanings are then determined by the views and values that dominate our intended future world (Waas et al., 2011). For example in contrast to Western cultures that tend to omit or neglect sustainability aspects such as social and spiritual considerations, many non-Western and Indigenous cultures place community and spirituality firmly at the centre of sustainability (Cadigan, 2011; Guri, 2007; Hung, 2013; Lamberton, 2005; Shiva, 2005).

Because values vary across society and cultures and over time, the sustainability principle of normativity requires that these differing views and according sustainability interpretations be allowed to co-exist, providing they do not compromise sustainability principles as does business as usual or status quo sustainability (Waas et al., 2011). Describing the importance of the normativity principle Robinson (2004, p.379) notes that sustainability is, “...usefully thought of as an approach or process of community-based thinking that indicates we need to integrate environmental, social and economic issues in a long-term perspective, while remaining open to fundamental differences about the way that is to be accomplished and even the ultimate purposes involved”.

The second sustainability principle is that of equity, which refers to meeting the needs of current and future generations (Huge, Waas, Dahdouh-Guebas, Koedam, & Block, 2012; Waas et al., 2011). This principle is particularly relevant to environmental limits (Waas et al., 2011). For example Norberg-Hodge (2000) and Trainer (2011) describe the inequitable practices of the global North, whereby they have developed and maintained high consumption lifestyles that have long been predatory and exploitative of the resources of the global South. This results in Southern resources being unsustainably overexploited, and consequently unavailable sufficient to the needs of the global South and future generations everywhere (Norberg-Hodge, 2000; Trainer, 2011). Business as usual sustainability fails to address issues such as these, failing the equity principle.

Democratic participation in decision-making is highlighted as an important characteristic of the equity principle, due to the coexistence of differing values and their importance in shaping sustainability strategising (Hugé et al., 2011). For example it is claimed that when sustainability is framed in terms of economic growth, majority concerns such as social and environmental protection are undemocratically ignored (McCarthy, 2004; Shiva, 2010). Norberg-Hodge (2000) and Shiva (2010) describe global governance structures administered by unelected and unaccountable organisations such as the WB, WTO and the UN, to erode local sustainability and democracy worldwide for corporate interests.

The third sustainability principle is integration, whereby social, environmental, cultural, spiritual, socio-economic and institutional objectives are harmoniously and holistically integrated (Huge et al., 2012; Waas et al., 2011). This contrasts with the common practice of trading-off between them, believed destructive due to their interconnectedness (Lamberton, 2005; Waas et al., 2011). Failure to achieve the sustainability of one aspect undermines the ability to achieve sustainability for any other (Davidson, 2011; Huge et al., 2012; Psarikidou & Szerszynski, 2012).

Fourth is the dynamism principle whereby sustainability is an on-going process rather than an end-state (Huge et al., 2012; Waas et al., 2011). Society and the environment are in an endless process of change, sustainability being a continual process of evolution and adaptation to this. Waas et al. (2011, p.1647) specify that this does not mean that sustainability cannot be achieved, rather it "...should be regarded as a continuous search for a delicate equilibrium in a dynamic setting". Because globalisation is predicated on increasing GDP, and due to the clear relationship between increasing GDP, GhG and environmental and social degradation (Daly, 2013; Knight & Rosa, 2011; Lane, 2000a; Stern, 2007; Tucker, 1995; Veenhoven, 1991; Vemuri & Costanza, 2006), sustainability based on globalisation has long been demonstrated to be impossible. Continued sustainability strategising predicated on globalisation despite the known destructive effects, then fails to meet the dynamism principle.

Fifth is the precautionary principle (Huge et al., 2012; Waas et al., 2011). This requires that even uncertain or "...poorly understood risks of serious or irreversible damage to the foundations for sustainability..." are respected,

including acting on “...incomplete but suggestive information...” regarding sustainability threats (Waas et al., 2011, p. 1647). Costanza and Patten (1995) suggest that precautionary issues concerning: what is to be sustained; for how long; and the timescale required to assess sustainability are the key challenge. This comprises achieving consensus on: what constitutes a sustainable economic-scale relative to ecological life-support systems; equitable resource and opportunity distribution; and efficient resource allocation (Costanza & Patten, 1995).

The widely accepted definition of sustainability is then, “Meeting the needs of the present without compromising the ability of future generations to meet their own needs”, as part of an ongoing process of change (WCED, 1987, p. 87). A set of core sustainability principles that are of equal importance and generally agreed upon by sustainability scholars, include normativity, equity, integration, dynamism, precaution and global responsibility (Hugé et al., 2011; Waas et al., 2011). Sustainability as it is commonly perceived based on globalisation strategies, fails to meet these.

## **2.2.2 Sustainability interpretation and compromise**

It is claimed that in defining sustainability, the WCED (1987) resulted in a concept with, “...a plausible content and a heavy dose of legitimacy” (Waas et al., 2011, p. 1642). Since then, sustainability has been widely interpreted and, “The content of the founding documents of the modern (re)emergence of sustainable development (e.g. WCED 1987) represent a compromise that legitimises different interpretations” (Huge et al., 2012, p. 2). It is then believed that the currently dominant conception of sustainability legitimises compromising of the concept.

In the year 2000, over 300 different translations and more than 100 series of principles were listed by the International Institute for Sustainable Development as being in use by institutions (Morris, 2012). In keeping with its origins, this “constructive ambiguity” is described as not excluding those with differing views (Robinson, 2004, p. 374). However the generalisability of sustainability is claimed to undermine the concept, resulting in confusion and enabling its misuse (Huge et al., 2012; Lamberton, 2005).

Lamberton (2005, p.53) explains that sustainability as it commonly interpreted by sustainable development proponents, is “internally inconsistent”. This inconsistency is due to the inherent conflicts between the described dimensions, when the commonly employed economic growth sustainability objectives result in socio-ecological destruction (Lamberton, 2005). The inherent conflicts of sustainability as it is commonly conceived, are then due to the dominance of Western culture and its emphasis on economic objectives, resulting in “mutually conflicting” objectives that are generally traded off in favour of the economic

dimension (Lamberton, 2005). This results in a continuing cycle of social and environmental destruction (Lamberton, 2005).

Huge et al. (2012) claim that misuse is evidenced by the many interpretations of sustainability that either unintentionally or deliberately ignore the constraints implicit in the concept i.e. not compromising the maintenance of healthy air, soil, water and communities. Hopwood et al. (2005, p.40) note that ambiguity allows sustainability to, "...justify and legitimate a myriad of policies and practices ranging from communal agrarian utopianism to large-scale capital-intensive market development" (Hopwood, 2005, p. 40). Thus whilst ambiguity and inclusiveness may be seen as positive attributes allowing widely divergent interests to reach a common ground (Zaccai, 2012), it is also claimed that this diversity of meaning makes the sustainability discourse very unclear (Bostrom, 2012; Lamberton, 2005; Robinson, 2004).

For example lack of clarity is believed to allow 'sustainable development' to propose sustainability without challenging economic growth (Bostrom, 2012; Davidson, 2011; Hopwood, 2005; Lamberton, 2005). Davidson (2011, p.352) further proposes, "Sustainable development has become, in essence, a version of environmental protection that does not pose a threat to the current economic structures of modern industrial societies". Robinson (2004, p.376) similarly claims that sustainability does not challenge existing entrenched powers or privileges, adding that the "...the mantra of sustainable development distracts us from the real social and political changes that are required to improve human wellbeing, especially of the poor, in any significant way". Sustainability that does not challenge the status quo is then claimed to be ineffective.

Robinson (2004, 376) describes conventional sustainability or 'sustainable development' as "innately reformist" in its avoidance of questions of power, exploitation and required redistribution, simply ignoring "...fundamental social and political change". This avoidance is framed by globalisation, as 'sustainable development' focuses on technology and economic growth as the solution and "...the concept helps to legitimise (or greenwash) the status quo which means further expansion of capitalism, more economic growth, increasing social inequalities, and more environmental destruction...In other words, it helps to sustain the unsustainable" (Bostrom, 2012, p. 10). The generalisability of sustainability, is then claimed to be maintaining the status quo, globalisation, inappropriate sustainability strategising, poverty and inequity.

The perception that sustainability is being addressed whilst inappropriate measures achieve insufficient results, causes negative attitudes toward sustainability (Twinn, 2012). A positive and reassuring public image is described as being created by "layers of greenwash", forming the illusion of progressing towards sustainability whilst economic growth and consumption strategies that are inherently incompatible with sustainability are implemented (Twinn, 2012, p. 123). "...a radical acceleration is needed in society's direction towards sustainability. Instead, progress is slowing...with small steps being promoted to the public as much greener than they actually are" (Twinn, 2012, p. 123). People may then develop a negative attitude toward sustainability, as whilst they

believe sustainability is being addressed they also perceive it to be ineffective.

The perception that sustainability is being addressed may mask the need for transformative societal and sustainability measures, the widespread perception that conventional sustainability initiatives are addressing sustainability facilitated by the vagueness of what sustainability entails (Rees, 2010). This is believed to contribute to the non-acceptance of other discourses, or sustainability strategies that challenge the economic growth paradigm (Prasad & Elmes, 2005). For example Martinez-Allier et al. (2010, p.1742) explain that despite there being many supporters of the degrowth movement as an alternative to the growth paradigm, "...there is not a single referential text about sustainable de-growth that has yet found its way to the wider academic and political arena". Those who believe that sustainability is being adequately addressed, may find ideas that challenge this unnecessary and radical (Prasad & Elmes, 2005).

Prasad and Elmes (2005, p.861) claim that as a result of its "genesis within an ideology of compromise", the nature of sustainability as it has been widely conceived, is compromise. This genesis occurred when the 1987 WCED meeting took place within the context of seeking agreement from world governments with widely divergent interests and agendas, regarding sustainability and 'development' (Hopwood, 2005). In order to achieve this diverse collaboration, sustainability was, "explicitly conceived as a bridging concept" by the Commission (Waas et al., 2011, p. 1642). Distinct policy domains, opposed views and stakeholders, could then share a common agenda and the "environmental interests of the North" would be "reconciled with the development needs of the South" (Waas et al., 2011, p. 1642).

Prasad and Elmes (2005, p.861) claim that this original emphasis on compromise is the source of 'sustainable development' controversy and challenge. For example in working with ecological questions, when compromise is enacted it becomes, "...inextricably embedded in the material world of self-interests, political power and institutional influence", and can do little to halt environmental deterioration (Prasad & Elmes, 2005, p. 861). Such compromise is evidenced in the 1992 Rio de Janeiro Earth Summit outcome, which "clearly favoured" the USA and its allies who insisted that all carbon dioxide targets and timetables be eliminated from the treaty (Prasad & Elmes, 2005, p. 860). More recently O'Riordan et al. (2012, p.46) comment on the 2012 Rio Summit outcome recommendations by international social scientists, "...which too often compromise sustainability in pursuit of development". Clarification and agreement on exactly what sustainability entails might then prevent compromise from hampering sustainability.

The point on which all of these authors agree is that interpreting and implementing sustainability presents a great challenge. Indeed, White (2013, p. 213) notes, "How can we hope to achieve a shared vision when we're not certain what vision we are sharing?...Businesses and other organisations require measurable, manageable objectives if they are to achieve progress towards a better and more certain future". Clearly describing sustainability, achieving

agreement on what this entails, and determining the requirements to achieve this might then be perceived a crucial and urgent task in order to resolve disputes about sustainability interpretation, and effectively address the socio-ecological crisis.

### **2.2.3 Sustainability implementation and strategising**

Sustainability has been advocated in differing forms since at least the 1960s (Carson, 1962; Leopold & Schwartz, 1968; Meadows, 1974). Currently Sustainability is carried out in many forms by organisations and government bodies with differing goals and intentions. Some pursue expressly environmental or social goals, whilst others attempt to address socio-ecological issues together. When socio-ecological issues are addressed together in an integrated way, this is often described as sustainability (Davidson, 2011).

Since The WCED coined the term 'sustainability', the UN has implemented this concept as 'sustainable development', and as a global priority. However worsening socio-ecological crisis is seen as reason to question the ability of 'sustainable development' to adequately address sustainability concerns (D'Souza, 2002; Lamberton, 2005; Max-Neef, 2010; Rogers et al., 2012). Indeed Twinn (2012 #322@127) believes that without clarification, sustainability will continue to be perceived as an unreconcilable issue that will be further, "discredited in the eyes of the public" as it continues to be greenwashed by marketing. Lamberton (2005, p.54) reports that those within the environmental movement see 'sustainable development' as, "...a smokescreen for corporate interests to continue with business as usual".

Ambiguity and vagueness regarding exactly what sustainability entails and the resulting misinterpretation of the requirements for sustainability, supports calls for the urgency of "...a proper understanding ....to assist its practical realisation" (Waas et al., 2011, p. 1637). Both Huges et al. (2012) and Hopwood et al. (2011) assist sustainability clarification, describing sustainability paradigms or discourses that may be used to frame sustainability approaches.

#### **2.2.3.1 Government and grassroots sustainability**

Internationally, grassroots groups such as Friends of the Earth (FOE), Greenpeace and social resistance movements of the global South, have acted to address sustainability. They attempt to mitigate the damage said to result from the abuse of people and of nature's limits. These groups have also sought to explain the seemingly disconnected causes of social and environmental damage.

For example recently FOE campaigned to educate people regarding the UN's 'green' economy, warning that attempting to solve the environmental crisis by

commoditising nature, dangerously undervalues the irreplaceable services nature provides, and threatens human wellbeing (Friends of the Earth, 2012). Greenpeace regularly protest against industry and governments by acting to prevent the threat that they pose to endangered species and areas of wilderness (Doyle, 2000). Resistance movements such as those of indigenous communities and the global South try to prevent corporate takeover and accompanying socio-ecological damage, through self-reliant food production and community cooperatives (Doyle, 2000; Martinez-Alier et al., 2010). Grassroots community groups then protest and attempt to provide sustainability solutions however worsening socio-ecological crisis indicates limited effect.

Whilst grassroots groups act to prevent socio-ecological damage, they can effect limited change when government policies and business regulation reinforce and maintain neglect of socio-ecological limits (IPCC, 2007). North (2013, p.1435) suggests existing power structures must be engaged if alternative approaches are to be embraced, and that this requires a “different set of politics”. North (2013, p.1435) believes, “...civil society action does not necessarily take place in a separate space from the ‘state’ (local or otherwise) and that it is, to some extent, constructed by it”. In order to address sustainability, grassroots action must then be politically integrated.

The Intergovernmental Panel on Climate Change (IPCC) (2007) also notes that voluntary actions have limited impact on emissions. Some suggest that limited impacts result from government perceptions that the required GhG reductions are a “challenging” task, often meeting this with insufficient reduction targets (Dunlop, 2011c; Lim, 2011). For example targets of up to 70% by 2050 and 100% by 2100, are seen as ‘acceptable’ levels of ‘safe’ GhG reduction to prevent 2 degrees of warming or the exceeding of 450 ppm (IPCC, 2014). However this goal is disputed as insufficient, due to the belief that a 1.5 °C limit is required (Dunlop, 2011c; Hansen, 2011; Victor & Jackson, 2012). Further to this it is claimed that there is little chance of agreed targets being met when global emissions have increased over the last two decades, with more than a 5% GhG increase seen in 2010 (Lim, 2011). Insufficient targets then offer little hope to voluntary attempts to address climate change issues.

Lack of government commitment to adequately address climate change despite the known potential catastrophic social and environmental risks, is described as evidencing a lack of commitment to sustainability (Waas et al., 2011). The contradictory Rio + 20 outcome agreed upon by world governments evidences such a lack, the summary document noting “...with grave concern the significant gap between the aggregate effect of Parties’ mitigation pledges in terms of global annual emissions of GhG by 2020 and aggregate emission pathways consistent with having a likely chance of holding the increase in global average temperature below 2 °C...” (UN, 2012b, p. 34). The same document details economic growth as a “key mechanism” to achieve ‘sustainable development’, as does the UN’s ‘Green Economy’ strategy (UN, 2012b; UNEP, 2011). This is despite widespread criticism of growth strategies, the demonstrated relationship between economic growth and increasing GhG, and acknowledgement by the UN that beyond what they refer to as a “low level of development”, GDP and income levels are strongly

linked (Hueting, 2010; Jackson, 2012; Tucker, 1995; UN, 2011). Such contradictory sustainability strategising in the light of strong evidence indicating catastrophic socio-ecological consequences, might indicate an informed lack of government commitment to sustainability, despite the known extreme risks.

In addition to recommended GhG targets to reduce the risk of catastrophic climate change, ecological modeling to estimate safe production levels has been developed. These include ecological footprinting (EF) and Environmentally sustainable national income (eSNI). The models represent the availability of alternative sustainability strategies and targets

Hueting (2010) describes eSNI as the maximal attainable production levels by which vital environmental functions remain available for future generations, based on the technology available at the time. For 1991, eSNI was found to be 50% of world production, or equivalent to the production level of the early 1970s (Hueting, 1990, 2010). This was the same viable production figure calculated in 2001 for the Netherlands, by the Netherlands Institute of Environmental Studies (Hueting, 2010). Consistent with these analyses, Wackernaegal et al. (2002) report that global ecological overshoot began occurring in the 1980s using EF to determine safe production levels. A viable production and growth level target of 1970s levels has then been assessed and recommended, however continued UN global sustainability strategising predicated on economic growth, firmly ignores this.

Thus despite claims of a clear link between economic growth and GhG, and claims that in order to decrease GhG and socio-ecological damage economic growth and consumption must be reduced, economic growth continues globally as a national imperative and a key ingredient of UN global sustainability strategising (Rees, 2010; UN, 2012b). Grassroots sustainability measures can then achieve little effect, and though “...the world’s top physicists, ecologists, and climatologists warn repeatedly that current development strategies are undermining global life support systems and risking catastrophe, the responses range from negligible to ineffective” (Rees, 2010, p. 14).

### ***2.2.3.2 Sustainability discourse***

In order to understand why government strategies continue to have damaging socio-ecological effects whilst being claimed to comprise sustainability, it is useful to examine the underlying assumptions of such strategising (Huge et al., 2012). This may be achieved using discourse analysis, which highlights the framing assumptions of a given sustainability approach that determine the possible outcomes resulting from any particular discourse (Huge et al., 2012).

Huge et al. (2005, p.2) explain that discourses are, “...structured ways of representation that evoke particular understandings and may subsequently enable particular types of actions to be envisaged”. Prasad and Elmes (2005, p.852) outline that discourse refers to, “...all genres in which someone addresses

himself as the speaker and organises language to an audience”. Discourse then refers to the ways that ideas are framed, and the beliefs in which these ideas are embedded or the particular understandings of the world that these ideas arise from (Huge et al., 2012). These differing ideas lead to social actions that actively construct society (Huge et al., 2012).

Prasad and Elmes (2005, p.852) describe discourse to carry with it, “...a set of assumptions, prejudices, blindnesses and insights – all of which have a historical provenance but also exclude other possibly equally valid statements”. Framing assumptions and biases of a particular discourse may then be examined, along with the exclusions of other sets of ideas or discourses that such framing entails (Prasad & Elmes, 2005). Discourse analysis may then be used to highlight bias, “...both in conceptualising a policy problem as well as in the solutions that can be conceived for those problems” (Huge et al., 2012, p. 2). Discourse analysis may then be useful in better understanding sustainability as a decision-making strategy (Prasad & Elmes, 2005).

#### ***2.2.3.4 Status quo and Reform sustainability discourse***

Status quo and Reform discourses conceive of sustainability as occurring within the current ‘sustainable development’ paradigm (Huge et al., 2012). ‘Sustainable development’ is the dominantly accepted sustainability paradigm. This paradigm is common to the UN, governments, businesses and ecological modernisers (proponents of technological solutions) (Hopwood, 2005).

‘Status quo’ or conventional sustainability identifies ‘development’ and economic growth to achieve sustainability (Hopwood, 2005; Martinez-Alier, 2003; Waas et al., 2011). ‘Reform’ or ‘limits’ sustainability discourse (sometimes described as corporate sustainability), involves the pragmatic integration of development and environmental goals with the required shifts in policy and lifestyle achievable within present social and economic structures (Huge et al., 2012). Prasad et al. (2005) explain the difference between reform and corporate sustainability to be mainly in the reason or purpose each offers. Whilst reform sustainability approaches sustainability result from an inescapable ecological imperative emphasising limitations on human activities, corporate sustainability unashamedly advocates ‘green’ measures to boosting the bottom line (Prasad & Elmes, 2005).

Status quo sustainability measures include increasing economic growth to alleviate poverty, achieve ‘development’ and fund environmental remediation (Lomborg, 2013; UN, 2012b). This model of sustainability and poverty-alleviation suggests that economic growth-driven wealth, ‘trickles down’ throughout society. Poverty will then decrease and the funds for environmental protection will become available.

The ‘Limits’ or ‘Reform’ discourse is focused on ecological limits, reform policies and ‘sustainable development’ to encompass resource scarcity and critical natural

capital to be conserved for future generations (Hopwood, 2005; Huges et al., 2012). According to this discourse, nature's capacity must be respected and the proceeds that can be 'sustainably' harvested and utilised within this capacity must be distributed equally. Reform discourse assumes that constrained, equitable distribution can be carried out within existing globalised structures and frameworks that need to be monitored and administered more carefully and equally, with better information, education and technology providing the means to become sustainable (Hopwood, 2005; Huges et al., 2012). Examples include: mainstream conservation organisations; 'Localism', a centrally administered form of devolved political democracy; and 'ecological modernisation' or technologically and efficiency-focused sustainability (Hopwood, 2005).

Advocates of Status quo and Reform discourses conceive that the sustainability issues faced by humanity can be addressed without fundamental changes to society, and that global economic growth is an important part of the solution (Huges et al., 2012). Global economic growth is administered by UN bureaucracies, that also created the Brundtland Commission which originally defined sustainability, and the world forum that shapes dominant global status quo sustainability strategies and planning (Cavanagh & Mander, 2004; D'Souza, 2002; Martinez-Alier et al., 2010; Max-Neef, 2010; McCarthy, 2004; Waas et al., 2011). This forum is the regularly held UN-led sustainability and climate change gathering, which commenced in 1972 and was most recently attended by over 190 countries at the UN Rio+20 anniversary summit (D'Souza, 2002). This Summit focused on creating a 'green economy', and replacing previously established Millennium Development goals with 'sustainable development' goals (UN, 2012b). Status quo sustainability was then created and is administered and strategised by the UN, who clearly states that economic growth is the priority.

Due to the incompatibility of economic growth and sustainability, the UN fail to effect sustainability and are criticised for this (Bosselmann, Brown, & Mackey, 2012; Conca, 2002; Doyle, 1998; Ehrlich, 2010; Zaccai, 2012). For example Rio+20 outcomes were criticised due to lack of climate change planning resolution, the 'green economy' being inherently unsustainable, and the failure to plan for urgent climate change action (ABC, 2012; Dunlop, 2011b; Victor & Jackson, 2012). These criticisms are consistent with previous claims regarding the failure of UN forums to produce the overarching policies and behaviour change required to prevent the decline of key global sustainability indicators (Bosselmann et al., 2012; Doyle, 1998; Martinez-Alier et al., 2010; Waas et al., 2011). The capability, legitimacy and logic of UN-led sustainability strategising is then criticised (e.g. D'Souza, 2002; Doyle, 1998).

Some describe UN agendas as characterised by Corporatist sustainability (Conca, 2002; Doyle, 1998; Friends of the Earth, 2012). Corporatist sustainability is the superseding of political parties by global corporations, predisposing corporate interest group involvement, status and work style, and making it challenging for other civil society organisations or interest groups to be involved or heard (Dan, 2011; Niestroy, 2005). UN integrity regarding sustainability implementation is then questioned due to the perception that UN agenda is corporatist (e.g. D'Souza, 2002; Doyle, 1998; Friends of the Earth, 2012). This questioning of UN-

led 'sustainable development' relates largely to the method of using economic growth and development, or 'trickle-down' as a key mechanism despite widespread discreditation of this model (Victor & Jackson, 2012). Rather than benefit low-income people, trickle-down is claimed to instead "privilege the richest" (Fournier, 2008, p. 541).

Cadigan (2011) supports this claim, reporting that in Aotearoa New Zealand, despite government promises of living standard improvements with increased global integration, "Māori remain at the bottom of the social scale, and the expected wealth and associated benefits have not filtered down beyond the already wealthy and foreign investors" (Cadigan, 2011, p. 306). Trainer (2010a) outlines that advocates are still claiming the trickle-down approach to be successfully occurring in China, despite that economic growth is deepening social and economic problems there (Twinn, 2012). Further to this it is reported, "To achieve every single dollar of poverty-reduction would require \$166 of additional global production and consumption, with all its associated environmental impacts...Using this flawed model of belief in the possibility of infinite growth, coupled with trickle-down, just getting everyone in the world onto a modest income of \$3 per day would require the natural resources of around 15 planets like earth" (Boyle & Simms, 2009, p. 40). Trickle-down is widely criticised and discredited, and is instead seen to result in socio-ecological degradation (Gross National Happiness Commission, 2011; Haque, 1999; Hines, 2003; Trainer, 1996).

Current goal statements such as, "We also reaffirm the need to achieve sustainable development by: promoting sustained...economic growth" (UN, 2012b), presently reaffirm the outdated and "notorious" (Robinson, 2004, p. 372) concepts of its inception. The Brundtland Report's original 1987 recommendation was that global economic product would have to increase 5-10-fold in order to achieve sustainable development (WCED, 1987, p. 15). As noted by Crouch, "While the basic bargain of neo-liberalism's trickle-down economics seems to have broken down, its criteria still frame the limits of the politically possible" (in Dan, 2011, p. 50).

Corporatist sustainability based on discredited theories such as trickle-down is then seen as dominating global sustainability agendas, and may be perceived most recently in relation to the UN's recent 'green economy' sustainability strategy. The 'green economy' strategy states, "UNEP defines a green economy as one that results in improved human wellbeing and social equity, while significantly reducing environmental risks and ecological scarcities" (UNEP, 2011, p. 9). However it is observed that the 'green economy' strategy disregards the insufficient environmental and social outcomes that it can possibly achieve, within the economic growth model in which the strategy is framed (Kosoy et al., 2012; Rogers et al., 2012; Victor & Jackson, 2012).

Appadurai (2012, p.6) notes that in relation to a 'green economy', "...assigning a monetary worth to natural capital does not signal a departure from business as usual; it merely gives more fuel to the old regime" (Appadurai, 2012, p. 6). Rogers et al. (2012, p.63) believe, "To the extent that Green Economy simply

represents a green technology version of business as usual, it will not be adequate to create the social transformations necessary to ensure wellbeing and sustainability". A "true" green economy would comprise all relevant stakeholders addressing underlying socio-economic issues to effect change, while respecting planetary boundaries and ensuring "instrumental freedoms" for all people (Rogers et al., 2012). In contrast, the 'green economy' document describes increasing global inequality, CO2 emissions and biodiversity losses as 'additional consequences', and the decline of natural resources as 'a threat to GDP' (UNEP, 2011).

Three of the four 'green economy' recommended measures concentrate on economic outcomes (UNEP, 2011). Reduced poverty is the fourth claimed outcome, said to be achieved through "...better maintenance and conservation of the ecological commons, arising from the benefit flows from natural capital that are received directly by the poor" (UNEP, 2011, p. 13). However the 'green economy' model assumes GhG emissions to result in 450ppm by 2050, described as insufficient to prevent catastrophic climate change, and implicitly condemning the 'ecological commons' (Dunlop, 2011c; Hansen, 2011; Victor & Jackson, 2012). Preservation of the 'commons', the only prioritised social outcome of the 'green economy' strategy, is then thought to be knowingly doomed to failure by the design strategy, despite its claimed importance.

The United Nations Environment Program (UNEP) has carried out modelling of expected 'green economy' outcomes. This modelling indicates improvements in wellbeing and social equity whilst significantly reducing environmental risk and ecological scarcities (UNEP, 2011). Victor and Jackson (2012) analysed this modelling and determined it to be flawed. They state, "...conclusions about green versus brown growth based on such a highly aggregated global model are at least premature, and more likely, seriously misleading". They (and others) claim that as opposed to creation of a 'green economy', radical overhaul of the economic structure is required (Bosselmann et al., 2012; Kosoy et al., 2012; Victor & Jackson, 2012). Consistent with previous UN sustainability strategy criticisms, 'Green economy' sustainability strategising is believed incapable of achieving sustainable outcomes.

In sum, discourse analysis highlights that status quo sustainability is premised on economic growth and outdated trickle-down theories. As economic growth is incompatible with sustainability, status quo strategising fails to prevent socio-ecological destruction. Status quo sustainability cannot then be expected to provide sustainability solutions or to achieve effective results. Rather, it is believed that transformative measures based on assumptions and resulting objectives compatible with the requirements for sustainability are required.

### ***2.2.3.5 Transformation or change sustainability***

Transformative or change sustainability is described as requiring purposive prioritisation of socio-ecological concerns over those of the economy, and a

transformation of current social and economic structures and values (Foster, Clark, & York, 2010; Knight & Rosa, 2011; Meadows, 2009; O'Riordan, 2012; Prasad & Elmes, 2005). This involves prioritising socio-ecological needs as non-negotiable.

Transformation sustainability regards natural capital as providing functions that human-made capital and technology cannot. This critical natural capital is, "...stressed by defining sustainability as leaving the future generations a stock of natural capital not smaller than the one enjoyed by the present generation" (Gutes, 1996, p. 147). 'Strong sustainability' also views natural capital in this non-negotiable way (Singh, Murty, Gupta, & Dikshit, 2012).

The transformation or change discourse views sustainability as a process of directed social and values change or transformation (Huge et al., 2012). These values comprise concerns such as equality and environmental health (Huge et al., 2012). The transformation discourse addresses these concerns primarily in relation to the exploitation of most people and the environment by a minority, with the understanding that, "...some communities and people are rich because others are poor and vice versa" (Hopwood, 2005, p. 49). Transformation sustainability finds inequality and exploitation unacceptable and unsustainable.

Transformation or change discourse is proposed by movements such as De-growth, Deep Ecology, Eco-feminism, Indigenous movements of the South and Localisation (Hopwood, 2005). Contrasting with status quo or reform strategies, in challenging the dominant 'sustainable growth' paradigm transformative sustainability measures are often perceived as radical or extreme, and dismissed (Prasad & Elmes, 2005). Transformation sustainability measures generally involve decreasing economic growth and reconceiving globalisation to redistribute and redefine wealth, in order to address inequality and poverty, and environmental and social decline (Hopwood, 2005).

Some describe transformation measures to re-strategise sustainability by looking outside the limits of what is currently politically possible, so that outdated sustainability strategies based on economic growth and globalisation might be replaced. For example Meadows (2009, p.34) states that human misery and environmental degradation cannot be remedied with policies that, "...promote more growth along the same old lines". Rather structural changes and a profound revolution in the sense of the agricultural or industrial revolutions are required (Meadows, 2009).

Lamberton (2005, p.56) explains that as the critical sustainability decision making issue is the prioritisation of competing objectives contained within the dominant interpretation, "...rejection of the continued placement of economic outcomes at the top of the objective hierarchy leads to an alternative approach". This involves redesigning the economic system according to an alternative value system, as disputes over the meaning of sustainability essentially regard the values underpinning sustainability decision making processes (Lamberton, 2005). Re-strategising sustainability within the transformation discourse then involves looking outside of existing political, economic and social structures, and

the possibilities inherent in these.

#### Reprioritising what is important

The literature suggests many opportunities to re-strategise sustainability, if we reprioritise what is important. Daly (2013, p.24) suggests, "...ethical improvement in our wants and priorities". Knight and Rosa (2011) believe focusing on the bonds that increase social interaction and strengthen community decreases economic consumption as basic human needs are met through relationships, reducing futile and destructive attempts to meet these needs through excessive consumption. Holmgren (2010) contrasts growth that involves consumption of the finite, external, material world, with growth of the infinite interior human world comprised of learning, creativity and personal growth that we might instead focus on. Lamberton (2005) and Brooks (2011) suggest focusing on interconnected socio-ecological needs and sufficiency, rather than desires. They emphasise the interdependence of all life and compassion for all sentient beings, stressing spiritual rather than material growth and the virtue of limiting desires that can lead to overconsumption. Max-Neef (2010, p.201) suggests a "Move from efficiency to sufficiency and wellbeing". These authors suggest that reprioritisation of what is 'important' must be absolutely clear.

#### Altering social relations of production

Cosford suggests that in order to reprioritise what is 'important', "The only real answer...is to alter the social relations of production, to create...a higher system in which equality, human development, community, and sustainability are the explicit goals" (in Foster et al., 2010, p. 11). Providing such an example, Hicks et al. (2012) describes that Tiwi Islanders have sustainably harvested local natural resources for 6000-8000 years. Ensuring critical resources is perceived as essential, and as a result skillful environmental stewardship is a valued skill (J. Hicks et al., 2012). Positive feedback loops exist whereby the status of managers is raised as they ensure the ongoing availability of critical resources that satisfy vital needs, encouraging these managers to make decisions to ensure the health of local critical resources (J. Hicks et al., 2012). Hicks et al. (2012) note that prestige and status are important in this community, and it may be observed that in the Tiwi Islands these rely (at least in part) upon ensured environmental and community health, as opposed to the consumption, individual accumulation and profit making espoused by a growth economy.

Lamberton (2005) describes a case study whereby a food supply organisation developed a decision-making process that prioritises holistic, sustainable sufficiency. Sustainable sufficiency comprises the achieving of economic objectives whilst ensuring environmental preservation and individual and societal welfare (in contrast to prioritising economic growth and profit making) (Lamberton, 2005). This was achieved by focusing on a local scale of economic activity compatible with sustainably self-sufficient ecological, social and economic objectives, and resulted in planning for: a smaller product range of essential low cost items of simple design made from local resources: revenue

being earned predominantly from the sale of essential products; profit margins recognising the different circumstances of customers even at the risk of incurring lower sales levels; lower resource consumption whereby technology transfer is both a technical and a social process that is not used to replace workers or local indigenous knowledge, or allowed to degrade the environment; work was redesigned to build character and social experience for workers, involving multiskilling and teamwork being prioritised ahead of specialisation; and inputs were sourced from the local region with outputs being consumed by local customers.

Lamberton (2005, p.66) describes that this repriorisation of sustainable sufficiency and local as opposed to globalised production and consumption, "...directly challenges the necessity and desirability of economic globalization". This involved transforming but not enlarging the organisation, which involved "...critical differences between expected outcomes using a sustainable development versus a sustainable sufficiency framework" (Lamberton, 2005, p. 66). Prioritising socio-ecological considerations ahead of economic growth and profits according to the concept of sustainable sufficiency rather than 'sustainable development' (growth), was essential to this outcome.

#### Prioritising critical social and environmental conditions

O'Riordan (2012) suggests critical social and environmental conditions as a way to prioritise and achieve sustainability. O'Riordan (2012, p.1) believes that critical conditions might provide a "social floor", or "irreducible platforms of human wellbeing (that) should not be lowered without causing morally unacceptable injustice". These consist of poverty, basic human rights, ill-education, ill-health, personal insecurity, lack of community, unemployment, and loss of self-esteem, providing a "ceiling" (or limits to growth) for our future extraction and manipulation of the "zone of potential human use of our planet" (O'Riordan, 2012, p. 1). O'Riordan (2012) suggests prioritisation of wellbeing without economic compromise, to reprioritise for sustainability.

#### Reconceiving what is 'practical' and 'intelligent'

Prasad et al. (2005) outline that pragmatics shape current dominant sustainability discourse. This results in acceptance of only 'practical' strategies that can find a workable sustainability compromise that does not sacrifice economic growth (Prasad & Elmes, 2005). An example of such an occurrence might be seen as outlined by Dupuis and Goodman (2005, p.364), whereby food 're-localisation' and 'slow food' is obscured, "...by a complementary discourse of economic performance and competitiveness".

Prasad et al. (2005, p.864) suggest redefining our use of the term 'practical' such that "...nature and human relationships with nature take precedence over economic and traditional managerialist objectives". They claim that in doing so, the preservation of nature and the local livelihoods must be seen as practical, as opposed to 'practical' implying economic priority and the preservation of

“...mega corporate profits and large-scale economic growth” (Prasad & Elmes, 2005, p. 864). Prasad et al. (p.864) describe this as a shift from, “instrumental to ecological rationality”. Shiva (in *Transition Culture*, 2010, p.2) similarly asks that we “...celebrate resource prudence and simplicity as human intelligence”, as opposed to “...the cultural trends and the direction most see as logical”. These authors suggest that ‘practical’ and ‘intelligent’ be reconceived as that which preserves socio-ecological health, rather than economic or corporate health.

### Prioritising wellbeing

Some claim that in order to address sustainability governments must focus directly on and prioritise wellbeing, through policies designed to alleviate economic inequality rather than increase incomes and consumption (Bosselmann et al., 2012; Knight & Rosa, 2011; Wilkinson et al., 2010). These claims relate to findings that more egalitarian countries achieve higher levels of wellbeing with lower levels of environmental consumption, as inequality increases status-based consumption (Knight & Rosa, 2011). Malovics (2008) outlines that socio-ecological health must be actively prioritised over profit-maximisation and economic gain, with agreement by governments, business and citizens reached on how to achieve this.

Wellbeing is increasingly seen as an important aspect of all sustainability discourses (Rogers et al., 2012). Indeed, it is stated that definitions of sustainability typically refer to striking a balance between minimising environmental impacts and maximising human wellbeing (Knight & Rosa, 2011). Rinne (2012) suggests that some see wellbeing as better indicating human progress than does sustainability, and that interest in wellbeing is growing.

Wellbeing is said to comprise objective and subjective needs (Vemuri & Costanza, 2006). Essential wellbeing requirements including food, water and shelter are generally described as being objective and dependent upon biological needs such as chronic hunger, danger and isolation that must be satisfied before we can feel happy (Veenhoven, 1991). Other aspects of wellbeing such as perceived levels of happiness and life satisfaction, are subjective (Vemuri & Costanza, 2006). Individual or national levels of wellbeing might then be perceived as dependant upon whether essential needs or objective requirements are met, and additionally how adequately subjective, or life satisfaction requirements are satisfied.

The objective components of wellbeing are widely agreed upon (Knight & Rosa, 2011), however the subjective components of wellbeing and how to improve these without at the same time undermining the wellbeing of others including future generations and non-humans, is highly contentious (Duraiappah, 2011; Jackson, 2005a; McCloskey, 2012; O’Riordan, 2013). “How does one assess the wellbeing of nations and the individuals that make them up? The answer to this question is critical to national and international development policy, as the explicit goal of these policies is to ‘make things better’. How one measures ‘better’ is thus a key question” (Vemuri & Costanza, 2006, p. 119). Contention

regarding wellbeing and sustainability is then believed to have strong implications for government policy direction.

In the currently globalised economy, government policy aiming to 'make things better' and increase wellbeing focuses on increasing economic growth, GDP and income (Hopwood, 2005; Jackson, 2005a; Max-Neef, 2010; UN, 2012b). As economics is dominated by the assumption of a strong link between consumption and utility or wellbeing, the relationship between the two is where the issue of wellbeing is most researched (Knight & Rosa, 2011). Key wellbeing studies include those of Hirsch (in Ekins 1993), Easterlin (1995), and Wilkinson and Pickett's' (2009) 'Spirit Level'. These studies variously describe economic limits to happiness.

The perception of economic limits to happiness originates in the thinking of Hirsch (Ekins, 1993, p.274 and O'Neill, 2008). Hirsch postulated that these limits derive from: the consumption of scarce "positional" goods, or goods, services, work positions, and other social relationships that are scarce in an absolute or socially imposed sense, and/or subject to congestion or crowding. Hirsch believed that pursuing happiness in this way is self-defeating as the satisfaction that the consumption of scarce goods brings decreases when they are inevitably consumed by others; and from the breakdown of the individual morality required for the "functioning of an individualistic contractual economy", caused by the same individualism that is required for economic growth. This perceived tendency of economic growth to result in the breakdown of morality, caused Hirsch to observe that "Economic growth undermines its social foundations" (in Ekins, 1993, p. 274). These economic limits to happiness suggest that the self-defeating nature of positional goods, and an increase in individualism and breakdown of morality, cause economic growth to be unsustainable.

Easterlin's (1995) research indicates that relative wealth is more important than absolute wealth. Thus over time despite continued economic growth and consumption and 'sharp rises' in GDP per capita, average happiness (wellbeing) remains constant. As individual income levels of wellbeing within a country rise with increasing GDP, all of society's expectations raise, and happiness (or subjective wellbeing) remains the same (Easterlin, 1995). Easterlin concluded that this has resulted in reported wellbeing remaining the same in the US since the 1950s, despite huge economic growth, and also why examined trends in life satisfaction in nine European countries and in Japan are very similar to those of the US (Easterlin, 1995). Other researchers report similar trends (Daly, 2013; T. Smith, 1979).

The 'Spirit Level' findings by Wilkinson and Pickett (2009), indicate that greater economic equality rather than greater wealth is the most effective way to achieve overall societal wellbeing. Wilkinson and Pickett's' (2009 and 2010) work claims that modern social and environmental problems characteristic of high income countries such as ill health, lack of community life, violence, drugs, obesity, mental illness, long working hours, big prison populations and environmentally unfriendly behaviors like consumerism, are more likely to occur in less equal societies. Their findings consistently indicate that poorer countries

benefit from improvements in material standards of living, but that once they become high-income countries, income increases count for less and less (Wilkinson & Pickett, 2009; Wilkinson et al., 2010).

Daly (2013) believes that beyond a modest income level wellbeing is determined by the quality of our relationships, friendships, family and social stability including trust and fairness determining these. If we sacrifice these relationships for the sake of increased income, we often reduce wellbeing (Daly, 2013). Lane (2000a, p.107) explains that this is: “... (a) because the most “urgent” priced goods are bought first, later purchases yield less satisfaction, and (b) because other goods that money cannot buy become relatively more attractive”.

Lane (2000b) finds that companionship, one of the many goods that yield the greatest happiness and that money cannot buy, has become increasingly scarce in high-income countries. Companionship then becomes more scarce and valuable, reducing the marginal utility of income. Conversely in low-income countries where companionship is high, increasing income is more likely to increase subjective wellbeing, presumably until the marginal utility of income is reached and non-monetary things become more scarce and valuable (Lane, 2000a). Lane claims that beyond a certain level, increased consumption may decrease wellbeing.

Some suggest that as humans depend on ecosystem services in order to live, negative impacts on the environment might logically be seen as negatively impacting wellbeing. For example Raudsepp-Hearne et al. (2010) and Duriappah (2011) point out the paradox in the MEA (2005) reporting that human wellbeing has increased over the last fifty years as a result of increases in material wealth and consumption per capita, while at the same time reporting that this has resulted in the decline of two-thirds of the assessed ecosystem services upon which humans depend in order to live. They explain that such reporting may be due to the inability of the HDI to adequately indicate human wellbeing without including environmental measures, and the use of inappropriate measures such as GDP per capita and education levels (Duraiappah, 2011; Raudsepp-Hearne et al., 2010). Duriappah (2011) also suggests that wellbeing studies at the global scale are lacking, because it is at the local level where most changes in wellbeing to occur. Further to this the extent of human consequences resulting from environmental damage are still emerging, and may further explain lags in reported wellbeing decline (Raudsepp-Hearne et al., 2010).

Recently the Bhutanese government organised an international wellbeing and happiness meeting, resulting in a resolution being drafted for the UN General Assembly (Royal Government of Bhutan, 2012c). This resolution stated the intention of many nations to measure wellbeing and begin re-thinking the primacy of economic growth, as critical to avoiding the limits to growth and achieving wellbeing (Royal Government of Bhutan, 2012c). Brooks (2013, p.3658) believes this outcome evidences, “...momentum is shifting towards a more sustainable approach to development”.

Economic growth and income levels are then not adequate indicators of wellbeing. This supports the inconsistency of wellbeing reported as steadily increasing using economic measures, whilst ecosystem health services upon which humans depend is rapidly decreasing. We then need to reprioritise and improve our understanding of the relationship between environmental health and wellbeing, in order that measures of wellbeing adequately reflect this relationship. This might be achieved by focusing on wellbeing at the local level.

## **Summary and conclusion**

In describing sustainability and why it is required, this section has partially answered *Research question 2c*. Broad and agreed sustainability principles include normativity, equity, integration, dynamism, precaution and global responsibility. Due to the ambiguity of sustainability needs, these principles are interpreted according to widely varying premises, criteria and goals. Some believe that in order to clarify sustainability needs, reprioritisation of what is 'important' and 'practical' must occur, as continuation of the priorities that have created the current socio-ecological crisis, cannot be expected to solve the problems that they have created. This might include focusing on ethical and socio-ecological issues, which would at the same time achieve reduced consumption due to a shift in focus from material wants. Others suggest altering production and government policies so that equality, human development, socio-ecological health and wellbeing are the explicit goals. Transformation sustainability proposes prioritisation of socio-ecological requirements as opposed to economic and corporate priorities as non-negotiable, and reaching agreement on how these requirements will be achieved.

## **2.3 Localisation as transformative sustainability**

### **Introduction**

This section addresses *Research question 1a and 1b*. Localisation is commonly portrayed in relation to the damaging effects of globalisation on local communities, and as a necessary alternative. This is due to localisation being predicated on living within the constraints of local ecosystems and reduced consumption, thought to foster healthy local communities, environments, culture and economies (Douthwaite, 2004; Norberg-Hodge, 2000; Trainer, 2010a). Due to its potential to foster constrained consumption and promote socio-ecological health, it is suggested that localisation be researched as a viable and transformative strategy to remedy the harmful effects of globalisation (Curtis, 2003; Frankova & Johannisova, 2012; Hopkins, 2010).

### 2.3.1 Localisation origins and proponents

Localisation is described as a way to address both global and local issues concerning economies, environments and culture (Frankova & Johanisova, 2012; Hopkins, 2010; North, 2010). These descriptions particularly relate to self-sufficiency, self-reliance, and decentralisation regarding production and trade, appropriate scales concerning social health and self-governance, economies, production and technology, and also in relation to the importance of preserving local governance, communities, cultures and environments (Douthwaite, 1996; Hines, 2000; Hopkins, 2010; Keynes, 1933; Norberg-Hodge, 2001; Ramos, 2010; Royal Government of Bhutan, 1999; Schumacher, 1973; Shiva, 2007; Starr, 2003; Trainer, 1996). Localisation is seen a way to address many issues of both local and global concern.

Some authors describe localisation as the traditional form of global society (Frankova & Johanisova, 2012; Hopkins, 2010; North, 2010; Starr, 2003). Starr (2003) explains, "Traditional peoples have been refining their self-sufficient agricultural and social systems for upwards of 10,000 years, providing full employment and avoiding poverty". Norberg-Hodge (1992) claims that localisation existed as traditional, nature-based society that was more sustainable than current society, despite the benefits that have resulted from development. Norberg-Hodge (2000) believes that human relationship to the land, one another and to oneself are the most important aspects of sustainability, and that in contrast to contemporary, globalised society, these were previously fostered by localisation.

Localisation concepts may be seen in the works of Keynes promotion of self-sufficiency (Keynes, 1933), and the 1940's writings of Polanyi who believed that market-driven, capitalist economies and "individual aggrandisement" would facilitate "...the rapid disintegration of society and its ecological foundations" (Amin & Luckin, 1996; Trainer, 1996, p. 6). Ramos (2010) and Hopkins (2010) cite early localisation or (re) localisation conceptions in attacks on "gigantism", including Kohr's (1957) 'The Breakdown of Nations', and Mumford's (1964) 'The Myth of the Machine'. Schumacher believed that self-governance and provision would help integrate appropriate scales and "real, human-scale" needs (Schumacher, 1973, p. 55).

North (2010, p.587) identifies localisation traditions in: American Guild Socialists and Distributionists looking to build local, small-scale utopias through the 1930s; North American 'homesteading' proponents who in the 1940s and 50s wanted return to the land and local food production; experimental communes in the 1960s as alternatives to the "big system of industrial capitalism"; and "radical" local authorities in the 1970s and 80s investigating "restructuring for labour" as community-based ownership of closing enterprises. North (2010) also sees a local-ownership, social economy movement in the global South, as a localisation response to recession and job loss.

Contemporary localisation proponents include Green parties, local currency Network participants, large retailer opponents, localist think tanks such as the

New Economics Foundation, the EF Schumacher Society, the Institute for Local Self Reliance and the International Forum on Globalisation, and small-is-beautiful proponents (North, 2010). Others include food localists and the Seed Savers Network (Shiva, 2007), voluntary simplicity advocates and The Simplicity Institute (Trainer, 2010c), business and economic localisers (including Frankova, 2012 and Shuman, 2010) and The Business Alliance for Local Living Economies (BALLE) proponents (such as Wicks, 2004), Social Ecologists (e.g. Ramos, 2010), Bioregionalists (e.g. Gray, 2007) and Degrowth proponents (such as Latouche, 2009, Jackson, 2012 and Johannisova, 2012).

### **2.3.2 Conceptions of localisation**

O’Riordan and Viosey (1997, p.5) conceived of localisation as “...the shift towards greater control over local lives and natural worlds”, and an antidote to globalisation. They described localisation and globalisation as the two forces likely to be of most influence in the sustainability transition in the following generation (O’Riordan & Viosey, 1997). Many descriptions have since expanded on this explanation of the term localisation, differing with regard to the context in which localisation or (re) localisation, might take place. Localisation authors tend to discuss environmental, social, cultural and economic issues with differing emphasis on these qualities.

#### **2.3.2.1 Re-localisation**

Hinrichs (2003) notes that when viewed historically, localisation is a process of re-localisation. Hines (2003, p.1) sees localisation as a process of encouraging and actively discriminating in favour of relocalising economies and cultures, describing this as, “...the flow of ideas, technologies, information, culture, money and goods with the end goal of rebuilding local economies worldwide”. The Relocalise network (2009) similarly describe relocalisation, and in Europe, some supporters of local food systems see relocalisation as a strategy to safeguard precious cultural capital, and defend a perceived traditional, rural, cultural identity, against globalisation (DuPuis & Goodman, 2005). These authors emphasise relocalising or preserving local, traditional cultures, as opposed to localising for the first time.

#### **2.3.2.2 Re-localisation as a new form of localisation, and as a response to hardship**

Some describe that re-localisation is a new process, that unlike previous forms must combat the currently dominant and relatively new force of globalisation. For example Hines (2000, p.4) describes localisation as, “...a process which reverses the trend of globalisation by discriminating in favour of the local”.

Norberg-Hodge (2003 p.25) believes, “The essence of localisation is to enable communities around the world to diversify their economies so as to provide for as many of their needs as possible from relatively close to home”, whereas pre-globalisation each locality needed the diversity to supply its own essential needs (De Young, 2012; Douthwaite, 1996; Shiva, 2005). Localisers then perceive the need to re-regulate and re-embed economies into nations, regions and local communities (North, 2010). Unlike previous forms of localisation, contemporary forms must restore localised processes in the face of globalisation.

Ziser (2010, p.81) refers to the idea that unlike utopian pasts, global communication would make a localised, “post-oil peak future” very different to a past when there was less transportation and movement of people, goods and services. Such a future would likely comprise, “...an ecologically sustainable world, where there are fewer physical connections but vastly more communication between individuals...a new perceptual relationship between time, scale, and sense of place unlike that ever previously experienced...a highly mediated, highly dispersed network of global connections” (Ziser, 2010, p. 81). Ziser conceives localisation as impending and involving less movement but continued extensive global communications, making such a future unlike any other era.

Relocalisation would likely take place in conditions of hardship resulting from climate change, peak oil and resource depletion, as opposed to utopian visions of a return to some ideal era North (Hopkins, 2010; North, 2010; North & Longhurst, 2013). Hines (2003, p.7) similarly states that localisation is not about trying to “put back the clock”, rather “...localisation could return humankind and global economics to a path that advances the majority and doesn't mire them in cruel insecurity”. As opposed to an idealistic utopia, these authors conceive of a new form of localisation in response to hardship.

### ***2.3.2.3 Localisation as contextual***

Localists often conceive of the local as dependent upon specific contexts. For example Hines (2000) states that depending on the context, the ‘local’ is predominantly part of the nation state, or that it could occasionally be the nation state itself or a grouping of nation states. The England and Wales Greens (2014) conceive of economic localisation as local production and investment whenever “reasonable and conveniently possible”, further stating that what comprises ‘local’ differs from one place to another. This difference is determined by ecosystems such as deserts or the tropics, broad ‘ecoregions’ that vary according to native vegetation or soil types, or georegions that are a smaller region distinguished by topographic features (Gray, 2007).

### ***2.3.2.4 Localisation as promoting equity***

The England and Wales Greens (2014) conceive of localisation as allowing low-

income countries self-determination and equity, and as providing protection from cheap imports. Ramos (2010) further describes localisation to involve regionalising in order to reinforce the South in global negotiations. 'Free' trade supports the strongest (Northern) countries and transnational monopolies, and prevents regional integration and co-operation in places such as Africa, Latin America and Asia (Ramos, 2010).

Because high-income countries have expropriated resources and labour from low-income countries for so long, it is suggested that they have accrued a huge ecological debt (Ramos, 2010; The England and Wales Green Party, 2014). For example, The England and Wales Greens (2014) claim the value of industrialised country output dependent on CO2 emissions in excess of their per capita carbon budget during the 1990s, was estimated at \$13-15 trillion per annum. Similarly it is claimed that since 1850, North America and Europe have produced approximately 70% of all energy production CO2 emissions while low income countries account for less than 25% (Stern, 2007).

The England and Wales Greens (2014, p.3) believe that as a result of the ecological debt owed, low-income countries should be "...rescued...from the economic and ecological calamity...inflicted on them". Suggested measures include: debt cancellation; increased development aid; free or at-cost intellectual property rights and sustainable technology transfer; and a robust emissions-trading scheme to facilitate repaying the North's ecological debt to the South (The England and Wales Green Party, 2014). It is believed that this will create the resilient and self-reliant local economies required to address poverty, and enable high social, environmental and economic wellbeing standards "...without automatically trampling on the rights of others to achieve the same objectives or, equally automatically, suffering from a loss of international competitiveness" (The England and Wales Green Party, 2014, p. 4).

Supporting such suggestions, Ramos (2010, p.313) describes the constitution of an international court to consider the "ecological crimes" of Northern countries that could then be sentenced to pay reparations to countries of the South. World debt cancellation, localisation and regionalisation of localities in the global South might then rectify power imbalances between the North and South, and restore cooperative and mutually beneficial regional solidarity and development (Ramos, 2010; The England and Wales Green Party, 2014).

### **2.3.2.5 Localised production and consumption**

Norberg-Hodge (2002, p.47) states the term localisation refers to a process of "...shortening the distance between producers and consumers". North (2010) similarly describes, "The core of localisation is a claim that economic decisions should focus...on meeting needs as locally as possible", such that production is firstly local, then within the shortest possible distance. Trainer (2004) describes this in terms of concentric circles of self-sufficiency, conceiving that at the centre is the household, the most important economic and social unit. This expands to

the neighborhood, then the suburb or town where less frequently needed goods and services such as doctors would be available, then the town's surrounding area, and finally much less would come from the state and national economic sectors and very little from overseas, apart from goods such as high-tech medical or computer equipment (Trainer, 2004).

Norberg-Hodge (2000) and Shiva (2007) conceive of localisation particularly in relation to local food production and the ability of local communities to manage and own their land and assets. Shiva (2007, p.313) claims that because globalised production and consumption increases the distance between these, this results in the commodification of local biological resources, and the diversion of these from the meeting of local needs to "feeding nonlocal greed" and corporate profits. Shiva (2007, p.313) states that this diversion creates local resource scarcity, making these inaccessible to the "donor" communities. These authors perceive that producing and consuming locally is as the key to localisation, social equality and diversity.

McKibben (2007) suggests that besides food, energy is the most important commodity in our lives. Some recommend localisation as a way to safely produce and supply energy in the context of climate change and the perception that the world is running out of cheap, available oil, coal and gas (Heinberg & Fridley, 2010; Hopkins, 2010; McKibben, 2007). Reliance upon local energy sources would require the use of renewable energy to ensure continued supply.

### ***2.3.2.6 Slow and local food***

A current manifestation of relocalisation as preserving and rebuilding local cultures and traditions may be seen in the example of 'Slow food'. Slow Food is variously described as protected and supported regional cuisines and their networks of provision, in line with natural and human rhythms, and in opposition to the prevailing agri-food business model, globalisation and 'fast food' (DuPuis & Goodman, 2005; Tencati & Zsolnai, 2012). Slow food proponents claim that in recognising that food production and consumption are strongly related to "natural, social, cultural, historical, political, institutional, and personal issues", slow food challenges the globalised model based on bulk production and maximising economic efficiency and productivity (Tencati & Zsolnai, 2012, p. 346). Rather, the slow food movement is aimed at valuing traditional and specific cultures, knowledge and local communities, and the local networks, relationships and economies that they comprise and that are at risk of destruction in the face of globalisation (Tencati & Zsolnai, 2012). Shiva explains that a cultural shift is required, and that the Slow Food movement is facilitating this as they "...turn the celebration of quality food into a cultural revolution" (Culture, 2007, p. 2).

### **2.3.3 Describing localisation**

Norberg-Hodge (2012) outlines seven key localisation characteristics. Ramos (2010) summarises these into three foundational categories including scale, diversity and energy. Other localisation authors expand on these and the environmental, social, cultural and economic benefits that may be achieved (Douthwaite, 2004; Norberg-Hodge, 2000; Trainer, 2010a). These benefits are often discussed in the context of the claimed degradation caused by globalisation and excessive consumption. Social, environmental and economic issues are also often discussed in relation to the environmental constraints of localised communities, and how to observe and successfully live within these limits particularly regarding food and energy. Other authors add dimension to localisation theories.

#### ***2.3.3.1 Re-regulation of global trade and finance***

Norberg-Hodge (2012) describes the first key localisation characteristic as re-regulated global trade and finance, along with unfettered local trade and finance. Financial deregulation facilitates mergers and acquisitions, allowing investors to relocate to less regulated, lower-waged economies to increase profit margins (The England and Wales Green Party, 2014). Tax breaks, capital grants, free land and lax environmental and worker safety rules are provided by national governments to attract this corporate investment (Norberg-Hodge, 2012), and investment competition between countries drives down environmental and work regulations and standards everywhere (Curtis, 2003).

Because deregulation has released large enterprises from state imposed constraints, laws and regulations (Amin & Luckin, 1996), this facilitates “...the single, highly-centralised economy which is dependent upon vast homogenised markets and ever-increasing trade” (Norberg-Hodge, 2001, p. 1). Such laws include ‘free trade’ treaties like the North American Free Trade Agreement (FTA) and the General Agreement on Tariffs and Trade (GATT) (Norberg-Hodge, 2012). These facilitate global corporations by requiring countries to remove tariffs or regulations that may act as trade barriers (Norberg-Hodge, 2012). Previously such barriers consisted of regulations and duties on imports that protected the stability of local industries, economies, employment and environments. However many of these were perceived as trade barriers by the WTO and taken down (Norberg-Hodge, 2001). These include laws such as labour and environmental regulations perceived by the WTO as compromising ‘efficiency’ (North, 2010).

Localisers claim that control of globalisation and national sovereignty should be taken out of the hands of unaccountable, undemocratic supranational bodies such as the WTO (Norberg-Hodge, 2012; Ramos, 2010; The England and Wales Green Party, 2014). Economic control by such organisations is believed to have resulted in the explosive growth in world trade since the 1940’s and whole economies becoming trade-dependent (Norberg-Hodge, 2000). Ramos (2010)

argues for the removal of the WTO rules of operation from agriculture, services and intellectual property, so that these may be restored to regulation by experienced local social associations and movements. Re-regulation for relocalisation involves governments protecting national and local interests.

Adhering to the principles of permaculture, Graugaard (2012) points out that self-reliance and self-regulation are important aspects of living systems. Self-regulation in human systems implies a balance between immediate needs and long-term objectives (Graugaard, 2012). Self-regulation is similarly an important requirement for healthy local communities and the balanced meeting of their immediate and long-term needs (Graugaard, 2012).

### ***2.3.3.2 Diversity of cultures, environments and decentralised economies***

Secondly, localisation means diversity of cultures and natural environments, and the accompanying diversification and decentralisation of economic activity. This diversity makes economies more resilient and stable, and provides increased opportunities for the majority (Norberg-Hodge, 2012; Shiva, 2005). Ramos (2010) refers to diversity as a fundamental localisation category.

Localisers see diversity of plant and animal species, cultures and knowledge as fundamental to a healthy world, the homogenisation of which Ramos (2010, p.52) describes as aberrant, and a “violation of basic principles of sustainment”. Localisers also describe the importance of diversity in relation to the knowledge carried by different local cultures. Shiva (2007, p.307) refers to the rich knowledge accompanying an understanding of local biodiversity, as the “...basis of living cultures...the foundation of the living economies of two-thirds of humanity, who depend on biodiversity for their livelihoods and needs”. Localisation affirms the importance of diverse knowledge systems that have proven their worth over time, and the value of local cultures that have accumulated rich knowledge over the course of many generations regarding how to live in particular locales and environments, each with its own unique and specific opportunities and challenges (Douthwaite, 2004; Norberg-Hodge, 1992; Ramos, 2010; Shiva, 1993). Cultural diversity and the knowledge diversity that this entails are seen as important and valuable ways of adapting to diverse environments that have specific and unique challenges.

Localisation as it relates to cultural preservation and the benefits of this, is also claimed (Ramos, 2010). Frankova (2012, p.315) explains that localisation attempts to preserve and cultivate local cultural practices and craft skills. Douthwaite (2005 p.120) describes local culture as, “...a way that the people living in a place have found by trial and error over many generations to enable them to live reliably, enjoyably and well on the resources of their area. They developed a distinctive cuisine, style of dress and architecture so that they needed to import surprisingly little”.

Diverse adaptation to unique environments is described as an essential process

of community resilience, or the ability of socio-ecological systems to absorb and adapt to shock (Hopwood, 2005). Hopkins (2010) describes that in the context of energy availability challenges and climate change, it is important that decentralised, self-reliant and resilient local communities are able to function independently. Guri (2007) further explains the relevance of knowledge diversity to resilience, whereby if the currently dominant system of economic growth fails and non-Western knowledge is no longer available, these knowledge systems will be unavailable to provide assistance in the form of alternative and successfully proven systems of local knowledge. Knowledge diversity and the resilience that this may provide are affirmed by localisation.

### **2.3.3.3 Subsidiarity and scale**

Thirdly, differing aspects of scale are important to localisation (Norberg-Hodge, 2012). Ramos (2010) describes scale as a foundational localisation characteristic, qualifying this with the principal of subsidiarity, or the smallest possible scale.

Norberg-Hodge (2012, p.1) describes, "...the strengthening of human-scale business, especially for basic needs such as food, water, and energy, but also in housing, banking, healthcare, and the media", is characteristic of localisation. Small scale business might then prevent the social, cultural and environmental degradation thought to be caused by global-scale trade and ownership, whereby the resources of local communities are exported to or taken by those who can often afford to pay more for these than the local community can (Norberg-Hodge, 2012; Shiva, 2007).

White (2010) and the England and Wales Greens (2010) refer to trade subsidiarity in order to correct imbalances of scale and realign production and the distribution of goods with ecological limits. De Young (2012) describes a production scale suited to a locality or a collection of localities, as being minimally dependent. The New Economics Foundation (2010) advocate greater local self-sufficiency combined with regional, national and international trade, others further stating that production and consumption should be at as local as possible with international trade a last resort (North, 2010; Trainer, 2004).

De Young (2012) and the NEF (2010) describe scale reduction in reference to local governance and subsidiarity. Localised decision-making according to this principal occurs at the lowest possible level, or as close as possible to "affected peoples and their resources" (De Young, 2012, p. 333). Armstrong and Stratford (2011, p.545) claim that local decision-making encourages governance outcomes including, "...transparency, equity and inclusiveness, flexibility and innovation, continual improvement and competition, and protection of ecological integrity". Transparency is believed to make local government more accountable and "open to scrutiny" (Lowell, 2005, p. 142).

Human-scale is described by localisers in relation to: modes of transportation

such as walking, bicycling and carting (De Young, 2012, p. 337); human-scale enterprises that are “...locally owned by the people who have a direct stake in their life-serving function” (Korten, 2002, p. 3); and The American Institute for Local Self Reliance website promotes “humanly scaled” institutions and economies. Schumacher (1973, p.165) described “intermediate”, “human-scale technology” with a “human face”, that “...reintegrates the human being, with his skillful hands and creative brain, into the production process”.

Watershed-scales are promoted by some localists, and are believed to encourage awareness of the local bioregion or ecosystem as a natural boundary within which localised activities might take place (Berg, 1987; Curtis, 2003; Heinberg & Fridley, 2010). Such activities might include watershed-scaled government. “In this place-rooted, local context, the health of the one determines the health of the other” (Curtis, 2003, p. 86).

#### ***2.3.3.4 Greater reliance on human labour and skill***

Fourth localisation means greater reliance on human labour and skill, and less dependence on energy and technology (Norberg-Hodge, 2012). This would increase local jobs and prosperity, result in less resource use and pollution, and increase human wellbeing as a result of the slower pace of life that reduced energy and technology dependence would entail (Norberg-Hodge, 2012). Schumacher (1973, p.165) comments that human-scale technology, “serves production by the masses instead of mass production”.

Ramos (2010) describes energy as a fundamental category of localisation. She and other localists claim that small, community-scale renewable power systems can solve both the claimed energy shortage problem, and the challenge of drastically reducing GhG emissions (Heinberg & Fridley, 2010; Hopkins, 2010; McKibben, 2007). Hopkins (2010) additionally describes the importance of locally produced, renewable energy in relation to ensuring a sustainable energy supply and the resilience of local communities. Localisation is then proposed in the context of safe and resilient energy provision, and increased human labour and skill, as a substitute for large-scale technology and energy dependence (Ramos, 2010; Schumacher, 1973; Trainer, 2004).

#### ***2.3.3.5 Less transportation, packaging, and processing***

Fifth, localisation means less transportation, packaging and processing (Norberg-Hodge, 2012). Localisation is commonly perceived as meaning that communities live largely within the means of their local ecosystem, sourcing their essential life requirements such as water, food, energy and housing materials from renewable resources within the region in which they find themselves (Douthwaite, 2004; Norberg-Hodge, 2002; Trainer, 2010a). Due to the reduced transport, packaging and processing requirements of such production and consumption arrangements, it is believed that this would significantly reduce both GhG

emissions and the human ecological footprint (Norberg-Hodge, 2012). Localisation is described as involving less transportation, packaging, and processing.

Food localisation proponents argue that GhG is reduced as a result of the reduced need for long-distance transport, and the huge amount of waste that occurs involving large amounts of packaging and food spoilage (DuPuis & Goodman, 2005; Norberg-Hodge, 2012; Psarikidou & Szerszynski, 2012). Food localisers also claim that this will decrease climate change pressures and environmental threats posed by resource consumption, and resultant habitat loss and species extinction (Shiva, 2007; von Klause & Wicks, 1999).

#### ***2.3.3.6 Rebuilding social interdependence and cohesion***

Sixth localisation means social interdependence and cohesion (Norberg-Hodge, 2012). These two factors strengthen identity and a sense of belonging, enabling peaceful coexistence (Norberg-Hodge, 2012). Jackson (2005b) explains this belief, reporting that consumption plays many roles in society. This includes a functional role whereby while food, housing, transport, recreation, and leisure needs are satisfied, so too are processes of social identity formation and, “...deeply engrained ‘social conversations’ about status, identity, social cohesion, group norms and the pursuit of personal and cultural meaning” (Jackson, 2005b, p. v). Jackson claims that due to the importance of such roles, local as opposed to global consumption is important in social identity formation, cohesion, and cultural meaning.

Food localisation proponents argue that local food production rebuilds community cohesion and social and individual health (DuPuis & Goodman, 2005; Norberg-Hodge, 2012; Psarikidou & Szerszynski, 2012). The process of local food and goods production, distribution and consumption, builds community as members are more directly involved with each other in both production and consumption processes, resulting in increased transparency, accountability and cooperation (Jackson, 2005b; Shiva, 2012). Local food consumption may also improve individual health as locally produced food is often seasonal, fresh and able to be produced in small-scale production circumstances that are conducive to organic farming, as opposed to nutrient value being lost in the time that taken for long distance-transportation (Peters, 1997).

#### ***2.3.3.7 Deep connection between people, and between people and nature***

Seventh, localisation means a deeper connection between people, and between people and nature (Norberg-Hodge, 2012). These connections are claimed necessary for physical and spiritual wellbeing, and essential in order to understand the complex natural world (Barnhill, 2013; Daniels, 2010; Guri, 2007; Hung, 2013; Norberg-Hodge, 2012). The requirement for and ability to facilitate a deep connection between people and between people and nature, is

described as an important localisation characteristic.

Human proximity to nature and natural areas is described as being of great importance to human health and spirituality, and also to environmental health. For example Newton (2005, p.28) claims that mainstream conservation has grown closer to the century old preservation ethic of John Muir whereby humans are embedded in the natural whole which entails spiritual values (Newton & Freyfogle, 2005, p. 28). Robinson (2004, p.371) describes that the preservationist position advocating for natural areas in pristine form, was often expressed in explicitly spiritual terms originating in transcendentalism and European Romanticism. Luck (2011) reports research findings that indicate human wellbeing is positively associated with species richness and abundance, and vegetation cover and density, and is negatively associated with urban development.

Norberg-Hodge (2000) describes that being connected to our local natural environment and the people around us, is essential for us to understand our interconnection with all life, and thus the importance that all life holds for our spiritual and physical wellbeing. This connection results in our understanding of the importance of taking care of all life, acting to preserve our own local environment and community, and also by extension, all others (Norberg-Hodge, 2000). Norberg-Hodge (2000) describes the importance of being connected to the place where we live in order for this to occur, and that this is important to and facilitated by localisation.

The importance of people being connected to their environment in order to properly understand and care for themselves and the land, is explained in relation to the significance of the natural environment or land to Indigenous people (Hung, 2013, p. 168). For example in Indigenous Australian people's sense of place, land has both physical and invisible values that intimately connect people and land (Hung, 2013). This is related to the Dreaming whereby some 500 Indigenous clans or community's each belong to their own territory, which has its own specific Dreaming stories and Law related to that particular land (Hung, 2013). These stories are passed down through the generations so that children may become full adults, inextricably linking and articulating the "...connections between groups of people, other species, and the land" (Hung, 2013, p. 63). This connection shapes particular belongings to country and sites, or localities, and ensures that both current and future custodians have the spiritual connection to and knowledge of the land, that enables continuation of this connection and the knowledge required to care for the land, the self and each other.

Native American traditions are also described as all having developed spiritualities that root them in their home places (Barnhill, 2013). These spiritualities align Native American actions with a nature that is not separate (Barnhill, 2013). Rather, nature is the "...rivers, mountains, forests, prairies, animals, plants, seasons, weathers, moon, sun, stars, and the whole living web that runs through us, that makes us and sustains us" (Barnhill, 2013, p. 400).

Indigenous people are described as seeing landscapes and natural beings as intimately interacting with human beings, and as subjects rather than objects (Barnhill, 2013; Hung, 2013). Non-human subjects participate with humans and are a part of how human understandings of the natural world are shaped (Hung, 2013). Norberg-Hodge (2012) also describes the importance of human connection with nature in order to understand the natural world, claiming that connecting with other people and learning ways of the local seasons and plant and animal species encourages, "...a spiritual awakening that comes from making a connection with others, and with nature...to experience more consciously the great interdependent web of life, of which we ourselves are part" (Norberg-Hodge, 2000, p. 28).

These authors describe that as we are innately and intimately a part of the natural world around us, it is important to be connected with nature in order to understand and care for our environment and ourselves. These authors claim that we need to be connected to local environments in order to have and maintain this connection, as without the ties that are fostered by belonging to a particular place, people lose the ability to sufficiently connect with the land or each other, and as a result also to adequately care for themselves, other people and their environment.

'Spiritual' connection to a specific place and group of people is described as strongly contrasting with contemporary lifestyles and cultures whereby people feel more universally homogenous and mobile, and less connected to any specific place or particular community (Ramos, 2010). Disconnection from place and community cannot promote the connection to people and the environment, described above as required for people to adequately understand themselves and nature, and enable them to care for themselves, their local environment and communities (Norberg-Hodge, 2000).

Localisation is then described as both requiring and fostering the spiritual connection between the individual, the people around them, and their natural world, that is required in order for them to adequately understand themselves, nature and the people around them (Norberg-Hodge, 2000). A deep or spiritual connection to a specific place or locality is then described as both fostered by and as essential for localisation.

#### **2.3.3.8 Global commons**

Ramos (2010, p.54) describes the 'commons' as an important concept to localisation proponents. This involves the establishment of a global commons, or the things that are "the heritage of all people (that) cannot be bought or sold", such as the atmosphere, oceans and outer space (Ramos, 2010, p. 54). Ramos (2010, p.54) explains that there are community commons such as, "...public spaces, common lands, forests, the gene pool, local innovative knowledge with respect to medicinal plants, and seeds that communities have developed over centuries". Trainer (2010, p.34) describes the 'commons' as, "...community land

and resources from which all can take food and materials”, conceiving localised communities as consisting largely of commons that would become edible landscapes and sources of fibres and timbers.

Shiva (e.g. 2007, 2010) describes that both biological and intellectual commons are being enclosed by the commodification of biodiversity and related knowledge, in the interests of bio prospectors, or global commercial interests. Shiva (2010) claims the commons and democracy go hand in hand. Cavanagh and Mander (2004, p105-146) discuss the ‘commons’ in relation to its need for defense from commodification and the effects of globalisation. Demonstrating the perceived need for such defense, Tencati (2010, p. 348) conceives of the ‘Slow Food’ movement as a, “civil society initiated multi-stakeholder arrangement that aims to fulfill a leadership role in the protection of the global commons or the production of global public goods”. Localisers perceive global and community commons to be important in protecting people and the environment, in order to achieve localisation.

#### **2.3.3.9 Reflexive localisation**

North (2010), Hinrichs (2003) and Du Puis (2005) outline a diverse, responsive form of localisation, or reflexive localisation, as opposed to a defensive, unreflexive or autocratic form of isolationist or protectionist localisation. Douthwaite (in Frankova, 2012, p.317) explains, “Localisation is not about isolating communities from other cultures, but about creating a new, sustainable and equitable basis on which they can interact”. These authors describe that reflexive localisation involves communities that are localised in a socially just way that does not include the isolationist, protectionist kind.

North (2010) describes some non-negotiable aspects of localisation as being dictated by a finite ecosystem, as opposed to a dictator or unreflexive politics. North (2010) claims that in relation to global economic networks local trade is socially constructed, as opposed to globe trade that has material effects such as oil consumption and greenhouse gas emissions. Global trade then affects the rate of and extent to which we consume material resources at an unsustainable rate, and emit greenhouse gasses beyond the capacity of the planet to absorb them. Localisers then pay attention to the “materiality of global networks”, and those that are light such as Internet information and knowledge exchange may remain, while those that are heavy such as car export are more obviously unsustainable (North, 2009, p. 593).

#### **2.3.3.10 Intentional localisation**

North (2010) distinguishes intentional localisation strategies as opposed to immanent localisation strategies, or merely localising production in response to increasing market costs and prices of long-distance trade. North (2010) conceives of intentional localisation as occurring at a grassroots level, where ‘less resource-intensive yet enjoyable and fulfilling livelihoods’ and solutions to

peak oil and climate change are developed, in the context of more localised economies. North (2010, p.586) describes such localisation as comprising "...radical new conceptions of livelihood and economy that directly cut against the logic of growth-based capitalist economic strategies and elite conceptualisations that 'we all know' that trade liberalisation leads to wealth while barriers limit growth".

### **2.3.4 Localisation critics**

Localisation is criticised for reasons relating largely to perceptions about existing inequalities within and between localised communities and countries. These inequalities relate to power, wealth and resources. Critics claim that localisation may be defensive and conservative, and that a localisation 'default' may obscure more socially and environmentally beneficial options. It has additionally been noted that the use of a global/local binary is questionable, and should be replaced with more nuanced understandings and a term such as glocalisation (Hinrichs, 2003).

#### **2.3.4.1 The 'local trap'**

Born and Purcell (2006, p.195) describe a "local trap", whereby food activists and researchers tend to assume that the local scale is inherently preferred and desirable, "a priori to larger scales". They argue that local food is no more inherently sustainable than food supplied from farther away, and that the "local trap" presents "intellectual and political dangers" when considering food systems (Born & Purcell, 2006, p. 195). Localisation may result in decisions being made by small, powerful and unrepresentative groups, and may also obscure other more effective options involving food supply from further away (Born & Purcell, 2006).

Born and Purcell (2006, p.195) qualify that the local is not inherently undesirable, rather that it is not inherently good. Local methods of production may be as unsustainable as those of conventional agribusiness, and existing inequalities within local communities may allocate gains resulting from local production and consumption in a way that, "...exacerbates rather than alleviates social injustice" (Born & Purcell, 2006, p. 196). Additionally as food may be transported long distances in a very short time, local food does not necessarily imply fresher or by implication more healthy food (Born & Purcell, 2006). Further to this, given that local production may be less efficient than production elsewhere, food miles may not be indicative of environmental impact (Born & Purcell, 2006). Born and Purcell (2006) strongly advocate for appropriate scales of production depending on specific contexts, as opposed to falling into the 'local trap'.

#### **2.3.4.2 Defensive localisation**

Winter (2003) and Hinrichs (2003) describe “defensive localisation”, in relation to the environmental standards and social relations involved in food supply systems. Winter (2003, p.23) claims that local food purchasing tends to, “...illustrate a defensive politics of localism rather than a strong turn to quality based around organic and ecological production”. Consumers may buy local production for conservative or idealistic reasons, without fully understanding exactly how the local food that they purchase is produced, the wider socio-ecological context of this production, or the potential available options that more distantly produced food that better fulfills their idealistic criteria may provide (Hinrichs, 2003; M. Winter, 2003).

It is also claimed that localisation may involve defensive, exclusionary protection (Hinrichs, 2003). This may, “...be based on a category of ‘otherness’ that reduces the lens of who we care about”, imposes rigid boundaries, minimises internal differences and suggests separatist politics (Hinrichs, 2003, p. 34), and may decrease “...receptivity to internal diversity and change” (Hinrichs, 2003, p. 37). Hinrichs (2003) explains that such receptivity might be encouraged by the recognition of external diversity, as opposed to the potentially isolating effects of defensive localisation.

Hinrichs (2003, p.36) further outlines that while local food systems may encourage the “social embeddedness”, “face-to-face interactions” and “mutual knowledge” that encourage, a “geography of regard”, unequal local power relations may be socially exclusive and prevent such benefits from occurring. Lawrence (2005, p.158) describes such occurrences whereby, “...local elites – often politically savvy and financially advantaged – can increase their power while at the same time denying it to already marginalised and excluded groups in the community”. Participative processes then do not guarantee democracy where there is an already entrenched power regime. Lawrence (2005) additionally suggests that as a result the wider system of productivism and its unsustainable trajectory may remain unaddressed.

#### **2.3.4.5 Unreflexive localisation**

Unreflexive localisation is criticised in the literature as uncondusive to positive, reflexive, sustainable localisation (Hinrichs, 2003; North, 2010; M. Winter, 2003). Some scholars acknowledge, “...the local is not an innocent term...it can provide the ideological foundations for reactionary politics and nativist sentiment” (DuPuis & Goodman, 2005, p. 360). Unreflexive politics are described as being generally based on a small, unrepresentative group deciding what is ‘best’ for everyone and then, “...converting everyone to accept their utopian ideal” (DuPuis & Goodman, 2005, pp. 360-361).

The potential for ‘the local’ to be unjust or unreflexive is not confined to undemocratic places such as Monarchies or Communist countries. Hinrichs

(2003) notes that many localities suffer from elitism and narrow-mindedness. This is reported as occurring in Australia (Harrington, Curtis, & Black, 2008; Lawrence, 2005; Lawrence, Richards, & Cheshire, 2004) where, "Local places can suffer from elitism, parochialism and polarisation which restrain environmental improvement" (Harrington et al., 2008, p. 203). Further to this, green political theorists in Australia suggest that such attitudes may be impeding the broad community participation required for democracy to function effectively (Armstrong & Stratford, 2004). Undemocratic localisation might then take place anywhere that democracy is not functioning.

How to live within ecological limits makes the justification for localisation, based in part upon ecological limits such as previously described, controversial. What these limits comprise and how humanity can live (fairly) within these limits (sustainability), is still highly contested (Huge et al., 2012). As a result localisers are sometimes perceived and/or portrayed as being dictatorial, preaching or imposing their beliefs on others in an unreflexive way, rather than merely as gate keeping or clarifying the ecological and social limits to human freedoms (North, 2009).

#### ***2.3.4.6 Disadvantaging low income countries***

Monbiot (2003) claims that more local production in high-income countries would disadvantage those in low-income countries. This would result from an increased reliance in low-income countries on income from trade of cheap natural resources and labour, so that they could afford to buy from high-income countries the produced goods that they tend not to produce themselves (Monbiot, 2003). Localisation would then further exacerbate inequities in low-income countries, as land for natural resource harvest would become increasingly privatised in order to service the increased demand for foreign income by local elites, and increased harvesting would additionally increase environmental degradation in these countries (Monbiot, 2003).

Monbiot (2003) claims that equity within and between high and low-income countries would be better facilitated by global fair-trade. This would be accompanied by monitoring of global companies that would be forced to pay and pass on the full costs of their production e.g. environmental costs, and to redistribute their profits within the countries in which they produce, principally with their workforce in that country through enforced wage increases (Monbiot, 2003). Monbiot's (2003) claims assume continuation of globalised trade in forms that differ from current arrangements, as opposed to the reduced consumption and the minimisation of global trade implied by most localisers.

#### ***Summary***

Localisation is described as comprising seven key dimensions including: the re-regulation of global trade and finance; diversification and decentralisation of

economic activity; scale and subsidiarity; biological and cultural diversity; greater reliance on human labour and skill, and less dependence on energy and technology; less transportation, packaging, and processing; rebuilding social interdependence and cohesion; and a deep and spiritual connection between people and nature. Other important localisation dimensions include: the importance of the global commons; renewable, local energy provision; and a diverse, responsive or 'reflexive' form of localisation, as opposed to an undemocratic, defensive, unreflexive or isolationist localisation.

### **2.3.5 Localisation as a proposed sustainability strategy**

This section addresses *Research question 1a: What is localisation?* and *Research question 1b: Is localisation important to sustainability?* It explores suggestions that investigating localisation strategies is an important way to further sustainability goals, by examining localisation strategies (Frankova & Johannisova, 2012; Hines, 2003; Norberg-Hodge, 2001). These strategies relate to principles, policies and regulations that protect local communities, environments and economies from the perceived harmful effects of large businesses and global trade, and the restructuring of society and governance to support community initiatives and assist such a transition (De Young, 2012). This section then explores localisation strategies that might be employed as a way to achieve sustainability.

Douthwaite (2004) notes, "Theoretically it might be possible to develop a world-wide industrial culture that enables all humanity to live sustainably within the limits of the world, but the scale and the complexity of the task are immense. An easier, more feasible alternative is to create a system that would encourage a greater diversity of diet, clothing, building materials and life-styles. This would take the pressure off over-used resources just as it does in the natural world where each species has its own ecological niche and avoids competing directly with the others" (Douthwaite, 2004, p. 116). Daly (2013, p.23) observes, "To integrate the global omelet you must disintegrate the national eggs", and O'Riordan (2013) states that the local scale with an internationally supportive framework is the most promising sustainability solution. These localisers believe that in order to achieve sustainability, diverse localities and nations are the focus of a system or framework of globally localised culture.

A localisation framework requires enabling strategies, regulations and policies. Princen and DeYoung (2010, p.329-337) describe 'principles' or techniques for achieving localisation that are composed of requirements for both transitioning to and achieving localisation, that may be considered a generalisable blueprint or strategy that could be applied anywhere. Norberg-Hodge (2012) expands on these principles and also describes many policies and regulations that may supplement these principles to achieve localisation aims. She describes these at national and international levels to support grassroots initiatives and their

communities and local economies, and to promote “small scale on a large scale” (Norberg-Hodge, 2012, p. 2).

Despite such proposals, there is limited academic or political recognition of these (Martinez-Alier et al., 2010). The tendency of dominant discourse to block alternative and challenging discourses (Martinez-Alier et al., 2010; Prasad & Elmes, 2005), may explain this. This section describes localisation principles, policies and regulations.

### ***2.3.5.1 Re-regulation of global trade and finance with semi-permeable boundaries***

A “semipermeable-boundaries” localisation principle would enable a, “...two-way flow of materials, money, people, and ideas” (De Young, 2012, p. 330). This flow should ensure the integrity of the local system. If this flow cannot be locally managed, levels of organisation should be established whereby local needs are ensured as a priority with production, consumption and decision-making regarding this flow occurring at the most local level possible.

Norberg-Hodge (2012, p.2) expands on this with a “breakaway strategy”, whereby small groups of nations or regions might forge new trade treaties using trade tariffs to regulate the import of goods that could be produced locally (Global Greens, 2012; Norberg-Hodge, 2012; Ramos, 2010; The England and Wales Green Party, 2014). Hines (2003) further describes that long-distance trade could then be replaced by supplying what cannot be produced in an area, from within that region. This could be facilitated by new international trade rules to rebuild diverse and sustainable local economies (The England and Wales Green Party, 2014, p. 3).

Trade regulations that might facilitate a breakaway strategy would include trade tariffs regulating the import of goods that could be produced locally, limiting the free flow of capital to make corporations accountable to a particular place. Policies to restrict capital flows would prevent the movement of corporations and make them accountable to the particular place in which they are located, providing financial stability and enforceable labour and environmental conditions (Norberg-Hodge, 2012; The England and Wales Green Party, 2014, p. 2). Hines (2003, p.26) similarly suggests the “...re-introduction of domestic safeguards for domestic economies...(with)...a site-to-sell-here policy for regional or domestic manufacturing or services”.

Corporate subsidies would be redirected to supporting local business prosperity (Norberg-Hodge, 2012, p. 2). Currently direct and indirect subsidies in the form of tailored infrastructure investments favour global trade rather than small local businesses (Norberg-Hodge, 2012; Shuman, 2010). Policies that enable local business subsidisation would build local economies and provide long-term local jobs, economic stability, and prosperity (Norberg-Hodge, 2012; Shuman, 2010). Hines (2003) describes these policies as reorienting aid and trade rules to rebuild local economies and control.

### ***2.3.5.2 Diversity of cultures, environments and economies through diversity of localities***

De Young and Princen (2012, p.229) describe a “diversity of localities” principle, whereby each locale should solve its own problems in ways suited to its own unique conditions. This involves self-directed problem solving to provide life essentials such as food, water, shelter and transportation. Localised problem solving would also be applied to the creation or adaptation of institutions and new cultural practices that enable, “...participatory democracy, ecological sustainability, diversity, and equity” (De Young, 2012, p. 329).

Trainer (2010) also conceives of local people organising their own means in cooperative ways, identifying and clarifying local problems, and building the physical and social systems required to solve these. This could be achieved by adapting economic activity to the diversity of ecosystems that would help to restore both biological and cultural diversity (Norberg-Hodge, 2012). Norberg-Hodge (1992, p.27) claims that we need to halt the “consumer monoculture”, actively supporting “...ecological and cultural diversity by encouraging the fullest use of local resources, knowledge and skills”. Norberg-Hodge (2012, p.6) believes, “...small local enterprises thrive by filling the numerous economic niches cultural diversity provides”.

### ***2.3.5.3 Subsidiarity, scale and reflexive localisation through place-based decision-making***

According to the principle of subsidiarity, decision making would occur at the lowest possible level, “...as close to affected peoples and their resources as possible” (De Young, 2012, p. 331). These decision-making levels are contextual, e.g. CO2 management requires international cooperation whilst water supplies are more regionally-based (De Young, 2012). Trainer (1996) describes this to involve highly decentralised villages, towns, industries and farms with few and relatively small cities. Additionally Hines (2003) and The England and Wales Green Party (2014), suggest democratising economic control through increased political and economic involvement at all levels to ensure an effective and equitable transition to diverse local economies. Hines (2003, p.26) further states the importance of local competition laws and policies to prevent monopolies from dominating, and “crony capitalism”.

“Place-based decision-making” according to the principle of subsidiarity is essential, in order that “key decisions” regarding critical life-support systems such as the soil and water that are at risk are made by those who are connected and committed to that place (De Young, 2012, p. 331). These people are the most likely to have the knowledge required to best manage these systems, and are likely to hold local community values regarding appropriate and required management of these systems (De Young, 2012). De Young and Princen (2012) outline that a locally managed system breeds the competence required for such management, as opposed to unreflexive monarchies, dictatorships, and

consumer economies, where there is a tendency toward helplessness due to little active participation or choice regarding such decisions.

Norberg-Hodge (2012) believes that reducing the scale and power of Transnational Corporations and banks will increase the accountability of businesses, and reduce the erosion of local democracy. This would globally safeguard local jobs and resources against the, “excessive power of transnational corporations” (Norberg-Hodge, 2012, p. 2). This means hundreds of thousands of smaller businesses in contrast to few corporate monopolies (Norberg-Hodge, 2012).

#### ***2.3.5.4 Greater reliance on human labour and skill through artisanal scales of production and the ‘clay road principle’***

Artisanal scales of production should be employed to achieve minimal dependence on external supplies and markets, and maximum dependence on local labor, natural resources, and finances (De Young, 2012). Such production should comprise feedback loops that prevent, “...expansion or contraction that otherwise militates against appropriate scale...develop and teach skills first and technologies second...limit short-term gain...for long-term secure production...build variability and innovation into the local economy...minimise the role of money, instead increasing relations...that are simultaneously social and commercial” (De Young, 2012, p. 333).

De Young and Princen (2012) describe the clay road principle as comprising resilient, locally adapted transport, water, food, and energy systems. These would be built and maintained with local materials and skills, and are most relevant to transport structures such as roads rather than the technology e.g. trucks, and that less mobility and food choices are likely to result.

Re-regulation measures to facilitate small-scale production would include reversing tax biases that currently penalise small-scale, labour intensive production in favour of high-tech, energy-intensive production common to large-scale producers (Norberg-Hodge, 2012). This involves decreasing labour taxes such as those placed on income, social welfare, value-added and payroll taxes, whilst reducing tax breaks such as accelerated depreciation, investment allowances, tax credits and energy subsidisation that does not reflect the socio-ecological costs of this energy supply (Norberg-Hodge, 2012). The England and Wales Green Party (2014, p.2) claim the importance of “internalising” environmental production and transport costs through taxes, and Hines (2003) recommends the introduction of resources taxes to fund environmental protection and a local protection transition.

Health and safety regulations designed for problems created by large-scale production, such as the sanitation and waste disposal required for battery chicken farming, penalise small-scale producers (Norberg-Hodge, 2012). Re-regulation would replace high cost compliance standards with community-based

minimum standards for local production and retailing, to coexist with national and international regulations for export (national or international) (Norberg-Hodge, 2012). Zoning regulations designed to meet and facilitate the needs and hazards of large-scale production and marketing would be replaced by the reintegration of residential, business and manufacturing areas for small shops and small-scale production (Norberg-Hodge, 2012). High-density developments that facilitate co-housing and eco-villages would be ensured through appropriate zoning and regulations (Norberg-Hodge, 2012).

Banking policies that ensure a clear separation between the lending functions of banks and their speculative activities, would prevent banks from creating money through loans. This would reduce their economic influence and ensure that, "...banks that are "too big to fail" are too big, period" (Norberg-Hodge, 2012, p. 2). It is also believed that money should be localised, and that this should be achieved through restrictions on speculative trading (Hines, 2003; The England and Wales Green Party, 2014).

#### ***2.3.5.5 Less transportation, packaging, and processing through subsistence***

The fifth localisation technique is subsistence, whereby each locality produces and consumes from its own resources and immediate region, viably (De Young, 2012, p. 333). De Young and Princen (2012) believe this best achieved through diverse production for local needs, export occurring only where there is surplus. It is claimed that such production would ensure local resilience and minimal transport and energy requirements (De Young, 2012).

Trainer (1996, 2010) describes that localisation would very importantly achieve living standards that are materially adequate but relatively simple, involving no imperative to continually increase production and consumption, and living standards without expensive or sophisticated commodities or physical structures. The introduction of import and export controls that support, "...diverse, resilient and socially responsive local economies around the world", is also suggested (The England and Wales Green Party, 2014). Hines (2003, p.44) believes that these policies will consolidate an "array" of "largely futile" efforts to avoid "beggar-your-neighbour" globalisation, and encourage more co-operative "better-your-neighbour" localisation and fair trade.

#### ***2.3.5.6 Rebuilding social interdependence and cohesion***

Norberg-Hodge (2012) describes that valid measures of economic health as opposed to the use of GDP should guide localisation policy. GDP does not take into account the many social and environmental costs inherent to globalised activity, and that may be avoided through localisation strategies (Norberg-Hodge, 2012). Measures that capture societal wellbeing rather than market activity will help to, "...distinguish between the desirable and the undesirable, between costs and gain" (Norberg-Hodge, 2012, p. 2). As outlined by Meadows

(2009), we care about what we measure, and we measure what we care about. Measures that focus on social wellbeing may help to rebuild social care, interdependence and cohesion.

#### ***2.3.5.7 Deep connection between people and nature with access to land and the global commons for self-provision***

The seventh localisation technique relates to preservation of the global commons, and is access to land. Such access would enable the connection to land that is believed crucial to spiritual and cultural health (Cadigan, 2011; Hung, 2013; Norberg-Hodge, 2000), and for self-provision such as food, water, wastewater treatment and fuel (De Young, 2012). This entails that such land is not marketable, and that suitable land should be identified by communities and placed in public trust (De Young, 2012). Land use regulations would protect wild areas, open spaces and farmland from development, and in urban areas zoning re-regulation would protect communities from the effects large business (Norberg-Hodge, 2012).

Jensen (2000, 2002) believes that the current capitalist system undermines people's right to live freely on the planet without violent corporate and government enforcement of a system of labour enslavement. This contrasts with the community cohesion believed to be facilitated by local communities working together to provide for their own needs (Dempsey, Bramley, Power, & Brown, 2011), such as is possible when communities own/and or have access to their own land.

#### ***2.3.5.8 Intentional localisation principles - adaptive-muddling, prefamiliarisation, tentative, and walkabout***

Finally, De Young and Princen (2012, p.335) describe that localisers should experiment, prefamiliarise, tentatively explore and learn from other communities in order to achieve localisation. Norberg-Hodge (2000, p.25) similarly explains the process of localisation to consist of, "...countless small, diverse, local initiatives".

As past solutions cannot be expected to solve unknown and unpredictable present and future problems, experimentation would involve deliberately trying out, "...new institutional forms, metaphors, norms, behaviors, and principles...to increase the probability of success" (De Young, 2012, p. 35). Problem solving would then aim for many solutions, rather than one right solution (De Young, 2012). These "...plans, policies, and procedures would be viewed as hypotheses in constant need of testing" (De Young, 2012, p. 335).

De Young and Princen (2012, p.336) describe "prefamiliarisation", whereby "...localisers should consciously build and share mental models of positive localisation". According to theories of behavior change, people often adhere to

the status quo, becoming closed to new information or “abstract scientific evidence” (De Young, 2012, p. 336). In contrast the future may require transformational change and unfamiliar ways (De Young, 2012).

De Young and Princen (2012) also describe “Tentative” localisation. This involves workshops, local farmers markets, working on farms and ecovillage living, in order that people are able to try aspects of localised living without the psychological difficulty of complete transformation at one time. They believe that “...learning at one’s own pace is more agreeable and avoids grave errors” (De Young, 2012, p. 337).

Walkabout, whereby community members are encouraged to explore the techniques of other communities so that alternative strategies and experience may be of mutual benefit, is also believed to be important to localisation strategies (De Young, 2012). Globally localised communities would be threatened by insularity, which could be kept at bay through, “...heightened internal connectivity, in contrast to the dissipated local relations of the current globalised regime” (De Young, 2012, p. 337).

### **2.3.5.9 Transition strategy from globalisation to localisation**

Hinrichs (2003, p.36) summarises 14 main differences between a localised and a globalised world (Table 1). Hinrichs (2003) states that it is misleading to simply see these differences as black and white or good and bad, and that there are complex issues that must be addressed in relation to these binaries. However these differences provide an overview of the challenge of transitioning from a globalised to a localised world.

**Table 1: Globalisation and localisation qualities**

	<b>Globalisation qualities</b>	<b>Localisation qualities</b>
1	Market economy	Moral economy
2	An economics of price	An economic sociology of quality
3	Transnational Corporations dominating	Independent artisan producers prevailing
4	Corporate profits	Community wellbeing
5	Intensification	Extensification
6	Large-scale production	Small-scale production
7	Industrial models	“Natural” models
8	Monoculture	Bio-diversity
9	Resource consumption and degradation	Resource protection and regeneration
10	Relations across distance	Relations of proximity
11	Commodities across space	Communities in place
12	Big structures	Voluntary actors
13	Technocratic rules	Democratic participation
14	Homogenisation of foods	Regional palates

(1) and (2) relate to an economy that is determined by market forces as opposed to deliberately specified values or morals, where more economic value may supersede improved social quality. (3)-(8) relate to scale and diversity, whereby large-scale, intensified corporate, transnational mass production, homogenisation and profit dominate small-scale, community based artisanal production aimed at community wellbeing and natural diversity. (9) relates to the resource consumption and degradation inherent in globalisation, as opposed to resource protection and regeneration believed fostered by localisation. (10)-(13) describe relations and governance, the global implying large, centralised and technocratic processes and rules, as opposed to local, face-to-face democracy and decision-making. Lastly (14) refers to food as being globally homogenised as opposed to locally diverse and regionally suited.

### **2.3.5.10 Community initiatives and a local community living sustainably?**

Bridger (2001, p.459) states that community has reemerged to be perceived by policy-makers and academics as an important “unit of social organisation and locus of action”, and that sustainability initiatives that are focused at this level may be “seen and felt more immediately”. At this local level of sustainability focus, it is believed that discussions and action become meaningful to peoples own lives in the form of socio-ecological degradation, and it is possible to see the need for sustainability (Bridger & Luloff, 2001). Further, it is claimed that discussions of a sustainable society or world are relatively meaningless to most people, as they require levels of abstraction not relevant to daily lives. “To the extent that successful intervention becomes a tangible aspect of local life, we increase the likelihood that sustainability will acquire the widespread legitimacy that has thus far proved elusive” (Bridger & Luloff, 2001, p. 461).

North (2010) believes, “In practice, localisation means developing community-owned local economic institutions like worker-owned and run co-operatives, communal gardens and restaurants, local power generation, local money, and communal forms of land ownership” (North, 2010, p. 587). Permaculturalist pioneer David Holmgren is a strong advocate for localisation, and claims that “...gardening is the most sustainable form of agriculture and the basis for the relocalisation of our economies...” (David Holmgren in Bane, 2012, p. xv).

Norberg-Hodge (2012) claims that there are many emerging localisation trends in the form of grassroots community initiatives, and that these are a sign that localisation is growing as a grassroots movement:

Firstly, in the last decade the number of US farms has increased. This is the first time that such an increase has occurred since the Great Depression. The increase is estimated to comprise almost 112,000 small farms;

Secondly the popularity of farmers’ markets has grown rapidly. This is evidenced in the US where the number of farmers markets has more than doubled from 2000 to over 6000. In the UK where the first farmers market was started in

1997, there are now more than 550 markets utilised by 27% of UK households;

Third, local food initiatives are increasing in popularity. For example there are now 12,000 community supported agriculture (CSA) scheme supported farms in the US alone. The number of urban gardens and allotments are increasing with an estimated 18,000 community gardens in just the US and Canada. In addition to these, local food restaurants and co-ops are on the increase;

Independent business alliances such as the Business Alliance for Local Living Economies (BALLE) are increasing. BALLE provides an umbrella for nearly 80 local business networks and 30,000 small businesses in North America. Also supporting local business 'Buy-local' campaigns are increasing in popularity. Such campaigns have doubled in number in the US since 2005;

Further supporting local business, grassroots finances and local banking options such as credit unions are increasing the availability of local capital for residents and businesses. US credit unions now report that total membership has achieved a record 91.8 million. Further to this, local currencies, Exchange Trading Systems (LETS), time banks, and local barter systems that retain money in local economies have grown to almost 250 in operation worldwide; and

Finally eco-village communities are growing in number and popularity. There are now more than 500 eco-villages worldwide (Norberg-Hodge, 2012).

With the support of previously outlined policy initiatives, such local community initiatives could increase in number and foster, "cultural and biological diversity and long-term sustainability" (Norberg-Hodge, 2000, p. 25). Further to this it is claimed that many more such initiatives and experiments must be encouraged in order to further localisation (De Young, 2012; Norberg-Hodge, 2012). Norberg-Hodge (2000, p.25) explains the process of localisation as, "requiring a slow-pace and a deep, intimate understanding of local contexts".

Such an understanding might be seen in the Tiwi Islands, where critical resources are sustainably harvested from renewable sources within the region (J. Hicks et al., 2012). Hicks et al. (2012) report a long-standing, intimate environmental and community connection whereby Tiwi Islanders are able to read the social and environmental cues required to care for their environment and society, and live successfully within the carrying capacity of their local area (J. Hicks et al., 2012). Sustainability here is described as being facilitated by social networks that award status to environmental stewardship (J. Hicks et al., 2012).

The rewarding of environmental skills through increased status is due to Tiwi Islander recognition of the need for environmental stewardship skills, to ensure conservation of critical resources for the future (J. Hicks et al., 2012). Resource managers in the Tiwi Islands are encouraged by social feedback mechanisms to "...monitor and satisfy community demand, thereby increasing the chances that critical resources will be available in the future" (J. Hicks et al., 2012, p. 7). Critical natural resources are intentionally prioritised by Tiwi Islanders.

Hicks et al. (2012) report that the natural resource management strategies of Tiwi Islanders, “...illustrate an alternative, successful, approach to conservation”, additionally describing the social aspect of this management to be as important as the technical aspects (J. Hicks et al., 2012). The findings of this research indicate the sustainability benefits of a community that is socially and environmentally sufficiently connected, to ensure the maintenance of intentionally prioritised critical local resources. Localisers propose that localisation might similarly achieve such results.

### **Summary**

This section has explained localisation strategies, principles and policies, and why these are believed important to sustainability. These relate largely to protecting local communities, environments and economies from the perceived harmful effects of globalisation, and the restructuring of society to assist such a transition. Initiatives aimed at furthering localisation are reported to be increasing, and this section suggests that localisation might be employed as a way to achieve sustainability.

### **Overall summary**

Norberg-Hodge (2012) describes key localisation characteristics to include: diversification and decentralisation of economic activity; strengthening human-scale business; greater reliance on human labour and skill; a reduction in the scale and power of TNCs and banks; less transportation, packaging and processing; adapting economic activity to the diversity of ecosystems to restore biological and cultural diversity; deeper connection between people and nature; and rebuilding social interdependence and cohesion. Ramos (2010) summarises these into three ‘foundational’ localisation categories including scale, diversity and energy, and a diverse, responsive form or ‘reflexive’ localisation is distinguished from an undemocratic, defensive, unreflexive or isolationist localisation.

Critics claim that a localisation ‘default’ may obscure more socio-ecologically beneficial options, and be defensive and conservative. It is also claimed that localisation may disadvantage low-income countries, increase the power of local elites, and result in neglect of unsustainable trajectories. However the claimed potential for localisation to provide the required socio-ecological infrastructure to enable decreased consumption and environmental impact, make it an important sustainability strategy to investigate, and grassroots interest and support is evidenced by many worldwide initiatives. By exploring localisation and its relation to sustainability, this section has begun to answer research question *Research question 1*.

## 2.4 Barriers to localisation and sustainability

While an inherently unsustainable globalisation and growth paradigm dominate, there are significant barriers that prevent addressing interconnected socio-ecological concerns, and implementing localisation and sustainability. Identifying and addressing these barriers is perceived as the major challenge for sustainability and localisers (De Young, 2012). Further to these barriers, the inextricable nature of socio-ecological issues provides additional complexity in addressing these (Ehrlich & Ehrlich, 2013; Rogers et al., 2012), and may manifest as unintended social consequences of actions that directly affect the environment or vice-versa (Duraiappah, 2011; Heinburg, 2008; Max-Neef, 2010; MEA, 2005a; O’Riordan, 2012; O’Riordan, 2013; Raudsepp-Hearne et al., 2010; Todorov & Marinova, 2011; Westley et al., 2011). These barriers and complexities are the focus of a substantial body of localisation and sustainability literature covered in this section, and relates to *Research questions 2a* and *2b*.

### 2.4.1 Globalisation and economic growth

It is claimed that the major barrier for localisation and sustainability is the dominance of globalisation (Victor & Jackson, 2012). This is because the basic tenets of globalisation are believed to ignore the implicit needs of sustainability, such as recognition of the carrying capacity of a finite ecosystem, and the prioritisation of ecosystem needs and equitable resource distribution over economic growth (Burger et al., 2012; Daly, 2013). This dominant paradigm blocks alternatives that do not accord with economic growth (Prasad & Elmes, 2005), such as localisation and sustainability.

Ramos (2010, p.53) describes The Bretton Woods Agreement as a “foundational moment” in localisation history, because the agreement facilitated a shift away from a relatively localised global community. This is due to the centralisation of power away from local communities and governments, toward global corporations, bankers and bureaucracies (Cavanagh & Mander, 2004). Cavanagh and Mander (2004, p.33) believe that this centralisation process is occurring at the expense of, “...national sovereignty, community control, democracy, diversity, and the natural world”.

It is claimed that corporations can, due to economies of scale (dependent upon economic growth and globalisation) and must, due to legal requirements protecting shareholders, maximise short-term profit even at the expense of other stakeholders (Friends of the Earth, 2012; Hueting, 2010; McMurtry, 2012; Norberg-Hodge, 2003; Wicks, 2004). McMurtry (2012, p.55) claims that this system of profit-maximisation is now, “...implicitly conceived as infallible and omnipotent with all alternative to it attacked as subversive or evil”. Even, “Governments themselves are required not to diminish the profit opportunity of any transnational corporate enterprise on pain of severe financial penalty” (McMurtry, 2012, p. 2). Max-Neef (2010, p.202) further states that in relation to

the unquestioned need for profit maximisation and global free trade, “To doubt of its benefits is an act of heresy”. Globalisation is perceived by governments as unquestionable, the legal system enforcing this.

The Global Greens (2012, p.12) state that 53 of the 100 biggest economies in the world today are corporations, and that with the collusion of governments these corporations, “...have created a legal system that puts unfettered economic activity above the public good, protects corporate welfare but attacks social welfare, and makes national economies subservient to a global financial casino that turns over \$US3 trillion per day in speculative transactions”. The Global Greens (2012) believe that this has led to financial crisis that increases volatility and insecurity in all economies, most significantly impacting poorer individuals, groups and countries. The Global Greens (2012, p.12) claim, “The IMF and the WB have contributed to this crisis rather than been part of the solution; the prerequisites on which they are based are not fit to create a global, sustainable and just economic system”.

Some authors describe the impact of globalisation tenets and laws on sustainability. For example, McMurtry (2008, p.49) describes the “life-blind structure” of economic rationality, and Ellinghausen (2011, p.681) the “ecologically submissive subtexts” of the legal frameworks that support globalisation. Ellinghausen describes these ‘subtexts’ as an, “...indispensable resource for anti-environmentalism...reifying property, discussed with a constricted parts and parcels, case-analysis perspective which excludes the critical considerations of holism and interconnectedness” (Ellinghausen, 2011, p. 681). Shiva (2007, p.313) relates the case of bioprospecting as reflecting the “commodification and privatisation paradigm”, which protects only the rights of “appropriate peoples” and turns common resources into commodities. Shiva (2007, p.313) describes this process as outright and sophisticated “biopiracy”.

Such laws and policies are believed to result in unsustainable outcomes and prevent sustainability. For example it is claimed that in accordance with the globalisation growth model administered by the UN, IMF, WTO and the WB (Martinez-Alier et al., 2010; Max-Neef, 2010), government and corporate spending in UN countries conforms with an agenda that tends not to include that which challenges the dominant growth paradigm (Haque, 1999). Spending then accords with growth objectives and effectively prevents the challenging of status quo growth assumptions.

Haque (1999) outlines that the ideological shift toward globalisation in many countries, has involved the replacement of state-centered, interventionist development plans and programs to reduce foreign ownership, enhance economic self-reliance, redistribute income and develop infrastructure, toward the prioritisation of economic growth and more market-intensive policies and reforms. Haque (1999) claims that such policies have significant impacts on the objectives within the sustainability decision-making process and the resulting prospects for sustainability. For example the UK Department for Environment, Food and Rural Affairs processes typically concern issues such as “jobs, economic growth, housing, transport, services etc”, that prioritise development

that is “not necessarily sustainable” (Pope, Annandale, & Morrison-Saunders, 2004, p. 606).

Globalisation is then perceived incompatible with the requirements for socio-ecological health and sustainability, due to the prioritisation of economic concerns. As a result internationally enforced maintenance of globalisation is perceived as a major barrier to sustainability, and as blocking alternative discourses.

#### **2.4.2 The pricelessness of sustainability**

As localisation pioneer E.F. Schumacher noted long ago, “The really serious matters of life cannot be calculated” (Schumacher, 1973, p. 55). Albert Einstein remarked, “Not everything that can be counted counts, and not everything that counts, can be counted” (Norgard, 2013, p. 62). Similarly ecosystem health, community, wellbeing, future generations and equality are priceless or invaluable, rendering any measurement of these inaccurate and inadequate (Dixon, 2006; Norgard, 2013; Pearce, 1998).

When governments and businesses enact sustainability, immeasurable qualities tend to become low priority (Norgard, 2013). These qualities are treated as ‘intangibles’, described as ‘externalities’ and effectively disregarded (Norgard, 2013). For example world ecosystem services that maintain air, soil and water, are estimated to be worth almost double the entire global economy, yet economically they are effectively worthless (Costanza et al., 1997; Pearce, 1998; Stutz, 2010). When subject to short-term cost-justification, budgetary constraints or a business-case analysis, these ‘externalities’ come off second-best and tend not to be prioritised in government policy or project implementation (Ackerman & Heinzerling, 2002; Brennan et al., 2012; Dunlop, 2011b). Projects involving goods and services that have been produced in ways that do not harm environments, communities and people, are then undervalued in an economic system that cannot adequately value intangible, cumulative or long-term benefits, or harmful ‘externalities’.

Measuring the quality and effectiveness of sustainability programs is then fraught with the difficulties of capturing the many elements that cannot be measured when using market indicators (Lowell, p. 148). For example in human health care such elements include: access equality; quality of life; interpersonal relationships between clients, workers and volunteers; cooperation between agencies; democratic empowerment; and strong community development protocols (Lowell, p. 148). “None of these elements are included in the superficial performance indicators which councils are required to forward to the State Government annually” (Lowell, p. 148). Instead governments tend to promote industry standards which again capture, “...the most easily quantifiable aspects of care rather than the less tangible, relational features that are of such importance to care recipients and their families” (Brennan et al., 2012, p. 380). Intangibles then go unregulated, and “...are likely to be sidelined by providers in

the pursuit of cost control” (Brennan et al., 2012, p. 380). Socio-ecological health insurance is frequently neglected as intangible benefits are not captured or included in cost-benefit analysis.

The short-term implementation costs of ensuring socio-ecological health, often exceeds unsustainable equivalents. For example healthcare workforce studies find decreased quality in provision, associated with the cost-reduction strategy of labour-minimisation (Brennan et al., 2012). In Sweden, the US, Canada and the UK where there is increasing marketisation of health care services, staffing ratios were lower in the for-profit residential care facilities, than in the non-profit facilities (Williams & Brennan, 2012). Outlining associated negative effects an Australian analysis notes, “...small but significant differences” provided by for-profit facilities as compared to not-for profit facilities, with fewer aged care workers per bed and higher staff turnover decreasing quality of care in for-profit facilities (Martin (2005), in Brennan et al., 2012, p. 386). Such strategies are common in countries where, in an attempt to maximise economic growth, marketisation of health-care systems involves contracting previously not-for-profit health service provision to private companies (Brennan et al., 2012).

Wilson (2001) relates the example of techniques compatible with smaller-scale, environmentally friendly production, which are not compatible with a globalisation model that favours maximising economies of scale. Methods such as organic farming that save long-term social health and environmental restoration costs, and evidence that pesticide use is not viable in the long-term for individual farmers, are not valued by the short-term focus of globalisation (C. Wilson & Tisdell, 2001). As a result the value of environmentally friendly goods and services such as these are not captured, making them uncompetitive with their chemical-dependent, large-scale, monocultural equivalent.

Socio-ecological health is then slowly eroded as economic profit is prioritised, socio-ecological concerns are unvalued, and externalities are ignored. The cumulative socio-ecological effect of this is suggested by the previously outlined global socio-ecological crisis. “Turning to the pursuit of sustainability in that world, the need to substantially reduce both the environmental impact per unit of economic activity and the pace of growth in economic output is explained using the metaphor of running down an up escalator” (Stutz, 2010, p. 49). Localisation and sustainability concerns then remain undervalued and are negated by globalisation.

### **2.4.3 Misleading sustainability paradigm**

While globalisation-predicated sustainability strategies dominate, projects that involve resource-use reduction per unit of production are widely perceived to be sustainability initiatives that will reduce environmental impacts. “Almost all main-stream sustainability measures implicitly assume that the problem can be solved through greater material and economic efficiency and technological “fixes” ... “(Rees, 2010, p. 14). However efficiency proponents ignore evidence

that such strategies tend to actually increase ecological impact (Rees, 2010). Efficiency projects do not address sustainability concerns unless they are taking place within a framework that globally restricts cumulative, overall resource use to environmentally and socially safe limits (if such limits are determinable), and may rather lead to increased resource use (Foster et al., 2010; Malovics, Csigene, & Kraus, 2008).

The increase in resource use resulting from efficiency projects is known as 'The Jevons Paradox', the idea that increased energy and material-resource use efficiency leads to increased use rather than conservation (Foster et al., 2010). The Jevons paradox is described as, "...the product of a capitalist economic system...geared, as it is, to maximizing the throughput of energy and materials... Energy savings in such a system tend to be used as a means for further development of the economic order...the "maximum energy flux," rather than minimum energy production" (Foster et al., 2010, p. 10). The Jevons Paradox explains why technological efficiency gains are unlikely to bring about real resource use and waste output reduction, without a larger framework of overall reduction policy incentives (Layke et al., 2000).

The inability of efficiency measures to decrease resource use is evidenced in *The Weight of Nations*, an important empirical study of material outflows in recent decades in five industrial nations (Austria, Germany, the Netherlands, the United States, and Japan) (Layke et al., 2000, p. 35). This study found, "...efficiency gains brought by technology and new management practices have been offset by [increases in] the scale of economic growth" (Layke et al., 2000, p. 35). Hanssen (1999) describes that in Norway improved technology efficiency has led to an increase in comfort, without reducing resource consumption. Specific energy consumption per household has increased, with living areas increasing in size by 50%, room temperatures and use of electrical equipment also increasing (Hanssen, 1999). Fuel efficiency improvements are also reported to have been more than offset by increases in the use and number of cars in Norway.

Stutz notes that declines in carbon intensity that have been achieved are expected to be more than offset by growth in output (Stutz, 2010, p. 54). Cosford (2009) has noted this as having occurred for energy use in the UK National Health Service (NHS), as "...the NHS has improved since 2000...However, the size of the NHS estate has increased, and total energy use (and the resulting carbon footprint) has also increased" (Cosford, 2009, p. e3). Despite efficiency improvements, the UK NHS has then increased energy use and emissions.

In a 2010 report by the Urban Biosphere initiative (Urbis), carried out to inform the development of the NSW Government's Climate Change Action Plan (CCAP), essentially all of the reported initiatives focused on efficiency (Urbis, 2010, pp. 31-32). Limited available sustainability resources and budgets were then not directed toward projects and research that might address complex systemic and social issues addressing overall resource use reduction and socio-ecological health (Prasad & Elmes, 2005).

Prasad and Elmes (2005) outline that environmental management is now institutionalised whereby it is dominated by pragmatic or practical, discourse and strategies. This discourse distances itself from 'ideological' discourses such as Deep Ecology and Anti-Environmental Corporatism, and "...positions itself and its adherents as reasonable, well-intentioned individuals of action, committed to repairing the ecological damages of the past several decades, and taking over the guardianship of nature for the benefit of future generations" (Prasad & Elmes, 2005, p. 846). This occurs at the expense of the environment, promoting minor, incremental, cosmetic changes in production processes and the initiation of 'green' consumerism, whilst not addressing deeper environmental concerns (Prasad & Elmes, 2005). More ecologically viable outcomes for contemporary organisations are then limited, simultaneously inhibiting alternative environmental discourses (Prasad & Elmes, 2005).

Efficiency is then widely purported by the dominant discourse as the means to becoming sustainable. Many accordingly adopt efficiency measures believing they have sufficiently contributed to sustainability. Unsustainable resource use is maintained and encouraged, whilst holistic sustainability concerns are ignored or avoided due to cost, and potentially the perception that sustainability is being addressed. Socio-ecological degradation then increases with these cumulative effects, and it is suggested that to address sustainability concerns, efficiency projects must take place within a holistic framework that globally restricts overall resource use to safe limits (Foster et al., 2010; Malovics et al., 2008). This is not possible within a globalisation discourse, and prevents the requirements for sustainability and localisation.

#### **2.4.4 Confusion about the socio-ecological crisis**

Confusion about the causes of the socio-ecological crisis, and continued sustainability implementation based on globalisation and trickle-down assumptions, cause people to believe that sustainability is being addressed whilst at the same time global socio-ecological crises worsen. It is additionally claimed that there are significant resources directed toward ensuring the maintenance of this confusion (Chubb & Nash, 2012; Oreskes & Conway, 2010). The impression that sustainability is being addressed then confounds and blocks potentially viable, alternative and disruptive solutions (Prasad & Elmes, 2005). Recognition of the need for transformative sustainability solutions such as localisation, are then effectively prevented.

Prasad and Elmes (2005) outline that the emphasis on practical strategies is a situation whereby instrumental rationality, a form of knowledge that views the world and our relationships in it as tools (means) to achieve rational ends, slides in through the backdoor. The environmental agenda is thereby reconstituted on the foundations of economic logic and preservation of the existing order, with the environment cast as an issue of resource scarcity and the management process of these resources emphasising smooth transitions and institutional agreement, over the fundamental changes required to solve urgent ecological

crises (Prasad & Elmes, 2005). This maintains status quo rather than transformative remedies.

In a recent study of climate change reporting at the Australian ABC it was determined, "...there are a host of authoritative sources with large amounts of political and economic capital to deploy in contesting the analyses and prescriptions of the climate change affirmers in the media" (Chubb & Nash, 2012, p. 44). Chubb (2012, p.44) found that as a result, policy responses and media commentary "muddy the water", support the status quo and avoid proposed policy to confront climate change and its mitigation.

Deliberate confounding of the facts has also been researched and described by Oreskes and Conway (2010), who attribute public confusion regarding issues such as climate change, to 'The merchants of doubt'. "...one reason that the public is confused is that people have been trying to confuse them, in large part by intentionally waging campaigns of doubt against climate science" (Oreskes & Conway, 2010, p. 686). 'Doubt mongering' obscures the facts and supports the status quo, preventing recognition of the looming crisis or its causes, despite widespread scientific consensus regarding the causes of global decline. Oreskes and Conway (2010) claim that doubt mongering causes people to think the science is contentious, and as a result they are unlikely to support public policies that rely on that science.

Oreskes and Conway (2010) claim that doubt mongering has successfully been used to prevent people linking cigarette smoking with cancer, acid rain or the ozone hole with pollution, and DDT with deadly health effects. Ng (2008, p.441) reinforces such claims, reporting that "ExxonMobil Corp. gave US\$16 million to 43 ideological groups between 1998 and 2005 in an effort to mislead the public by discrediting the science behind global warming, as disclosed by the Union of Concerned Scientists". Oreskes (2010) reports that scientists are still unable to deal with doubt mongering.

Monbiot (2003) reports that many studies indicate business interests have dominated scientific research agendas and conclusions. For example a survey conducted by the Institute of Professionals, Managers and Specialists (IPMS) (2000) researching scientists working for Government agencies or newly privatised laboratories, found that one in three scientists were asked to tailor their research findings. This survey found that 17% had been asked to change their conclusions to suit the customer's preferred outcome, 10% said they had been asked to do so to obtain further contracts, and 3% had been asked to change their conclusions to discourage the publication of their results (Institute of Professionals, 2000, p. 9). Further to this a study by Martinson (2005) surveyed several thousand early and mid-career scientists to investigate serious misbehavior in research. The study found that 33% had engaged in questionable research practices, the most common misbehaviour being the changing of the design, methodology or results of a study in response to pressure from a funding source, at 15.5% of respondents (Martinson, Anderson, & de Vries, 2005).

It is claimed that this 'relativisation' of science by business and the corporate

media, has contributed to a steady erosion of public confidence in climate science and the perceived reliability of scientific claims (Hamilton, 2010; Monbiot, 2003). Accordingly despite extensive evidence and consensus regarding widespread threats to life and human wellbeing, particularly in relation to climate change (Hamilton, 2010) public confusion regarding causes and solutions is still common.

Naess (2010) claims that the currently dominant liberal media ideology dictates that both sides of a debate are given equal coverage. Ng (2007, p.441) reports, "...while 100% of the 10% sample of all scientific papers on the subject are unanimous on global warming, reports in the mass media are divided half and half between the believers and the doubters". It is believed that this has resulted in the overexaggeration of climate skepticism, and the legitimising of a "wait and see" attitude (Naess, 2010, p. 56).

Suzuki (2002) describes the perhaps unintended element of this confusion. "I'm always astounded at how the newspapers - often in the same issue - will come out with a report on flooding in this area, very unusual fires in that place, a bleaching of corals in the oceans, but they are never put together so that we might conclude "Perhaps this has to do with the world getting warmer!" We just look at them all as disconnected bits and pieces" (Suzuki, 2002, p. 47). Similarly senior Australian government and industry climate-change advisor Ian Dunlop states, "...we need an ability to 'join-the-dots', to develop inter-disciplinary, holistic solutions to the major issues that are bearing down on us, rather than treating them in separate silos as at present" (Dunlop, 2008, p. 140). Suzuki and Dunlop suggest that the portrayal of climate change as disparate events and issues is preventing the required holistic solutions, and maintaining people's confusion about whether the global crisis is even a reality.

It is then claimed that seemingly 'disconnected dots' actually dots join to form a clear picture marking the decline of environments and communities worldwide (Dunlop, 2011b). Kissinger (2010) and Norberg-Hodge (2010) outline that this picture illustrates the destruction of environments and communities resulting from globalisation, both authors explaining that due in large part to the disconnected actions and consequences inherent in globalisation, the cumulative effects of globalisation are difficult to see as a complete picture. Deliberate confounding of the facts, questionable research practices and an emphasis on 'practical' strategies within the confines of globalisation discourse, contribute to and maintain this confusion. This confusion prevents recognition of the need for alternative and transformative sustainability measures such as those presented by localisation.

#### **2.4.5 Dissonance and tensions resulting from conflicting paradigms**

The challenging nature of sustainability is another significant barrier to its adoption (Doyle, 1998; Rees, 2010; Schreurs, 2012; Zaccai, 2012). Tensions occur as those calling for the sustainability measures required to decrease

consumption and environmental pressures, are at odds with those carrying out 'business as usual' initiatives that maintain economic growth (Rees, 2010). This status quo of dissonance and tension contributes to and maintains confusion around sustainability, perpetuating futile strategising that emerges from an incompatible growth paradigm (Conca, 2002; Rees, 2010). "With no government or main-stream international agency willing openly to contemplate, let alone articulate in public, the revolutionary policy responses evoked by our best science, the modern world remains mired in a swamp of cognitive dissonance and collective denial seemingly dedicated to maintaining the status quo" (Rees, 2010, p. 14).

The inability to act on information that presents the requirements for sustainability is described as indicative of cognitive dissonance (Jackson, 2005b; McCartney & Hanlon, 2009; Rees, 2010; D. Winter, 2000). Cognitive dissonance is the uncomfortable feeling (tension), of holding two or more conflicting ideas, beliefs, values or emotional reactions (Encyclopedia Britannica, 2013). The conflict occurs when beliefs or assumptions are contradicted by new information, arising tension defensively relieved by rejecting, explaining away or avoiding the new information (Encyclopedia Britannica, 2013). Differences are then reconciled so as to preserve personal stability or order in conceptions of the world and of oneself, resulting in a mismatch between beliefs and behavior (Bond & Morrison-Saunders, 2011).

McCartney (2009) explains this in relation to sustainability, claiming that in the face of serious threats we are trapped by our habitual ways of thinking. As a result we are unable to translate threats into personal actions that may decrease the threats (McCartney & Hanlon, 2009). McCartney (2009) claiming the mismatch between government action and the scale of perceived threat reinforces this cognitive dissonance.

Bond (2011) describes cognitive dissonance in relation to intergenerational equity. Bond (2011) observes that this key sustainability issue is not considered in assessments, and timescales are driven by the contexts such as mining operations rather than relating to intergenerational timescales. Bond (2011) concludes that though intergenerational equity is a key principle enshrined in government sustainability policy, as it does not form a significant part of any government sustainability assessment process, this clearly means that there is no conscious attempt to achieve a sustainable outcome.

Underlying the tension of cognitive dissonance and 'collective denial', and compounding the dominance of an unsustainable paradigm, is lack of clarity in sustainability discourse (Bond & Morrison-Saunders, 2011; Rees, 2010). Lack of clarity allows unsustainable assumptions such as 'sustainable growth', or 'green economy' growth, to be accepted as the dominant sustainability framework, blocking or preventing other forms of initiative that challenge this (Prasad & Elmes, 2005). In relation to the "intractable problem" of intra- and intergenerational sustainability resulting from lack of consensus on what sustainable timescales should be, lack of clarity tends to be "brushed under the carpet", reinforcing and maintaining the dissonance surrounding sustainability

(Bond & Morrison-Saunders, 2011, p. 5). This situation offers little opportunity for alternative sustainability paradigms.

Meadows (2009) explains that systems strongly resist change, especially in their rules and goals, and that it is not surprising that those who benefit from the current system actively oppose such revision. As a result entrenched political, economic, and religious cliques can constrain almost entirely, attempts to operate by different rules or to attain goals different from those sanctioned by the system (Meadows, 2009). Meadows (2009) claims that this leads to a situation whereby innovators can be ignored, marginalised, ridiculed, and denied promotions, resources and public voices. Chomsky similarly notes, "...its only natural that powerful interests wouldn't want to support genuinely alternative structures - why would an institution function in such a way as to undermine itself?" (Mitchell, 2002, p. 27).

Unsustainable discourse and strategies then dominate global initiatives, blocking and preventing other forms that cause tension by challenging their underlying assumptions (Prasad & Elmes, 2005). In an atmosphere of dissonance, tension and denial, alternative sustainability paradigms and strategies are then unlikely to receive the opportunity for exploration, research, trial or implementation (Prasad & Elmes, 2005; Rees, 2010). Transformative sustainability strategies such as localisation then remain obstructed as dissonance, tension and denial in relation to the requirements for sustainability, continue.

#### **2.4.6 Degraded local environments**

It is observed that ecosystem degradation may be a barrier to future attempts to implement sustainability. Healthy ecosystems are prerequisites for life and sustainability, and have been degraded worldwide (MEA, 2005a). In low-income countries ecosystem degradation has often taken place as resources are exported to those in high-income countries (Graymore et al., 2010; MEA, 2005a; Norberg-Hodge, 2008). This leaves those in low-income countries who are often directly dependant upon the ecosystem services provided by those natural areas, less able to provide for themselves (Graymore et al., 2010; MEA, 2005a; Norberg-Hodge, 2008).

Extensive environmental degradation has also occurred in high-income countries. For example in Australia it is reported that due to land clearance and unsustainable land use, two thirds of agricultural lands are now severely degraded (Lumb, 2012). The MEA (2005) note that communities in degraded areas face great challenges if they ever need to grow their own food. However in high-income countries such as Australia this future sustainability barrier may remain unrecognised when the goods that are purchased from nearby supermarkets, are supplied from all over the world (H. Smith, 2010).

Restoration of degraded areas is possible, though soil erosion and salinity, water pollution and biodiversity destruction from habitat clearance are difficult and or

time consuming to reverse, and increasing throughout the world. Dietz (2009, p.116) states, "The degradation of ecosystem services could grow significantly worse during the first half of this century and is a barrier to achieving the Millennium Development Goals". Unsustainable land use and clearance, the practice of food and resource export from low to high income countries, and resultant degraded local environments then present a great sustainability challenge, as it is difficult for communities to enact sustainable land practices if they do not have healthy water and soil with which to do so (Daly, 1990; Doyle, 1998; Rees, 2010).

#### **2.4.7 Degraded social health and wellbeing**

Negative social effects such as threats to cohesion have been described as accompanying contemporary urban development (Cuthill, 2010). Uzzell (2002) believes that this is due to the complexities of urban life resulting in an individualistic as opposed to community focus, which has the effect of individuals seeking to benefit at others expense. "The increasing complexity of urban life and systems has resulted in the predominance of individual strategies of survival over the principles of intragroup and intergroup identity and cohesion...This has led to the adoption of social behaviors that give little consideration to long-term...sustainability" (Uzzell, Pol, & Badenas, 2002, p. 27).

Studies of 'communities in place', that form for contemporary development and economic purposes such as in Silicon Valley in the U.S., report negative social effects. These studies highlight the damaging effect of individualistic strategies on social capital, that occur in 'communities within place'. Individualistic strategies result in 'utilitarian' trust based on economic return, rather than the social or community return that is tied to a particular place (Colclough & Sitaraman, 2005; Fields, 1998). Trust is degraded in such communities that have formed 'in place' for economic purposes, where social capital builds economic rather than social returns.

In contrast 'place-based community' or 'communities of place', have strong local history and social ties. Here, "...social relationships foster a sense of belonging and social identity that constitute fundamental characteristics of community consistently found in the literature..." (Colclough & Sitaraman, 2005, p. 477). Communities composed of these socially cohesive relationships deriving from common experiences, lead to a common bond amongst community members (Colclough & Sitaraman, 2005). This bond implies responsibility toward other members and a trust, that is tied to that place and extends throughout the community (Colclough & Sitaraman, 2005). Place-based communities are believed to foster social cohesion, trust and social responsibility.

Social cohesion and trust enable sustainable community action by facilitating engaged, cooperative community, and the type of social capital that is required for functioning community networks as opposed to utilitarian economic gain (Bridger & Luloff, 2001; Cuthill, 2010; Uzzell et al., 2002). This is because social

capital may have, “...a focus on strengthening civic participation and localised empowerment via social interaction and sense of community among all members/residents” (Dempsey et al., 2011, p. 289). Communities characterised by degraded social capital may then find working together to achieve localisation or sustainability challenging, due to lack of social cohesion resulting from this degradation.

Place-based community and social cohesion may then be thought of as providing essential social infrastructure to facilitate a community to work together for sustainability. This might be thought of as a ‘chicken and egg’ situation, as place-based social capital is required to achieve sustainability, however without this sustainability is difficult to achieve. “...when social capital is destroyed it is almost impossible to reverse, and hugely expensive to maintain” (O’Riordan, 2013). Additionally social capital may safeguard accountability in decision-making and provide the social infrastructure to protect essential dimensions of sustainability so that they are not coopted or compromised (UN, 2011).

It is claimed that when social capital is degraded, local power elites may more easily gain or maintain control over resources (Hinrichs, 2003). Degraded social capital is then a likely and is a significant risk where relationships have formed in the express interests of economic enterprise, rather than due to the dense interactions of communities that are characterised by a focus on civic participation and local empowerment (Colclough & Sitaraman, 2005; Cuthill, 2010; Klein, 2013; Uzzell et al., 2002). It is also suggested that contemporary development has eroded democracy because large, fast-changing communities may be unconducive to representative democracy (Cuthill, 2010). Due to the reduced likelihood of democratic governance where any group is able to dominate, degraded social health and cohesion present a significant localisation and sustainability barrier.

Degraded social capital and democracy resulting from globalisation and contemporary development may then present a significant barrier to localisation and sustainability in many places. Place-based social capital and cohesion, facilitating of the type of community that comprises the specific local connection, knowledge, experience, democracy and accountability required to understand and care for its own community and environment, is essential localisation and sustainability infrastructure. Without place-based social capital and cohesion, or social health, sustainability or localisation is then difficult to achieve.

Due to the strong link between wellbeing and trust (Knight & Rosa, 2011), it might be concluded that the conditional, performance-based trust or social capital that accompanies contemporary development patterns associated with globalisation and communities in place, does not serve wellbeing in the same way as place-based community trust or social capital. For this reason conditional ‘contemporary’ social capital might be thought of as the type of degraded social capital and cohesion described by Weber (1958) and Uzzell, (2002). This type of social capital does not comprise the connection to place or community required for care and responsibility toward each other, social health and individual wellbeing. Degraded social health is then believed to decrease wellbeing, an important sustainability and localisation dimension (Knight & Rosa, 2011; Rinne,

Lyytimaki, & Kautto, 2012).

Degraded social health is also claimed to decrease environmental health. Uzzell (2002, p.50) states that social cohesion contributes to place identity, that places with a strong identity make social cohesion easier, and that this may be an important dimension of positive environmental attitudes (Uzzell et al., 2002). These attitudes are described as group connection to place and its local environment (Uzzell et al., 2002). Such attitudes have been observed to foster knowledge about and care for local environments (J. Hicks et al., 2012), an important requirement for sustainability.

Despite its importance, the social dimension of sustainability is the least developed as it is, “the one which is hardest to implement and easiest to neglect” (Dempsey et al., 2011, p. 289). As social health is essential to localisation and sustainability, without this dimension they are incomplete, and cannot be adequately progressed. Contemporary development accompanying globalisation are believed to damage social health and wellbeing, which prevents localisation and sustainability.

## **Summary**

Transformative sustainability, predicated on lowering consumption and production levels, is unlikely to flourish when globalisation dominates. Further to this transformative sustainability strategies are inhibited by globalisation discourse, which blocks alternative and challenging discourses such as localisation. Sustainability solutions are then prevented by barriers such as the inability to adequately price intangibles and externalities, often consisting of socio-ecological health, and confusion regarding this and the requirements for sustainability. Inadequate sustainability strategies such as a focus on efficiency then achieve insufficient results, and the perception that sustainability is being addressed whilst global conditions clearly worsen, results in dissonance and tension surrounding sustainability issues and solutions. Continued degradation of socio-ecological conditions then contributes to a mounting sustainability challenge, as the socio-ecological health required to enact sustainability, is eroded by globalisation. It is believed that identifying and addressing these barriers are the major current challenge for localisation and transformative sustainability proponents.

## **Conclusion**

This chapter has described localisation, key localisation characteristics and strategies, and localisation criticisms, in answer to *Research question 1a*. Due to

the emphasis that localisation proponents place on the potential for localisation to provide a 'antidote' to the harmful effects of globalisation, this section has explored and documented the potential for localisation strategies to address sustainability concerns, partly answering *Research question 1b*.

This chapter has begun to answer *Research questions 2a and 2b*, presenting ideas about the effects of globalisation on sustainability, how sustainability is currently conceived within the dominant discourse of globalisation, why sustainability is not progressing and the barriers preventing this. These barriers have also been described in relation to localisation, and relate largely to the difficulties experienced by people and communities due to the effects of globalisation. The potential future difficulties that may be experienced in trying to achieve localisation or sustainability as a result of these barriers have also been outlined, and it has been suggested that identifying and describing these is the most urgent challenge for localisation and sustainability proponents.

## Chapter 3 Methodology

This chapter describes the stepwise, critical approach that has been employed to explore the relationship between localisation and sustainability. In exploring whether localisation may assist sustainability and empower those oppressed by globalisation, this research uses critical realist ontology, methodology and methods, to make inferences regarding the relationship between localisation and sustainability. Mixed methods and data triangulation have been employed for broad overview and deep insight into the results (as described by Fielding, 2010), in order to link underlying generative mechanisms to social experiences and events for a critical realist analysis (Collier, 1994).

### 3.1 Localisation research ontology and epistemology

Some suggest that localisation will advance sustainability objectives more effectively than current dominant strategies based on economic growth and globalisation (Curtis, 2003; Frankova & Johanisova, 2012; Hopkins, 2010; Norberg-Hodge, 2000). In order to research such potential, this thesis adopts the overall research question, *What is the relationship between sustainability and localisation, and how localised is best practice sustainability?* The question seeks evidence regarding claims concerning the ability of localisation to facilitate sustainability, particularly in places that score high on holistic sustainability indexes. In investigating localisation as a strategy that challenges conventional economic and social structures, and exploring these as social actions to create an agenda for change or reform and enhance the lives of all, this exploration takes a critical social science paradigm approach.

#### 3.1.1 Critical Social Science

Critical ontology views reality as constantly shaped by social, political, cultural, economic, ethnic, and gender values (Scotland, 2012). According to critical epistemology, we are “born into culture” where meaning is pre-existing, determined and shaped by consensuses about stratified and unequal knowledge (Scotland, 2012). Academia and science that unquestioningly validates and legitimises this knowledge, is believed to contribute to this oppressive knowledge system (Scotland, 2012). “For example, much of the social and psychological theory which underpins the scientific paradigm was developed by white, able-bodied males...As knowledge claims are always embedded in regimes of truth, consideration should be given to domination, exclusion, privilege and marginalisation” (Scotland, 2012, p. 13). Contrasting with this, critical research requires subjectivity in the belief that knowledge is both socially constructed and influenced by societal power relations that need to be critically questioned and analysed (Scotland, 2012).

Critical epistemology sees knowledge as constructed to suit the user and, “What counts as knowledge is determined by the social and positional power of the advocates of that knowledge” (Scotland, 2012, p. 13). Critical research questions this reality, claiming that knowledge must be altered by human action to address issues of social justice and marginalisation (Scotland, 2012). Critical research asks, “What is intrinsically worthwhile?”, judges reality, and considers how things ‘should’ be (Scotland, 2012, p. 13).

In accordance with critical beliefs, this research adopts a critical ontology and epistemology by positioning itself at the contested front of globalisation, the resultant socio-ecological crisis, and localisation and sustainability claims to date. It does this in order to identify political and economic power structures that are resulting in ineffective sustainability knowledge, planning and implementation, and by examining the potential for localisation to correct and reform these. The research presents new knowledge regarding sustainability as constructed by the dominant forces of globalisation, by contrasting the results of this approach with those of localisation as a way to address ineffective sustainability planning and implementation, and oppression.

### 3.1.2 Critical realism

The critical realist approach and ontology of founder Roy Bhaskar, is employed for this research. Bhaskar's ontology comprises 3 strata or domains of natural (physical and biological) and social reality. These refer to, “...three aspects or senses in which the world and science accordingly, is stratified” (Bhaskar, Frank, Høyer, Næss, & Parker, 2010, p. 3). The first stratum is the domain of the empirical, or observable experiences. The second strata is the domain of the actual, the events that comprise these experiences. The third strata or the domain of the real refers to the generative mechanisms or structures that generate these events and experiences. Bhaskar’s 3 strata are represented below in Table 2 (Bhaskar, 2008, p. 13).

**Table 2: Bhaskar’s domains of open systems**

	<b>Domain of real</b>	<b>Domain of actual</b>	<b>Domain of empirical</b>
<b>Mechanism</b>			
<b>Events</b>			
<b>Experiences</b>			

Critical realism purports that nature is an open system, whereby multiple generative mechanisms jointly cause events (Collier, 1994). Open systems refer to reality as comprising the interactions of this “multiplicity” of generative mechanisms, and the events and experiences resulting from them within and between the 3 domains (Collier, 1994, p. 46). Critical realism sees research as

necessarily multidisciplinary in order to adequately address complex social concerns such as sustainability, and explains the effects of this multiplicity of generative mechanisms. Social events are then potentially, "...explicable but not in terms of any one science" (Collier, 1994, p. 46). The philosophical framework of critical realism then comprises, "...an ontology that ranges from the metatheory of so-called hard science through biology and evolutionary theory, to social sciences, to a critical engagement with the 'cultural turn' and the importance of discourse to human action and identity and action" (Bhaskar et al., 2010, p. viii). A strength of critical realism is that it is able to facilitate interdisciplinary approaches (Bhaskar et al., 2010).

In critical realist research, generative mechanisms are the focus, and are described as, "...tendencies which can be reinforced, modified or suppressed in complex interaction with other mechanisms in an open system" (Ekstrom, Danermark, Jakobsen, & Karlsson, 2002, p. 163). According to critical realism if the world were a closed system with one underlying mechanism, observation would suffice to establish laws as is attempted by positivism (Collier, 1994). However critical realists claim that closed systems rarely occur naturally, rather they are usually artificially created for the purposes of positivist research (Bhaskar et al., 2010). In critical realism the study of experiences and events alone is insufficient to link underlying generative mechanisms to these, and thereby the causes and cures for emancipation from oppressive mechanisms (Collier, 1994).

Bhaskar (2010) describes a critical realist account of science that results from a world constituted of open systems, leading to an emphasis on the ways that the three domains are stratified. This stratification includes: distinguishing between structure and events; conceiving of the world as comprising distinct, multi-tiered strata (e.g. tables into molecules into atoms into electrons into fields etc.); and that these strata are emergent in a causally irreducible way from events to the structures that cause them. All phenomena are then caused by, "...a multiplicity of causal structures, mechanisms, processes or fields" (Bhaskar et al., 2010, p. 4). The ontology of critical realism relates to the relationship between these domains or strata, as the focus of knowledge generation.

The domain of the real includes: reality, comprising non-duality and, "...a potentially infinite series of potentially rankable hierarchies of levels of limitlessness, unboundedness, omnipotence (or infinity!)" (Bhaskar, 2000, p. 32); co-presence or relative reality, comprising non-duality and unity in difference (Bhaskar, 2012); and demi-reality or irrealism, comprising fear, hate, split, divisiveness, antagonism, contradiction, oppression and above all alienation, which produces disunity through difference (Bhaskar, 2000, 2012). Bhaskar (2012, p.205) claims that social emancipation may be achieved by empowering the realm and generative mechanisms of reality, co-presence and non-duality, so as to decrease the unreal realm of demi-reality, duality and alienation. Conversely emancipation from demi-reality and irrealism may be perceived as requiring that its generative mechanisms be identified and disempowered.

### **3.1.3 Globalisation and localisation as critical realist generative mechanisms**

The social effects of globalisation and accompanying increased inequality, include alienation, fear, divisiveness and disunity in difference (CIA, 2000; Helliwell, 2003, 2007; Jackson, 2005a; Marmot & Wilkinson, 2001; NEF, 2010; Norberg-Hodge, 2000). Bhaskar (2000) describes these globalisation characteristics as principal features of demi-reality, and as such globalisation might be perceived as a generative mechanism that is amplifying of demi-reality. Bhaskar implies this, “...any power (e.g. money)-based society will be characterised by irrealist categorial structures, alienation and ideology. As such irrealism is symptomatic of an alienation of human beings from the cosmos and a lack of autonomy that only a eudemonistic society oriented to universal human emancipation can rectify” (Bhaskar, 1997, p. 145).

Its money-based characteristic and the alienation that this creates then makes globalisation a generative mechanism that is amplifying of demi-reality. Here categorial structures refer to the profit-based conceptual structures on which this social reality based is built, creating “a schizoid ideational form” (Bhaskar, 1997, p. 145). Conceptual structures regarding the primacy of economic profits are falsely characterised and thus categorised, and this comprises “...the absence of ontology and the failure of philosophy to satisfy a reflexive criterion for itself” (Bhaskar, 1997, p. 145). In contrast eudemonistic society refers to one where actions are evaluated in terms of their ability to produce happiness (Bhaskar, 1997).

Localiser Norberg-Hodge (2000) shares the sentiments of Bhaskar (1997) regarding the relationship between alienation of people from the cosmos and human emancipation. She links this to globalisation, stating that a “...fundamental shift involves reinstilling a sense of connection with the place where we live. The globalisation of culture and information has led to a way of life in which the nearby is treated with contempt...A sense of place means helping ourselves and our children to see the living environment around us...Ultimately, this involves a spiritual awakening that comes from making a connection with others, and with nature. It requires us to see the world within us — to experience more consciously the great interdependent web of life, of which we ourselves are part” (Norberg-Hodge, 2000, p. 28). Bhaskar and Norberg-Hodge both perceive that people are disconnected from the world, and that this must be rectified in order that people may adequately perceive the world and thereby achieve emancipation.

Due to the primacy of economic profit in a society that is premised on globalisation, the intangible socio-ecological benefits of connection to the world that localisation comprises, and the socio-ecological costs of the alienation and disconnected world that globalisation creates, are not conceptualised in accordance with reality. Irrealism, alienation and cognitive dissonance ensue, and these conceptual structures must be reflexively transformed for this “schizoid” demi-reality to be rectified. However Bhaskar (1989, p.192) states

that in capitalist societies, critical realism will always be seen as “...a luxury its agents cannot afford”, and that it is however “...a philosophy without which socialist emancipation cannot be achieved”.

Localisation may then be perceived in critical realist terms as a generative mechanism that may amplify co-presence, non-duality and unity in difference. Localisation is claimed to inherently include diverse and unique local cultures globally, and in fostering more equal and small-scale communities and societies, is believed to facilitate trust, cohesion and tolerance, the opposite of alienation (DuPuis & Goodman, 2005; Jackson, 2005b; Norberg-Hodge, 2000, 2008, 2012; Psarikidou & Szerszynski, 2012; Shiva, 2007; Wilkinson et al., 2010). Hung (2012) describes localisation in relation to unity in difference, globally, claiming “We may have one worldview and one associated environmental ethic corresponding to the environmental crisis that is worldwide and common. And we may also have a plurality of revived traditional worldviews and associated environmental ethics corresponding to the historical reality that we are many peoples inhabiting many diverse bioregions apprehended through many and diverse cultural lenses...this one and these many are not at odds” (Hung, 2013, p. 255). Localisation might then be perceived to potentially promote ‘unity in difference’ and emancipation. In seeking to determine the relationship between localisation and sustainability, this research investigates the potential for localisation to facilitate emancipation, in its potential to promote unity in difference (as described by Bhaskar, 2012).

#### **3.1.4 Critical realist stratification**

Collier (1994, p.49) explains that in critical realist terms science is a process of “digging deeper” through stratified layers, suggesting that “...we reach the upper layers first”. In order to understand and explain one mechanism, we then need first to discover the upper strata mechanism that determines this, as we are never able to predict a higher level mechanism from our knowledge of one that is more basic (Collier, 1994). As a result we cannot understand social phenomena without grasping the greater mechanisms that determine these, and it is from these greater mechanisms that we begin our exploration (Collier, 1994). For example to understand the movement of stones in a garden, it is necessary to understand the habits of ants (Collier, 1994). Collier (1994, p.50) describes this as a, “...permanent ordered multiplicity of sciences, a ‘tree’ with distinct roots and branches, reflecting the real stratification of natural mechanisms, within and between objects of the various sciences”.

Scientific progress in critical realist terms may then be thought of as the deepening knowledge of these stratified layers, looking “...beneath the course of events to the mechanisms that generate it, and beneath each layer of mechanisms to the one that founds it” (Collier, 1994, p. 50). This is a process whereby, “...theoretical explanations are...cognitive resources...used to construct plausible models of the mechanisms producing identified patterns of phenomena, which are then empirically checked out, and, if deemed adequate, in

turn explained, in a continuing unfolding dialectic of taxonomic and exploratory knowledge” (Bhaskar, 1989, p. 90). Higher-level mechanisms become the next level of phenomena that are to be explained in, “...the next stage of ever-deepening scientific knowledge”, the higher-level mechanism being rooted in and emergent from the more basic mechanism (Collier, 1994, p. 110). Further to this, emergence as opposed to mechanical laws occurs at every stratum. For example both trees and people do not break mechanical biological laws, but they grow “according to their own nature”, in ways that are impossible according to mechanical laws (Collier, 1994).

In order to carry out a process of ‘digging deeper’ through stratified layers, this research focuses on localisation and globalisation as contrasting and interacting upper-level generative mechanisms, that affect sustainability. The current sustainability effects that emerge from globalisation are contrasted with the potential effects that may emerge from localisation. This involves examining the layers of events that comprise the way that sustainability is linked to these, and the ways in which these two generative mechanisms are linked. Sustainability events may be thought of as the stones in the garden, and the ants may be conceived as generative localisation ants, or generative globalisation ants that cause these events.

### 3.2 Critical realist research methodology and methods

Critical methodology interrogates values and assumptions in order to expose power-relations and injustice, thereby engaging in social action to challenge conventional social structures (Scotland, 2012). Inquiry is political, aiming to “emancipate the disempowered” (Scotland, 2012, p. 13). Researchers acknowledge that their methodology is value-laden and often preconceived, the process aiming to illuminate reality and thereby create change (Scotland, 2012). This critical approach is employed to explore the relationship between localisation and sustainability. Qualitative and quantitative research methods and data triangulation are utilised to explore the potential for localisation to reform globalisation structures in the form of sustainability implementation, and to overcome the socio-ecological crisis resulting from these.

#### **3.2.1 Critical realist mixed methods research (MMR) approach**

A critical realist approach determines that conclusions are drawn from a MMR process, relating to the generative mechanisms of observable experiences or events. The mixed, “...complementary empirical procedures... (are)...part of a greater whole, namely the research process that is guided by a critical realist ontology”. This ontology requires that quantitative methods are used to examine events and experiences caused by generative mechanisms in open systems (Ekstrom et al., 2002, p. 163). Critical realist research then requires that events

be examined in open systems, to test theories regarding causal laws that must be analysed as the tendencies of generative mechanisms (Bhaskar, 2008).

Generative mechanisms may be regarded as “the ways of acting of things”, and causal laws regarding these need not be invariant. Rather, these laws should be tested in relation to theories stating tendencies of these causal laws (Bhaskar, 2008, p. 14). Qualitative critical realist methods enable theorising about causation between events and experiences caused by generative mechanisms in open systems, the crucial and necessary purpose of mixed methods being in theory development regarding generative mechanisms and their relation to oppressive forces (Ekstrom et al., 2002).

In contrast positivist research assumes laws from experimentation within closed, artificial situations or systems that cannot be sustained in open systems or the real world (Bhaskar, 2008). Here the research focus is on observable events and experiences as the source of knowledge. Bhaskar (2008) explains this to be the weakness of positivist research, whereby precedence is given to practicalities and the empirical, “...over the ontological and the epistemological, a view that the pragmatists themselves call ‘the dictatorship of the research question’ ” (Ekstrom et al., 2002, p. 152). In positivism the research question rather than the ontological perspective, determines the mix of methods (Ekstrom et al., 2002). Pragmatists emphasise epistemological issues, “...such as what is knowledge, how is it acquired, and the relationship between the “knower” and the “known” (objectivity-subjectivity)” (Teddlie & Tashakkori, 2012, p. 781). The importance of mixed methods in pragmatic data analysis is then in presenting ‘objective knowledge’.

In contrast critical realism emphasises that axiological assumptions (values), “...takes precedence and serves as a basis for articulating the other three belief systems because the transformative paradigm emerged from the need to be more explicit about how researchers can address issues of social justice” (Teddlie & Tashakkori, 2012, p. 781). For the critical realist, values determine that mixed methods are used to subjectively employ knowledge that is generated from data analysis, for the purposes of human emancipation. “For transformative scholars and critical theorists who promote social justice, mixed methods are tools that are used in the service of the value systems that are foremost to their perspectives” (Teddlie & Tashakkori, 2012, p. 780).

### **3.2.2 *Fielding’s MMR criteria***

Fielding (2010, p.134) outlines four criteria, “specific to the nature of MMR”. As outlined in Table 3 these include: relevance to the research question of using MMR; transparency of the methods; integration of the methods; and rationale for using MMR. Fielding (2010) outlines that these criteria be employed to ensure validity, reliability and appropriate use. Table 3 outlines how this localisation research addresses these criteria.

**Table 3: Fielding’s Mixed Methods Research (MMR) criteria**

	<b>Criteria</b>	<b>Localisation research method</b>
<b>1</b>	<b>Relevance to the research question of using MMR</b>	Quantitative methods necessary to determine relationship between localisation and sustainability, qualitative methods to experimentally link theoretical causes to quantitative, empirical phenomena.
<b>2</b>	<b>Transparency of the methods</b>	Quantitative analysis results were made explicit in order to provide the basis for qualitative, in depth exploration of these.
<b>3</b>	<b>Integration of methods</b>	Generative mechanism effects determination of localisation on natural and social phenomena, comprise triangulation and integration of MMR.
<b>4</b>	<b>Rationale for using MMR</b>	Need for: qualitative methods to explore localisation and its potential for sustainability and emancipation; and quantitative methods using localisation and sustainability measurement and correlation to test theories that localisation may facilitate sustainability. MMR utilised to explore relationships between generative mechanisms and phenomena.

In line with the criteria outlined by Fielding (2010), the need for MMR in this research is necessitated by the need to quantitatively determine the relationship between localisation and sustainability, and to use qualitative methods to theoretically link causes to quantitative, empirical phenomena. In accordance with critical realist perspectives whereby societal laws are not universal but rather applicable only in specific places and times, multilayered research methods were utilised to determine results using quantitative analysis, that were made explicit in order to determine appropriate settings for in-depth, qualitative exploration and testing of theories about generative social mechanisms formed from the quantitative results. These theories relate to the effects of the generative mechanisms of localisation and globalisation on natural and social phenomena, and comprise the triangulation and integration of the mixed methods results. Fielding (2010, p.134) describes triangulation as, “...(a necessary skill): using more than one method and weighing up the outputs from these methods to assess the extent to which they confirm or contradict each other, and what this tells us. In particular...to get a broad overview and insight into what the data mean” (Fielding, 2010, p. 134).

The rationale for using MMR in this localisation research process then comprises: the need for qualitative methods to theoretically explore the social structure of localisation and its empowerment of sustainability (reality) as opposed to globalisation and unsustainability (demi-reality), and the resultant potential of localisation for sustainability and emancipation; the need for quantitative methods to test these theories using localisation, globalisation and sustainability measurement and correlation analysis of these, in order to establish causation of the relationship and thus between generative mechanisms and phenomena.

### **3.2.3 Ekstrom's critical realist foundations of combining methods**

Ekstrom et al. (2002) describe critical methodological pluralism as a MMR approach of generating and exploring primary and secondary qualitative and quantitative data. Specifically Ekstrom et al. (2002) describe this process as an ongoing interaction between the use of intensive (qualitative) methods to focus on generative mechanisms, and extensive (quantitative) empirical research design and procedures for quantitative data collation and statistical analysis. These are used to analyse the effects of generative mechanisms, such as discovering how common a phenomena is and some of the characteristics of the population that experience this phenomena (Ekstrom et al., 2002). Practical research in critical realist terms uses these to meaningfully search for generative mechanisms and how these manifest themselves in differing contexts (Ekstrom et al., 2002). Further to this, because social science issues are complex in depth study in specific contexts using a small number of cases is required (Ekstrom et al., 2002). This allows intensive investigation of how generative mechanisms operate in a concrete situation, tracing causal powers and, "...describing the interaction between powers that produces a social phenomenon" (Ekstrom et al., 2002, p. 166).

In considering how intensive and extensive research methods were to be combined for the larger process of exploring the relationship between localisation and sustainability, four essential foundations as outlined by Ekstrom (2002, p.163-164) were considered. These are outlined in Table 4.

The inclusion of the three domains then entailed in the consideration of: generative mechanisms comprising the domain of the real, as represented by localisation and globalisation; actual events as sustainability effects; and empirical sustainability experiences of individuals as measured and as recorded in interview. Conceptual abstraction occurred through the process of mixed methods data formation and analysis, whereby aspects of reality such as individual experiences of social health and resource use were combined to comprise events representing the experience of sustainability or not. Analysis of different strata was achieved by incorporating and analysing aspects of reality, such as ecological and social health, and individual experiences of events such as sustainability planning, and the overall effects of these as comprising causal effects of generative mechanisms in the form of localisation and globalisation. Human intention, tendencies, and resultant phenomena were included in the research process by interviewing localisation experts and sustainability planners, in order to determine how sustainability planning and social intentions manifest as sustainability and localisation phenomena.

**Table 4: Ekstrom’s critical realist method combination foundations**

	<b>Combining method</b>	<b>Localisation research approach</b>
1	<b>Inclusion of the three domains:</b>	Real generative mechanisms as represented by localisation and globalisation; actual events as sustainability effects; and empirical sustainability experiences of individuals as measured and as recorded in interview.
2	<b>Aspects of reality and events are manipulated in the mind</b>	Mixed methods data formation and analysis, whereby aspects of reality were combined to analyse events representing the experience of un/sustainability.
3	<b>Emergent powers are encompassed by analysis comprising different levels:</b>	Analysing aspects of reality such as ecological and social health, and individual experiences of events such as sustainability planning; and the overall effects of these as comprising causal effects of generative mechanisms in the form of localisation and globalisation.
4	<b>Human intentions regarded as causes and analysed as tendencies. Phenomena also explained recognising the ‘acting individual’</b>	Interviewing localisation experts and sustainability planners, in order to determine how sustainability planning and social intentions manifest as sustainability and localisation phenomena.

Ekstrom (2002, p.1640) outlines that in critical realism the methodology must aim to focus on elements of reality that, “shed light on causative mechanisms”. The most important part of the research process is then the intensive procedure whereby the theoretical leap from phenomena to mechanisms is made. This was incorporated throughout the research, in designing the stepwise process of enabling localisation and sustainability comparison, and in depth analysis of this. Specifically in interviewing top sustainability achievers to determine whether their planning is intentionally localised, and triangulating these results with correlation analysis to determine the quantitative relationship between localisation and sustainability, a theoretical leap was made regarding how sustainability planning relates to localisation, and the likely outcomes of this.

### **3.2.4 Localisation research according to Layder's critical research map**

Ekstrom (1993, p.169) outlines 4 different research critical realist research constituents that are studied in a historical perspective. As outlined in Table 5, these include the context, setting, situated activity and self, relating to the generative mechanism/s of relevance. This provides the concrete setting or a ‘research map’, in which mechanisms may become manifest (Ekstrom et al., 2002).

As it is not possible to focus on all elements of the research map, critical realist research focuses on those elements that most relate to the generative mechanisms in question (Ekstrom et al., 2002). This is the essential critical realist process of abstraction, whereby social research experimentation comprises isolating in thought essential aspects of “...a concrete course of events...to gain knowledge about generative powers and mechanisms in social worlds” (Ekstrom et al., 2002, p. 43). Table 5 outlines elements of the historical overview of localisation and sustainability that were included in the research process. The rationale for their inclusion consists of a process whereby the most relevant of these elements as aspects and characteristics indicative of localised community, were isolated in thought. Observable and measurable localisation and sustainability practices and effects resulting from these were analysed, and then abstracted to the effects of localisation as an overall generative mechanism. Localisation and sustainability practices and effects were then intended to indicate or not, whether localisation practices as comprising a generative mechanism, cause sustainable effects.

**Table 5: A critical realist research map for exploring the relationship between localisation and sustainability**

<b>Research element</b>	<b>Research focus</b>
<b>Context:</b>	<b>Macro social organisation:</b> Localisation and sustainability practices; ownership of land and business; and governance types.
<b>Setting:</b>	<b>Intermediate social organisation:</b> Nations and their social, environmental, governance and economic activities, processes, structures. <b>Work</b> includes: governance arrangements; environmental management; goods and services production, consumption and distribution; <b>Non-work</b> participation in social organisations.
<b>Situated activity:</b>	<b>Social activity:</b> Localisation expert and sustainability planner interviews focusing on emergent meanings, understandings and definitions of localisation and sustainability as these affect and are affected by contexts and settings and subjective individuals.
<b>Self:</b>	<b>Self-identity and individual’s social experience:</b> Data collation, manipulation and analysis regarding how social, environmental, governance and economic factors representing levels of sustainability and localisation impact individuals.

Critical realism demands that though abstractions are essential to the research process, “...they cannot replace empirical studies of the concrete conditions” (Ekstrom et al., 2002, p. 48). Concrete phenomena must be the start of the abstraction process, which moves back and forth between testing the concrete and back again to abstraction, sometimes simultaneously and with no given end, until the analysis is ended with the assigning of causality regarding the associated generative mechanisms (Ekstrom et al., 2002). The product is then not a new arrangement of matter brought about by experimentation, but rather

the deepened knowledge of generative mechanisms (Collier, 1994). Knowledge of these mechanisms is explanatory rather than predictive, the contribution of differing mechanisms varying from case to case, and explainable from a horizontal perspective of the occurrence of events and phenomena due to mechanisms, or a vertical explanation of one mechanism by another more basic mechanism (Collier, 1994).

### **3.2.5 RRREIC localisation research schema**

Bhaskar (2010) describes, “A characteristic pattern for the analysis of explanation of phenomena...” as the RRREIC schema (Bhaskar et al., 2010, p. 19). These are: the resolution of complex events or phenomena into components; optimally redescribing these in an explanatory significant way; retrodiction of component causes to the existing events or states of affairs that preceded them; elimination of alternative competing explanatory antecedents; identification of causal or generative antecedents; and correcting earlier findings after more complete analysis (Bhaskar et al., 2010, p. 19).

In accordance with Bhaskar's schema for analysing and explaining phenomena, and as is outlined in Table 6, resolution of the current global socio-ecological crisis and its prevention, to the causal mechanisms of localisation and globalisation, incorporated multi-disciplinary metrics and analysis. The socio-ecological crisis was redescribed using metrics to capture sustainability phenomena and events, interviewing obtaining detail regarding localisation planning in contrast to sustainability planning based on globalisation. Retrodiction was carried out in the form of index data analysis, to reveal predominant localisation elements in top sustainability-scoring regions. Analysis of index data to reveal top sustainability-scoring regions where localisation elements are predominant enabled elimination of those where they were not. Identification and analysis of social, cultural, spiritual, environmental, and economic practices as the causes of top sustainability scores for regions of Bhutan, was then achieved. Rectification of localisation index (LI) measurement deficiencies was carried in order to best identify top localisation achievers.

**Table 6: Localisation research process according to RRREIC method**

	<b>RRREIC</b>	<b>Localisation research process according to RRREIC method</b>
<b>1</b>	<b>Resolution</b>	Resolution of socio-ecological crisis and prevention to causal mechanisms of localisation and globalisation.
<b>2</b>	<b>Redescribing</b>	Metrics to capture sustainability phenomena and events, and interviewing to obtain localisation detail regarding these.
<b>3</b>	<b>Retrodiction</b>	Analysis of index data to reveal localisation elements predominant in top sustainability-scoring regions.
<b>4</b>	<b>Elimination</b>	Analysis of index data to reveal uncommon localisation elements in top sustainability-scoring regions.
<b>5</b>	<b>Identification</b>	Analysis of social, cultural, spiritual, economic and environmental practices as the causes of top sustainability-scoring districts of Bhutan.
<b>6</b>	<b>Correcting</b>	Rectification of localisation indexes to incorporate measurement deficiencies.

### 3.3 Research aim and objectives - a critical realist, step-wise approach

The aim of this thesis is to critically examine the relationship between localisation and sustainability, the objective being to explore the potential for localisation to inform sustainability planning and implementation. In order to achieve movement from the research aim or object, localisation, to the events and phenomena caused by this, a step-wise research approach incorporating localisation expert interviews to guide the consequent direction of the following research steps, was used to enable deep exploration of the research question: *'What is the relationship between sustainability and localisation, and how localised is best practice sustainability?'*

The research objective was broken down into the following six parts, and the research question into three (Appendix 1). In order of research objectives, the following critical realist, stepwise research approach was carried out for the purpose of *'Exploring the relationship between localisation and sustainability'*, and to determine how localised is best practice sustainability:

In order to begin an exploration of *Research objective 1: Concisely and holistically define localisation*, and in keeping with a critical realist process of 'digging deeper' beginning with upper layers of social reality (Collier, 1994), this research began with an examination of localisation literature to date as an overarching way of life and social and economic organisation, and as such as a causal,

generative mechanism. This enabled determination of the characteristics of a localised community as the research object, and identified that localisation has not yet been succinctly and holistically defined. The review answered *Research question 1a: What is localisation and how is it described?*, and began to address *Research question 1b: Is localisation important to sustainability?*, and *Research question 1c: How can localisation be concisely and holistically defined?*

Part of this review involved examination of globalisation as a dominant generative mechanism that significantly interacts with and impacts localisation and sustainability. Literature regarding the effects of globalisation on localisation and sustainability events and experiences, was examined in the form of the current socio-ecological crisis that is producing, “socially inadequate conditions of being” (Bhaskar, 1997, p. 146). As such, in critical realist terms this review enabled identification of the generative mechanism of globalisation that is creating socially inadequate conditions and in need of removal, as part of the “explanatory critique” described by Bhaskar (1997, p.146) as enabling isolation in thought of the causes of “socially inadequate conditions of being”. This provided context for localisation as a generative mechanism that may facilitate sustainability and emancipation from the socially inadequate conditions resulting from globalisation. Determination of whether localisation may facilitate sustainability and enable eudemonism and non-duality, as a result of its claimed ability to facilitate co-presence, unity in difference and non-duality in the form of social and universal connection, was then carried out.

The aim of the review was to provide context for: relating localisation to sustainability and the current socio-ecological crisis resulting from globalisation; defining and describing localisation; the interviewing of six localisation experts to define and determine localisation qualities and metrics; and the interviewing of sustainability planners regarding localisation. It was intended that in addition to qualitative interview analysis, this literature would be useful in providing dimension and clarification for analysis of interview responses, contributing to the formation of a localisation definition and providing localisation context for sustainability interviews. Interviews with localisation experts then enabled determination of *Research question 1c: How can localisation be concisely and holistically defined?*, so that this might be used to form a set of metrics that conform to this definition.

In order to address *Research objective 2: Determine and locate best practice sustainability in order to determine how localised this is*, the context and need for sustainability were first explored. This research objective was broken down into 3 sub-questions regarding ‘*What is sustainability and why is it required?*’: *Research question 2a: What is sustainability?;* *2b: Why is sustainability required?;* and *Research question 2c: How are sustainability and best practice sustainability defined, interpreted and implemented?* As with the need to examine globalisation literature in relation to localisation and the socio-ecological crisis described above, *Research objective 2* also involved reviewing globalisation literature in relation to the socio-ecological crisis, as the key causal mechanism that is creating crisis and the need for sustainability measures and assessment. In critical realist terms, review of the generative mechanism of globalisation

provided context regarding the need for sustainability events and experiences. Literature review also provided an overview of sustainability events and experiences, in the form of sustainability assessment, tools, methods and indexes that enable locating the most sustainable places and practices.

*Research objective 3: Determine suitable metrics with which to measure localisation, in order to correlate localisation and sustainability* was conceived as “a mode of transition” (Bhaskar, 1997, p. 146) to evaluate causes of socially inadequate conditions, and remove them. This was achieved using localisation expert interview analysis, and localisation literature review to supplement and clarify the interview responses. This enabled initial exploration of *Research question 3: What is the relationship between sustainability and localisation?*, through the answering of *Research question 3a: What metrics can be identified and used to measure localisation?* Nvivo coding and thematic methods were employed to analyse the localisation expert interviews, and form a metric set that conforms to the reviewed literature, views of the experts, and the established localisation definition. These metrics could then be employed to measure whether the generative mechanism of localisation causes socially adequate conditions, and conversely whether these conditions deteriorate as localisation decreases due to the increasing effects of the generative mechanism of globalisation. This enabled the examination of complex patterns and trends that uniform quantitative data is able to capture across greatly varying cultures and regions (Fielding, 2010).

*Research objective 4: Develop a LI for 1 country and correlate this with a SI for the same country* was achieved using the formed localisation metric set, to develop a LI for the 20 regions of Bhutan. Bhutan is the only identified country that regularly and holistically monitors the required data for localisation and holistic sustainability measurement at a regional level. This unusually comprehensive regional data availability was enabling of localisation and sustainability research, permitting regional level correlation of localisation and sustainability within Bhutan using secondary data.

As the existing Bhutanese Gross National Happiness (GNHI) sustainability index (SI) does not incorporate environmental impact data, and in order to form a holistic Bhutanese SI (BSI), ecological footprinting (EF) data was collated for the 20 Bhutanese districts from existing data collected by the Gross National Happiness Commission (GNHC) and other government departments. The collated data was analysed by contracted New Zealand Otago Polytechnic, to calculate EFs for the 20 Bhutanese districts. A holistic BSI was then formed, by adding the EF of each district into the GNHI.

Secondary quantitative localisation data from the 20 Bhutanese districts was then collated according to the developed localisation metrics. This data was weighted and aggregated to form a localisation score for each district, serving as a ranking and forming a regional-level BLI. The BLI ranks were then correlated with BSI ranks, in order to: determine the strength of relationship in Bhutan between localisation and sustainability; further explore *Research question 3: What is the relationship between sustainability and localisation?*; and begin to

answer *Research question 3b: What is the strength of relationship between sustainability and localisation.*

*Research objective 5: Develop a global localisation index (GLI) with which to correlate a global sustainability index (GSI) for the same countries,* was then achieved by collating localisation metric data for the 103 countries with the required and available data. This enabled the formation of a GLI, which was correlated with GSIs comprising the same countries. Determination of the relationship between sustainability and localisation at a global level was then attempted to enable further investigation regarding the causality of this relationship.

The next step was to achieve *Research objective 6: Examine the causality of relationship between sustainability and localisation,* and in order to further investigate *Research question 3: What is the relationship between sustainability and localisation?*, and *Research question 3c: How localised is best practice sustainability planning and implementation?* This step entailed exploration of the causality of relationship between sustainability and localisation in Bhutan. The exploration enabled theory formation regarding whether localisation as a generative mechanism, results in sustainable effects and phenomena. This was achieved by carrying out semi-structured interviews across Bhutanese districts with 33 sustainability practitioners, to sample sustainability planning and activity in the Bhutanese regions. The primary interview data was reported in order to determine whether the generative mechanism of localisation is relevant to sustainability planning, events and experiences in Bhutan. The reporting related to whether localisation informs sustainability planning in the most sustainable Bhutanese regions.

A stepwise critical realist research process was then employed using MMR to triangulate secondary quantitative and primary qualitative data analysis. This enabled insight and resulting conclusions regarding the causality of the relationship between localisation and sustainability. This process conformed to critical realist research methods, utilising localisation expert advice and opinion and quantitative data, and qualitative sustainability practitioner interview results obtained from an in-depth, concrete setting (Bhutanese districts), (Ekstrom et al., 2002).

### 3.4 Expert interviews

#### **Introduction**

Localisation is a merging field of research I sought to consolidate by focusing existing discussion, through the deliberative development of a concise definition and metric set. Specifically, I conducted in-depth interviews with localisation experts to ascertain: (i) what the selected experts believe are the essential

qualities of localisation; (ii) how these qualities might form a concise, holistic definition; and (iii) what metrics might best be used to measure these qualities.

This deliberative method of interviewing experts to deepen understanding about their field of expertise, and exploration of interview responses using qualitative thematic analysis to find commonalities of opinion, understandings and practices may be seen in other studies (e.g. Maynard & Thelwell, 2000; Mulder & Ferrer-Balas, 2012; Wasserman, Bocian, & Harris, 2011). As outlined by Babbie (2007), as opposed to impersonal survey data collection interview methods obtain a higher response rate, decrease “don’t know” or “no answer” responses, and provide the opportunity to clarify questions and responses where the interviewee or interviewer is unsure of the exact meaning of the question or answer (Babbie, 2007).

The experts chosen for interview (Appendix 2) are well informed to represent their field, and include localisation academics and practitioners. Incorporation of both practical and theoretical input is an attempt to include all relevant expertise, as “The nature of policy debates involving science has been transformed by the success of non-expert stakeholders in contributing to the assessment of quality...these new participants are indispensable. This extension of the peer community is essential for maintaining the quality of the process of resolution of complex issues” (Funtowicz & Ravetz, 1994, pp. 203-204).

### **3.4.1 Localisation expert interviews**

Localisation experts were selected on the basis of three criteria. Firstly this group are all widely recognised (within their field) as localisation experts or practitioners. This is evidenced both in the literature in terms of their published and referenced material, and by their sought-after status at localisation and related conferences, advisory bodies and media coverage. Secondly each has a long history of at least a decade (and up to 4 decades) of localisation experience, giving them a wealth of knowledge to draw upon during interview questioning regarding as yet unestablished aspects of localisation. Thirdly, as evidenced by publication dates, conference participation and University teaching activity, this group are currently active localisation experts.

Some of the experts, being more oriented toward practice and grassroots activity, are not academically focused or recognised as being localisation specialists as such. However as noted by Funtowicz (1994, p.198-204) and employed by Frankova (2012) in forming a working definition of ‘economic localisation’, “extension of the peer community” is crucial in ensuring the quality of complex issue resolution and the “democratisation of knowledge”. As in the relevant literature, this study will refer to the above group of localisation experts as localisers, and also as interviewees and/or localisation experts.

Interview data was obtained using in-depth, semi-structured interviews of between thirty and ninety minutes. These interviews were conducted via Skype.

Six broad interview questions (see Appendix 2) designed to deliberately tease out the critical qualities of localisation and its relationship to sustainability for both definition and measurement purposes, were asked. As outlined by Babbie (2007), these questions were asked in order unless the answer to another question came up in response to a question being asked, in which case interviewees were not asked to repeat themselves. As employed by Howard (2013), if interview responses lead to interesting material relating to the topic, such as expansion upon the meaning of terms or descriptions of how localisation might be implemented, the discussion was encouraged with impromptu, relevant questioning. Additionally and as outlined by Babbie (2007), probing for responses was employed when an incomplete or inappropriate response occurred. The answers were recorded and later transcribed, notes on thoughts arising during the interviews written down.

As localisation has not previously been succinctly defined or measured, the interviewed experts were not expected to know exactly all that should be included in a succinct definition or set of metrics. Rather, their opinion was sought to contribute to a combined expert opinion regarding what a localisation definition should ideally comprise, and to guide metric choice. The intent was that the interviewed experts are familiar with the essential qualities that encompass localisation, and that their combined opinion could collectively summarise these in order to succinctly yet comprehensively define localisation, and form a set of localisation metrics. Singh et al. (2012) outline that employing the opinion of experts is one of the key methods for data aggregation.

### **3.4.2 Interview questions and analysis**

Qualitative analysis began with focusing on the final interview question 6, “How would you succinctly define localisation?” This is the only answer from which concepts and words to define localisation were taken. The purpose of this final question was to ask the experts to narrow down their extensive understanding of localisation, in order that they themselves would collectively determine the essential elements that should be included in the definition. Thus the narrowing down of localisation elements was asked directly of the experts, rather than being attempted through interview analysis.

With regard to localisation measurement, analysis began with focusing on the interview responses to the specific localisation measurement question, “What metrics do you believe might best represent localisation for measurement purposes?” Again the purpose of this question was to ask the experts to narrow down their extensive understanding of localisation, in order that they themselves would determine the essential elements that should be included in a localisation metric set.

Interview questions 1-4 were aimed more generally at localisation and sustainability, and utilised to provide context for, and elaboration of the terms

and concepts identified by the interviewed experts in their response to interview Questions 5 and 6 regarding defining and measuring localisation. This clarification of terms is required because, for example, the word or concept 'local' may be interpreted in many ways. Clarification of terms was augmented using writings by the interviewed and other localisation experts, literature review also being used to examine whether there is discrepancy between localisation descriptions in the literature and the interview responses.

### **3.4.3 Interview analysis method**

Qualitative thematic analysis was employed to determine a localisation definition from the interview responses. The applicability of thematic analysis to researching interview responses about peoples' experiences or understanding using only a small data-set to produce data-driven analyses, made this form of analysis a valuable tool with which to investigate the knowledge and beliefs of a small group of experts (Clarke & Braun, 2013). The thematic analysis process involved identifying and analysing patterns emerging from the qualitative interview data, to enable the discovery of themes within the responses (as described by Clarke & Braun, 2013). Specifically, a theme is described as, "...a pattern found in the information that at the minimum describes and organises the possible observations or at the maximum interprets aspects of the phenomenon" (Boyatzis, 1998, p. 161).

In following the thematic analysis process described by Clarke (2013, p.121), every data item was coded into "...pithy labels for important features of the data of relevance to the (broad) research question guiding the analysis". These codes aimed to, "...capture(s) the qualitative richness of the phenomenon" (Boyatzis, 1998, p. 31) described as "good" thematic coding. From these coded items, themes were built that analytically reduce the data to capture both "semantic" and "conceptual" aspects of the information (Clarke & Braun, 2013, p. 121).

Counting to ascertain the specific themes, words or concepts identified by all of the experts enabled determination of what the experts collectively believe. The words or concepts most identified by all of the experts were then included in the definition, with sub-themes identified by the majority of interviewees also included. The words or concepts most identified by all of the experts were then identified and utilised to form a concise localisation definition and set of possible localisation metrics. The concepts or words identified by the greatest number of experts were again qualitatively analysed for clarification, and included in a definition and metric set.

### **Summary**

Combined localisation expertise enabled the formation of a concise and holistic localisation definition, and a set of metrics with which to measure localisation in a way that conforms to the definition. This enabled further exploration of the

relationship between localisation and sustainability, and localisation indexes were formed to further explore this relationship.

### 3.5 Forming localisation indexes and correlating them with sustainability

In order to achieve *Research objective 2: Determine and locate best practice sustainability in order to determine how localised this is*, *Research objective 4: Develop a LI for 1 country and correlate this with a SI for the same country*, and *Research objective 5: Develop a global LI with which to correlate a global SI for the same countries*, LIs were formed according to the metrics determined through localisation expert interview. The LIs were then correlated with SIs, to determine the strength of relationship between localisation and sustainability. Bhutan was chosen as the ideal country to form a regional LI, as it is the only country for which the required current, regional level localisation metric data could be located.

As previously described, localisation experts were interviewed to incorporate expert opinion and determine localisation metrics. The metrics were then used to form both national and regional level LIs. In forming such indexes, expert advice is also often used to determine the weighting of individual metrics (Gasparatos & Scolobig, 2012; Nardo et al., 2005). However no mention or discussion regarding localisation measurement could be identified in the literature or anywhere else. The interviewed experts were then not expected to know all of the metrics that should be included in a LI, or what the metric weightings should entail.

Localisation metrics were weighted according to how many localisation experts suggested that the metric should be included to measure localisation (Appendix 8 and 9). This was achieved by dividing the number of experts that suggested a metric, into the total number of suggestions e.g. for resource self-reliance 6 expert suggestions / 28 responses = 0.21% weighting. The localisation submetrics were assigned equal weighting.

As described by Singh et al. (2012), the metric data was standardised so that it could be employed for composite indexing, in order to account for the different units that each metric measures (see Appendix 8 and 9). All data that was not already in percentage form was scaled between 0 and 100 and converted into normalised scores, achieving standardisation. This ensures that wide-ranging scores for any particular metric do not carry extra weight. The normalised scores were summed to obtain an overall localisation score, and ranked to form LIs at both regional and national scales.

A composite LI using multi-criteria assessment (MCA) was calculated for the 20 districts of Bhutan, and another for the 103 countries for which the required data is available. MCA is described by Gasparatos and Scolobig (2012) as enabling the development of flexible tools that are the most appropriate

selection for assessment for sustainability. The clearly displayed multi-criteria ensure that the individual metric scores are easily identified, so that poor performance of any metric is not hidden by the composite score.

Abdallah (2009) explains that it is important to include an indication of thresholds, to prevent trade-offs that may occur when combining different sustainability metrics into a single score. Poor performance on one metric might be hidden or compensated for by good performance on another (Abdallah et al., 2009). Failure to achieve a specified threshold then indicates that a country or region is not sustainable, no matter how well it achieves on other metrics.

A traffic light sustainability system as developed for the HPI has then been incorporated in the LIs (Abdallah et al., 2009). This system accords with localisation expert opinion regarding the need for localisation to be sustainable in order to be viable, and also with assessment for sustainability literature regarding the need to incorporate thresholds that signify when sustainability limits have been exceeded (Abdallah et al., 2009; Dahl, 2012; Gasparatos & Scolobig, 2012; Meadows, 1998; Pope et al., 2004). The sustainability targets highlight any localisation metric score that signifies unsustainability, and have been incorporated for metrics where there is precedence for such determination.

The HPI traffic light sustainability method indicates progression toward sustainability (Abdallah et al., 2009). When incorporating this method on the LI's, for example in relation to global resource use, unsustainability is indicated in red on the GLI by EF above the viable planet level, i.e. currently 1.8 global hectares per person (Abdallah, Michaelson, Shah, Stoll, & Marks, 2012). As with the HPI where countries score less than 6.2 for social health overall, this indicates insufficient wellbeing. There was no precedence for unreflexive localisation so where there is a less than a majority governance participation score of 0 (50%), this is assumed undemocratic and unsustainable. 50%-60% is assumed satisfactory with over 60% considered good. Countries that compromise these thresholds are then unsustainable, and a nation may be seen as progressing toward localisation or localised in some aspects, but not yet localised if it compromises sustainability limits.

For Bhutan the traffic light sustainability system incorporates fair EF share as 4.7 Bhutanese hectares (Bha) per person. This is the fair productive land share in Bhutan. On the BLI where social health scores are below 50%, and where there is less than 50% local governance participation, this indicates socially unhealthy, unreflexive and thus unsustainable localisation. Exceeding any of these thresholds automatically disqualifies a district from achieving a viable localisation status.

There is little precedence for the determination of sustainability thresholds. However the incorporation of clearly defined thresholds where possible on the LIs, ensures assessment for sustainability using multi-criteria assessment, whilst also presenting overall scores that may indicate high performance if no metrics are highlighted as unsustainable. Development of more rigorously determined sustainability thresholds would improve this traffic-light system, enabling a

threshold to be determined for every metric. As with the HPI traffic system method, the individual metric achievements may then be combined to give an overall sustainability indication.

### 3.6 Identifying assessment for sustainability indexes

In order to correlate localisation with sustainability, literature review was employed to identify SIs that attempt to holistically combine valid assessment for sustainability criteria as outlined by Pope (2004) and Gasparatos (2012). Indexes were identified at regional and national levels for national and global correlations. These were utilised to determine and locate sustainability, the top-scoring 10% representing best practice sustainability as suggested by Styles (2012).

The GNHI was conceived to measure happiness and wellbeing, and to guide policy direction in line with the holistic and deliberate Bhutanese vision of development (Ura, Alkire, Zangmo, & Wangdi, 2012). Due to the development of the GNHI specifically for Bhutan's unique development approach, as opposed to a 'sustainability' approach, at present the GNHI does not incorporate the crucial dimension of an objective environmental health or impact measurement, considered essential to assessment for sustainability. However addition to the index of such a measure has adapted the GNHI for sustainability assessment.

EF is recognised as the most comprehensive and widely used measure to capture the environmental impact dimension of sustainability (Cuçek, Klemes, & Kravanja, 2012; Dietz et al., 2009). EF was then identified as an appropriate additional metric to incorporate into the GNHI, in order to more comprehensively capture sustainability. The use of EF data was employed for this purpose and involved collating the required data for the 20 Bhutanese regions, and having this data analysed by contracted EF experts (see Appendix 7). This EF results were then added to the GNHI results, to incorporate an environmental impact measure into the index.

As identified by Ng (2008), due to the inability of EF to capture the external costs of consumption to other nations, particularly in the form of environmental disruption, EF does not adequately capture all aspects of environmental impact. It is hoped that until a better measure is available, the inclusion of EF into GNHI rankings to form a new index better meets the requirements for sustainability, than an index that does not measure environmental impact at all. This enables a more valid correlation result.

As with the method employed by Jain and Jain (2013) to improve the sustainability determination ability of the HDI with the imputation of EF and biocapacity data to form the SHDI, EF is incorporated into the GHNI to bolster the environmental component of the index. Due to the unusually comprehensive social, cultural, spiritual, governance and economic measures already captured

by the GNHI (Dahl, 2012), it is hoped that the newly formed index more holistically comprises sustainability metrics than other available regional indexes, to form a BSI that optimally measures sustainability using the available data, according to the requirements for holistic sustainability assessment (Gasparatos & Scolobig, 2012; Pope et al., 2004).

### 3.7 Correlating localisation with sustainability

SIs identified as best meeting assessment for sustainability criteria outlined by Pope (2004) and Gasparatos (2012), were correlated with LIs comprising the same countries and districts, to enable determination of the relationship between localisation and sustainability. Correlations were carried out at regional and national levels. This was achieved by employing the BSI and BLI rankings, and the GSI and GLI rankings. Correlations then indicated a positive, neutral or negative relationship between localisation and sustainability.

Six correlation analyses were undertaken to explore the relationship between regional localisation and sustainability in Bhutan (Appendix 11). The first of these involved modifying the GNHI into a holistic SI with the incorporation of EF at 50% weighting (as with the method employed by Prescott-Allen (2001)) (Appendix 10) for the first correlation, and 33.3% weighting for the second as in the HPI (Abdallah et al., 2012). These allowed examination of the relationship between localisation and sustainability in Bhutan with environmental impact at an equal weighting to the rest of the human impact measures, and then with only a 33.3% impact compared to human impacts.

The second Bhutanese correlation used BLI and GNHI rankings, to examine the relationship between localisation and GNH. The third method involved simply correlating localisation and EF for the regions of Bhutan. Fourth EF and GNHH were correlated, and lastly the BSI and the GNHI were correlated.

### 3.8 Interviewing sustainability planners

In order to achieve *Research objective 6: Examine the causality of relationship between sustainability and localisation*, and *Research question 3c: How localised is best practice sustainability planning and implementation?* a research trip was undertaken to carry out interviews across Bhutan, with a particular focus on the top 10% or 2 top scoring BSI districts. This was in order to focus on top sustainability-scoring districts that might be considered to be achieving best-practice sustainability in Bhutan. The interviews aimed to obtain primary qualitative data using structured and semi-structured questions. Due to Bhutan's number 2 ranking on the GLI, interviewing Bhutanese sustainability

planners also provides a way to explore the sustainability planning and implementation strategies of a top GII-scoring country.

Interviews were carried out with 33 people involved in sustainability planning and implementation in Bhutanese government, non-government and community positions across Bhutan, the main focus being on top sustainability-scoring districts on the BSI. These consisted of one community elected sustainability planning representative (gup), the GNHC (sustainability) officer/s for the district, and the Governor (Mayor) of the district. The interviewees were predominantly sourced via GNHC staff. The interviewing enabled examination of whether localisation is intentionally planned, interview questions (Appendix 12) seeking information context regarding sustainability in these districts.

As recommended by Babbie (2007), voluntary participation in order to minimise disruption to and intrusion on participants, was sought by personally contacting the interviewees prior to interview. In this way if potential interviewees were unable, unwilling or uncomfortable with interview process, an alternative interviewee was sought. Interviewees were contacted via phone or written correspondence to explain the research, and to seek signed consent for interview in the potential presence of a Bhutanese government employee.

As outlined by Babbie (2007, p.65-69), the need for confidentiality, anonymity and “no harm to the participants” was observed by ensuring that interview responses were confidential, and that the interview questions did not involve potentially compromising answers for the participants. Most interviewees were answering questions regarding how they carry out their work and there was sometimes a translator present. The need for confidentiality was emphasised to the translator where there was the occasional need for interpretive assistance, when an interview participant did not have sufficient English speaking ability to adequately understand the question asked or express their response.

Anonymous, primary qualitative data was then collected across Bhutan from sustainability practitioners during recorded interviews, for later transcription and analysis. This enabled an exploration of *Research question: 3b. What is the strength of relationship between sustainability and localisation?*, regarding causality. Interview responses were reviewed and excerpts most relevant to localisation planning and strategising were extracted. These were condensed into overviews of sustainability planning and practice in Bhutanese districts. Interviews from top sustainability scoring districts were focused upon, to explore *Research question 3c: How localised is best practice sustainability planning and implementation?*

## Conclusion

A critical realist research approach has been employed to explore the relationship between localisation and sustainability. Literature review was used to draw together existing knowledge about the generative mechanisms of

localisation and globalisation, on sustainability effects and experiences. The interviewing of localisation experts was then carried out to utilise existing knowledge and extensive localisation experience, and create new localisation knowledge regarding questions of definition and measurement. Data manipulation enabled determination of the effects of the generative mechanisms of localisation and globalisation representing the domain of the real, on: resulting sustainability events and experiences taking place in the domain of the actual, such as environmental impacts and governance methods; and the strata or domain of the empirical as represented by the experiences of people, or social health indicators such as wellbeing, trust and belonging.

Combined localisation effects and experiences were determined to comprise sustainability or not, in both regional and global contexts. Determination consisted of examining the degree of localisation (as opposed to globalisation) in different places and the sustainability effects of this, thereby contrasting the relative effects of these two generative mechanisms on sustainability. This was achieved by employing quantitative analysis to measure localisation and correlate it with sustainability on a global level for all countries with the required available data, and regionally across Bhutan. Qualitative interviewing in the most sustainable Bhutanese districts to determine whether planners in these places intend and implement localisation, then provided knowledge regarding whether localisation is important to sustainability planning, particularly in high sustainability-scoring regions.

This research carries out MMR according to critical realist methodology, by combining social and environmental science (multidisciplinary) localisation and sustainability data, to determine whether the most localised places are the most sustainable. MMR enabled exploration of localisation as a social structure and generative mechanism regarding sustainability effects, and as a strategy for human emancipation from and that is disempowering of, the oppressive force of globalisation. Human emancipation may occur as localisation empowers the realm of co-presence, non-duality and eudemonism. This exploration takes place within the context of literature review suggesting that in contrast, globalisation is a generative mechanism that expands and increases the realm of demi-reality, duality and alienation.

## Chapter 4 Defining and describing localisation

In order to achieve *Research objective 1*, this chapter seeks to build upon the rich localisation literature available to date by narrowing the very broad concept of localisation (for examples see De Young, 2012; Douthwaite, 2004; Frankova & Johanisova, 2012; Hines, 2003; Norberg-Hodge, 2012; Trainer, 2010a). In order to do this, six localisation experts were interviewed to distill what they believe are essential localisation qualities that should be included in a concise, holistic definition. The interview responses and writings of these and other relevant authors are used to clarify the most commonly suggested qualities and form a concise and holistic localisation definition that answers *Research question 1c*.

### 4.1 Defining and describing localisation

Localisation literature presents relatively unified or consistent understandings of localisation with frequently occurring themes, terminology and descriptions (for examples see De Young, 2012; Douthwaite, 2004; Frankova & Johanisova, 2012; Hines, 2003; Norberg-Hodge, 2012; Trainer, 2010a). As yet these understandings have not been condensed into a concise, holistic definition of localisation (Frankova & Johanisova, 2012). The formulation of a holistic definition that accords with the views of localisation experts, may clarify these understandings.

Frankova (2012, pp. 317-318) has suggested a working definition of economic localisation, to be "...both the process and the result of moral, political and practical support of as many localised aspects of production and consumption as possible and desirable. More specifically, it includes preferring local factors of production, their local ownership, local capital flows and orientation primarily on satisfaction of local needs. Other integral aspects include emphasis on and support for sustainability of production and consumption, the development of local communities, democratic decision-making, strengthening local economies and self-reliance, and building relationships to place". This definition focuses on the economic aspects of localisation.

As it is believed that pursuing sustainability locally may provide solutions to the destruction of environments and communities arising from globalisation and the pursuit of sustainability within this framework, it is claimed that localisation is important to sustainability (Hines, 2003; Norberg-Hodge, 1992). Clarifying the exact meaning and claimed inherent qualities of localisation, may then assist in making this important concept more accessible to those seeking to establish the value in pursuing sustainability locally (Curtis, 2003; Fields, 1998; Frankova & Johanisova, 2012). This chapter then seeks to form a concise and holistic localisation definition that is consistent with existing literature, and the combined views of interviewed localisation experts.

Consistent with Frankova's suggestion that localisation strains that "...form a significant opposition" and "alternative trajectory" to the "hegemony of globalisation" (Frankova & Johanisova, 2012, p. 320) are particularly worthy of further investigation, the interviewed localisation experts all share 'alternative' localised, rather than globalised 'trajectory' viewpoints. This is reflected in the interviewees' shared belief that the free movement of capital and multinational companies should be highly regulated in favor of the local, and that environmental and social justice should drive the economy, rather than the reverse as is perceived by the interviewees to currently be the case.

## 4.2 Localisation expert interview results

Six localisation experts (see Appendix 2) were asked, "How would you succinctly define localisation". Some of the interviewed experts initially resisted the idea of concisely defining localisation. Statements to this effect include, "*...I am going to try and avoid it. I think...to do it justice you have to be very elaborate.*", or "*I will probably be more wordy than that.*" Another stated, "*It's tricky because a process of localisation in Australia say, which has gone about as far away from that as it's possible to go...compared to somewhere like a region of Nepal where everything has to be carried over the mountains, are so different in terms of their challenges. It's difficult to come up with a definition that covers both*". Initial reluctance to succinctly defining localisation was then due to the complexity involved in adequately capturing the concept, and the potential for generalised statements to be misinterpreted. However each expert did attempt to succinctly define localisation, suggesting the qualities they believe should be included.

The responses were qualitatively analysed in order to narrow down the very broad and complex concept of localisation, into a concise, holistic definition. While the formed definition does not comprise every concept suggested by all interviewees, it does contain those concepts suggested by all or most of the interviewees. The key themes to emerge were scale, social health and the economy. The principal of subsidiarity, or the devolution of power to the lowest level was perceived as particularly important in relation to scale, followed by local-scale economies, and reducing scale regarding community size and the distance that resources, goods and services should travel, to the smallest practicable level. Social health issues related particularly to the perception of localisation as a process to be achieved through social justice and cohesion. Economic issues were perceived as central to localisation, in the form of local trade, production and consumption, and as a strategy for economic development.

The broad nature of the identified key themes captured other frequently raised themes from the interview responses. Some of these included: immediate contact with the local environment, limited resources and low carbon, which were captured within scale and local economies; sustainability and resilience, captured within scale, social health and local economies; and governance issues including banking, ownership and regulation that were addressed within the themes of social health, scale and economies.

### 4.2.1 Scale

Scale was identified as important by all the interviewees and was commonly discussed in relation to globalisation. More specifically scale was described in relation to: context; spatial aspects; differing environments; economies; and governance or political subsidiarity.

#### **Context**

As explained by one interviewee, *"It's not a situation where absolutely everything is sourced within five, ten, twenty miles or whatever, it's really about things being appropriate on different scales"*. Another interviewee stated, *"An answer that makes sense for one purpose, say to maximise the multiplier that is a consequence of local purchasing, may not make sense for a local investment if you are dealing with a securities regime that is national or state-wide. So the frame that one takes for localisation depends a lot on the particular problem that one is trying to address."* Another described, *"...activities become...become human-scale and human-paced"*. In determining what scale is appropriate in any given situation, there was agreement that local communities are embedded nationally and globally, and *"...scale should be as small as practicable for any particular purpose, depending on the context"*.

#### **Spatial aspects of scale**

In relation to distance, only two experts stipulated specifically what they consider to be local-scale. *"I do think primarily in terms of city/ suburbs, we're talking about four kilometres across or less. Most of your everyday concerns would be settled, decided and operated within that boundary"*. The other stated, *"In terms of business we talk in terms of 50 miles...How far is a farmer willing to travel every day to bring food into town, and it's certainly not more than 100 miles...So how far out do you have to go out to produce food, energy water for the local community and that would vary a lot between different places"*.

Consistent with the literature, the majority of the experts did not specify a distance regarding what is local. They rather made general comments such as *"...communities both social and ecological are necessarily at a smaller scale than the national or international."* One explained, *"A specific number of miles seems particularly arbitrary, it really varies a lot with the use. And so we resist having any kind physical or geographical definition of local"*. This interviewee referred to the belief that though distance is important in relation to localisation, a set distance regarding what local is impossible to define, as local is contextual. Distance in relation to scale is difficult to generalise, and varies with context.

#### **Scale as determined by environment and resources**

Three interviewees specified that in relation to what is local, scale is dependent on the environmental constraints of an area. *"Resources as much as possible are*

*purchased within a region, and I think that really varies quite a bit depending on the geography, you know whether it's in a desert or a fertile area". Another interviewee similarly described, "Spatial boundaries I think will be a question that might be determined by more of a bioregional boundary for a nation because that really makes sense, because the real economy is the natural resources". A third stated, "So if one accepts that every ecosystem is uniquely constituted, that's one way of defining the local." These interviewees suggest that environmental qualities determine a locality, and that as these vary according to locality this necessitates contextual scales regarding what is local.*

Many of the other interviewees described the need to produce and consume locally with as little dependence on external resources as possible, perhaps through import substitution. For example, *"Are there substitutes that we can grow well in our region so that we don't have to import, for example bananas...insofar as we are able to afford imports of some things, you might be able to bring down bananas if you don't have enough greenhouse space for them".* All interviewees did state their belief in the need for some trade as there has always, and will likely always be trade of things that can't be locally produced.

#### **Scale in relation to economies and trade**

Trade scales for goods and services (or economies), was discussed by some interviewees in relation to the concept of the, *"...near-heavy, far-light economy, where there is still trade of things that don't weigh a lot. So I think of that sort of International trade in ideas, software still happens."* Similarly from another, *"A free flow of ideas but a restricted flow of energy or food for example".* Another interviewee explained, *"...most of these good have relatively high weight per unit dollar, and I think what that means is that as energy prices go up, those are going to be things that we will localise. So really most non-durable goods will be increasingly local, except for things that are very high-end and taste-specific... Things that are not so unique will be localised."* Scale in relation to economies and trade is perceived as being determined by weight and practical considerations regarding what can be transported without high levels of carbon emissions, and the trade of unique items.

Also relating to economic scale, *"Economies centre on locality, yet are embedded regionally, nationally and internationally.* Similarly, *"...at the local level it really is about the shortening of distances...turning a basic principle of the dominant economy...which is encouraging specialisation for export...on its head and saying no we've gone too far in that direction, we need diversification for local needs".* Interviewees then believe that though local economies are locally focused with diversification to supply local needs, there is still a place for balanced trade.

Other interviewees described reducing economic scale in relation to feelings of, and actual, ownership and investment: *"Bringing economic power back to communities...will spread ownership and therefore wealth, and economic power more broadly";* and *"...it's a strategy for long-term economic security when we own the means of production within our community for our basic needs. Then that*

*keeps the capital circulating in our local communities.*" Another explained, *"Whether that investment is they've given some advice, or invested twenty thousand pounds, you know people feel the economy that's emerging they have some ownership of."* These interviewees described reducing economic scale to the local, as likely spreading feelings of ownership and local capital circulation, resulting in increased connection to, responsibility for, and care of local economies.

Interviewees perceive that local scale economies are crucial in supporting diverse, localised economies that are locally owned, controlled and self-reliant. They believe that this will enable a feeling of ownership and responsibility, and decrease the likelihood of businesses operating in ways that are not locally beneficial due to their lack of connection to that community.

### ***Scale of governance***

Five interviewees referred to the importance of political subsidiarity, with the sixth interviewee talking about subsidiarity in relation to other interview questions. *"Polities organise locally in the first instance, regionally, nationally and internationally in the second instance"*, and localisation involves *"...devolving political decision-making to the local level"*. The need for governance to occur principally at the local level emerged as being important to localisation scale.

Political subsidiarity was explained by one expert, *"...we should try to do all decision-making at the smallest and most local level possible. And only if there is a very good coherent reason for not making a decision at that level should we reach for higher levels"*. Another stated, *"It's about the control of things, both economic and social, within that small settlement primarily"*. How political subsidiarity would look in relation to state government was also described. *"There will always be a role for bigger, wider more distant things like the state, but they have a smallish role...government will have to be highly localised and participatory."* These interviewees believe that decisions should primarily be made locally, with much smaller, appropriate involvement at higher scales.

Localised communities were described as embedded in state, national and international political structures, whilst primarily deciding their own community development. One expert described how this might occur. *"And for the time being localisation doesn't mean breaking up the nation-state...but I think that it is very possible that over time there will be a decentralisation from the nation-state...to have smaller political units"*. This interviewee described that localisation may involve a transition from centralised power, including large corporates, with a likely trend toward much smaller, local seats of power.

In terms of guidance by more widely agreed strategies, policies, standards and international power structures, one interviewee described, *"We have to have international agreements around human rights, the treatment of women and children, sustainability"*. Another stated, *"I think in terms of government, policies that tend to strengthen communities and ecosystems are almost inherently*

*localising. And they can come from the state or provincial, national or international level".* Another described, *"...part of the policy work that would be involved as we re-regulate the global, we need to de-regulate local activity...from highly centralised bureaucratic institutions to an appropriate level".* These interviewees explain that governance is predicated on strengthening local communities, with higher-level agreements on social and environmental standards.

Some describe what they believe political subsidiarity might result in. *"Right now in most countries I think that the tax collection is sort of inverted where the highest percentage of tax money goes to the national government and that smallest level goes to the local government and something in between goes to the state. And I would think that a healthy polity reverses those priorities".* Another described, *"development should be done with and by the local community...all the main players, the councils, the hospitals the schools all being part of that drive...you start to change the story about how development happens, and from there you start to change the story about how food is processed and procured, how enterprise is generated and supported".* These experts describe that positive economic effects and empowerment that may ensue if a community is able to take charge of its own governance, economy and development direction aimed at local community.

Finally, the difference that local governance would result in was emphasised. *"You have got to stress how radically different the economy and culture would be. It would be a post-capitalist economy...which is under local control, not under the control of capital".* Or as another described, *"So it's a reversal of what we have today...so that ecological and social priorities shape economic activity".* Localisation is then seen as a move away from decisions being driven by economic imperative, to a society where local social and environmental concerns drive development.

#### **4.2.2 Social Health**

Social health was identified as an important defining factor of localisation by all the experts, and was discussed particularly in relation to processes enabling or facilitating of social justice and cohesion. For example regarding what localisation comprises, *"I think that it is founded on the concepts of sustainability, de-carbonisation and social justice".* Others described the tendency of localisation to, *"...get at a whole range of sustainability and social justice questions",* and to *"...restore democracy, social cohesion and true sustainability".* All interviewees perceive social health as an important defining localisation quality, with differing emphasis placed on the social health qualities.

Social justice was the most frequently raised social health issue by the interviewees, and was often discussed in combination with sustainability. For example, *"We have to have international agreements around human rights, the treatment of women and children, sustainability",* or *"Localisation doesn't automatically increase labour...standards. I think that one has to add...what most*

*people understand by the meaning of sustainability”, and “ “I don’t see a way of doing sustainability without doing localisation...in terms of social justice I don’t see happiness and strong communities without localisation”. The experts commonly described social justice as an important aspect of localisation in relation to sustainability, perceived by the interviewees as an essential quality of localisation. With varying emphasis most of the interviewees referred to localisation as being inherently sustainable, one interviewee describing the consistency of localisation with the definition of sustainability in its ability to facilitate, “ ...meeting your own needs, present or future, without impairing the ability of other communities to meet their needs, present or future”.*

In relation to a belief in the tendency of localisation to combat the present social injustice inherent in globalisation one interviewee explained, *“What’s absolutely essential is that...we move away from a system in which the biggest problem of being dependent on the global economy, is the blindness at every level, what I call the drone economy. You can sit in one part of the world and buy people to death and not even see what you’re doing”.* This view was expanded by another, *“Part of that ties in with all that stuff which is about when the model that is being foisted on people around the world is the Coca-Cola, blue jeans model of globalisation, actually building some kind of solidarity between the places that are trying to hold onto themselves while all that kind of stuff is being poured onto them”.* All experts referred in some way to the ability of localisation to facilitate solutions to, and avoid social and environmental problems created by globalisation.

In relation to global social justice two interviewees clarified, *“...what is needed is a very clear message that this is not an isolationist policy based on middle-class greed in the West. On the contrary, this is something that is beneficial North and South”.* Another explained, *“I suppose there is always that argument about whether if you localise food in the west, then that basically means that you’re condemning the farmers in the developing world to poverty and so on...I actually think what we have to have is parallel processes in both places...The process that led to those places being export driven usually involves lots of smaller famers losing their land, lots of undesirable things”.* A third described, *“We have to have international agreements around human rights, the treatment of women and children, sustainability...to make it illegal for governments to subsidise large corporations to dump cheap food in other people’s countries and put the local growers out of business. That should be against international law”.* These experts explained that localising will be of benefit globally, those currently disadvantaged likely to have increased ownership and self-sufficiency.

Two of the experts referred to social justice specifically in relation to reflexive or participatory, positive localisation, as opposed to an unreflexive or ‘defensive’, isolationist form of localisation. One explained, *“There have been some disastrously horrible, oppressive, patriarchal, nasty forms of localisation through history”.* Another described, *“It is useful to distinguish between positive and negative localisation. So the simple model of localisation...can be done in a very negative way... based on violence and coercion and undemocratic processes. And if it’s exploitive of people it is probably going to be exploitive of natural systems, and therefore unsustainable. A positive localisation is peaceful, democratic, just and*

*stable and sustainable in a biophysical sense*". Another of the experts stated, "*...in some places that are already localised...there's good things about that but in terms of women's rights...and education those things might not be present*". These experts identified that in some localised places there may be inadequate social justice, and that it is important to distinguish this as negative localisation.

One interviewee commented on the potential for localising in accordance with ecological limits, to be confused with unreflexive governance. He explained, "*This is not a matter of preference, it's a matter of necessity. You cannot design a sustainable, satisfactory society unless you accept...some key principles about which there is no choice...Like obviously a sustainable society cannot have a growth economy, it cannot have high material living standards, not enough resources for that. So they are among the things that are non-negotiable...it's about me recognising the nature of the world. It cannot be that we all live on rich-world per capita resource use rates*". This interviewee was referring to the potential for localists to be perceived as imposing on the freedom of people to do as they legally wish, rather than merely adhering to environmental and ecological limits.

One interviewee described the tendency for localisation to facilitate social health through the need for care and cooperation. "*A good society is one in which we cooperate, in which we look after each other, and we care for each other...For example, your personal welfare would depend not on your bank balance but on how well the town is functioning, because unless the town functions well, the working bees that keep your water-supply safe won't happen*". This interviewee believes that a community that depends on elsewhere to satisfy their needs, may bypass having to cooperate with each other in order to meet their own needs, and thus have no pressing need to care for each other in order to secure future cooperation from community members.

Social health as described by this group of experts then, might be summarised as comprising reflexive, socially just, caring and cooperative community, able to meet its essential needs without compromising other communities, present and future.

### **4.2.3 Economies**

The third key defining aspect of localisation according the interviewed experts, relates to self-reliant economies. All interviewees included this concept with varying emphasis. "*One of its (localisation's) founding ideas...is that idea of community resilience as economic development*". Another expanded on this explaining that localisation consists of "*...the economic characteristics of local ownership and self-reliance*", and from another "*...localising our economy is local ownership of basic needs*". The interviewees believe that localisation means self-reliant economies.

All interviewees expressed the importance of economic localisation in relation to sustainability and the achieving of global and local social and environmental

health. One interviewee described this as, “...*strengthening local economies and local businesses worldwide, in order to restore democracy, social cohesion and true sustainability*”. Another explained, “...*its a reversal of what we have today...so that ecological and social priorities shape economic activity*”. And from another, “*Bringing economic power back to communities, decentralising ownership...social sustainability will be increased...I also think that it’s going to spread more happiness*”. Some interviewees see economic localisation as being important to sustainability.

One interviewee described local land ownership as enabling communities to determine their own development direction and governance. “*I think that the concept of localisation would be recognised as a form of economic development...the idea is that if the community can demonstrate sufficient community support...master plan a site, and then have a local referendum and get more than fifty percent of the vote...then that constitutes planning permission. It’s like a new route to planning for community-led developments*”. This expert described local ownership as ensuring that a community is able to determine its own development direction, because it owns the land or resources.

Another interviewee described the importance of economic self-reliance in relation to the benefits of locally rather than globally owned businesses. “...*communities that are highly dependent on global companies have a devil of a time regulating them...One of the virtues of locally owned business is that...they are there to stay...it allows the community to raise environmental standards with confidence that those businesses that are locally owned will adapt rather than flee*”. Another interviewee described the benefits to local producers and economies of preventing global corporate mobility and trading. “...*one of the things that could happen would be to make it illegal for governments to subsidise large corporations to dump cheap food in other people’s countries and put the local growers out of business. That should be against international law*”. Another interviewee described that local business ownership means, “...*breaking up giant monopolies into smaller entities, which doesn’t mean they have to disappear and die. They just have to decide to belong to one country, with global re-regulation of trade and finance*”. These experts described localisation to involve locally as opposed to globally owned and mobile business.

Another interviewee emphasised how different globally localised economies would be from the present. “*You have got to stress how radically different the economy and the culture would be...an economy which is under local control, not under the control of capital...the difference between us determining our own economic fate, and letting it be done by capital, by corporations and so on. We would have an economy which focuses on and meets need, not an economy which produces for profit*”. Simply stated by another, “...*ecological and social priorities shape economic activity*”. All interviewees discussed environmental and social health as being facilitated by economic localisation.

Another interviewee described how economic localisation might be achieved. “...*re-regulation with the goal of every bank and business belonging to a local place that is also localised. Place-based business adhering to the rules of that place, then*

*there can be international trade and collaboration and so on*". As described by another two interviewees, *"For the most part there is very little that needs to travel a long distance, and in my view, that distance is town and subsidiarity with some diminishing dependence on the region"*. Or simply put, *"Economies, centre on locality, yet are embedded regionally, nationally and internationally"*. All interviewees described the need for the reversal of global specialisation toward local diversification, to comprise a significant change from current economic status requiring significant governance, policy and regulatory overhaul.

How localised economies might look was also described. *"I envision that the global economy will be a network of sustainable local economies...and we are connected globally through fair trade relationships to purchase items that aren't available locally"*. And by another, *"...we will have the sense to trade internationally only for those hi-tech things like cat-scans and medical equipment that are really important"*. One interviewee described this as, *"...the near-heavy, far-light economy"*. The idea of reduced trade aimed more at cultural and technological exchange so that essentials are produced locally, was common, and an emphasis upon self-reliant, diverse local economies is representative of the interview responses.

To summarise, all interviewees describe self-reliant, local economies to be an important aspect of sustainable localisation. There is variation in the level of self-reliance interviewees perceive as desirable, some interviewees envisioning trade on a needs-only basis in essential goods that cannot be produced locally, and others including global trade of unique and culturally or technologically specialised goods. However all interviewees see local economic self-reliance as fundamental to localisation. Local economies might then be seen as comprising self-reliance in relation to essential needs.

#### **4.2.4 Sustainability**

Three interviewees identified that sustainability is essential to defining localisation. All interviewees discussed localisation as an essential prerequisite for or component of sustainability, and vice-versa. That is, sustainability cannot be achieved without localising, and conversely you cannot remain localised without being sustainable. As described by one interviewee, *"...in some sense positive localisation and sustainability go hand in hand. One could view either one as a strategy for the other"*. For this reason sustainability is included as a key localisation theme.

Comments regarding the importance of localisation to sustainability include: *"...localisation is a logical outcome of thinking sustainability through to its logical conclusion"*; *"So if one chooses the positive route (to localisation)...then it is almost necessarily an inevitable route to sustainability and any kind of long-term orientation"*; and *"...a sustainable society, we have no choice about this, has to be highly localised"*. The interviewees perceive that localisation is essential to sustainability.

Interviewees also discussed the necessity of being sustainable in order to successfully localise. For example, *“...you can’t localise for the long-term without also being sustainable, without being attentive to ecological processes regenerative capacities, waste-sink capacities”*. This interviewee explained that a locality would be unlivable if its local environment is depleted and degraded. Another explained, *“Localisation doesn’t automatically increase labour and environmental standards. I think that one has...to accomplish what most people understand is the meaning of sustainability”*. This interviewee was referring to the potential for localised communities to be unreflexive and therefore unsustainable. In order to successfully localise, this must be done sustainably.

Some interviewees explained reasons for their belief that positive localisation is inherently sustainable: *“...in terms of sustainability, diversity is a fundamental principle of life...As we shorten the distances, local markets stimulate the need for diverse products”*; and *“As a sustainability strategy...if people’s attention is shifted to that local, it is necessarily more ecological, more connected to biological and biophysical feedback loops than something as abstract as globalisation”*. Localisation is then perceived to be inherently sustainable because it results in diversity and positive feedback loops between people and their environment.

Localisation is also believed to facilitate environmental health by preventing the harmful effects of globalised agriculture. *“Because when you grow monocultures, it necessitates chemical fertilisers, pesticides, and fungicides. So the beauty of localising and sourcing particularly our food...shortening the distances would be the biggest shift that we could bring about to reduce pollution and loss of biodiversity”*. Another explained, *“...stuff like food, water and soil become central to a localising process whereas they are peripheral to or quite literally discounted in a globalising process”*. It was also observed, *“...So many health problems come from industrialised food and non-renewable energy. So all these things we hold up in the localisation movement, healthy food and renewable energy, the opposite of that causes illness”*. These experts believe that decreasing industrial farming and energy consumption, and its associated chemical use, pollution and species destruction is needed and inherent to localisation.

The mobility of goods and people associated with globalisation was also discussed in relation to environmental health and sustainability. *“In terms of the environment, cutting back down on carbon from long-distance trading”*. Another referred to travel, *“...a sustainable society...has to be highly localised primarily, with some international trade...some travel of experts, and very limited luxury travel if we can afford it”*. The opposite of global mobility was also described, *“And I think localisation is a strategy for lowering carbon, when people can walk to the shop, school, train and so on, that’s definitely a strategy for lowering our carbon”*; and *“Travel, we wouldn’t travel much. We would live mostly in that locality. So most of us wouldn’t need a car, we would get to work by foot or bike”*. One expert noted, *“When we as business people have a short distance between us as the decision maker and that which is affected by that decision...we are more likely to make decisions for the common good in the place that we live and raise our own children. So that affects the environment”*. As summarised by one expert, *“I think that you would be looking at a world which is much lower carbon”*.

Contrasting the mobility required for globalisation, lowered social and environmental impacts and carbon emissions are believed to be associated with the decreased distances travelled by localised goods and people.

Social aspects of sustainability were also described as being facilitated by localisation. *"...we are more likely to pay a living wage and treat our employees more fairly if they are the parents of our children's friends...localisation is going to make a more sustainable world. You are more likely to make decisions from the heart rather than the head when you come into contact with people who are going to be affected by your decisions"*. How the social proximity inherent to localisation could remedy negative social effects of globalisation was also described. *"...there will be far less exploitation because you wouldn't be exploiting people on the other side of the world that you never see"*. Localisation is then seen to promote social health due to proximity, as opposed to the distance inherent in globalisation.

Sustainability as perceived by the interviewed experts may be described as communities of place, consisting of local relationships, community and culture. Wellbeing, social justice and fairness are achieved through decentralised ownership and wealth, and the meeting of local needs without impairing the ability of other communities to meet their own needs present or future. Self-reliance on local resources is believed to direct people's attention to biophysical feedback loops, achieving adherence to resource limits through the preservation of ecological diversity and processes, and low energy, material and carbon intensity. Governance is carried out through democratic self-reliance. Strong local economies comprising businesses that engage primarily in short-distance and low carbon trade facilitate care of the local community and environment through proximity, which creates positive feedback loops.

### 4.3 Discussion

Identified key localisation definition themes include scale, social health and self-reliance. Sustainability and reflexive or positive localisation can be added to these key themes, and these are valuably expanded by incorporating relevant literature. These concepts and the number of experts that suggested each of these, are summarised below in Table 7.

Additional to this discussion is acknowledgement that apart from those interviewed, there are many other expert localisers and practitioners around the world. The interviewed experts were selected as a representative, accessible and highly experienced group of localisers, well qualified to inform a concise and holistic localisation definition. The conclusions drawn from this research are then acknowledged as limited, though they are also believed representative.

**Table 7: Localisation themes and concepts identified by interviewees**

<b>Themes</b>	<b>Sub-themes</b>	<b>Count</b>
<b>Scale:</b>		<b>6</b>
	• Principle of subsidiarity	5
	• Economy	3
	• Distance	3
<b>Social Health:</b>		<b>6</b>
	• Localisation as social change or process	4
	• Social justice	4
	• Social intimacy/cooperation	3
	• Compassion	2
	• Cohesion	2
	• Wellbeing	2
	• Rewards caring	2
	• Culture and celebration	2
<b>Economy:</b>		<b>6</b>
	• Local trade, production, consumption	6
	• Localisation as economic development	3
	• Local ownership	3
<b>Environment:</b>		<b>4</b>
	• Contact with local environment	1
	• Limited resources	3
	• Low carbon	2
<b>Governance:</b>		<b>4</b>
	• Localisation as political objective/process	4
	• Local ownership	3
	• Regulation	1
	• Banking	1
<b>Sustainability</b>		<b>3</b>
<b>Dependence/self-reliance</b>		<b>3</b>

#### **4.3.1 Key interview themes summarised: scale, social justice and self-reliance**

The interviewees generally discussed scale in relation to globalisation. Specifically scale was identified by all six experts as important to defining localisation with local, national and international policies aimed at strengthening the local. Scale is perceived as highly contextual, and as small as practical for any purpose. Local governance and the devolution of power to the smallest possible scale is perceived as important, with embeddedness and participation particularly for policy regarding international social and environmental standards.

Social justice is variously described as a commitment to, “...decrease human suffering and to promote human values of equality and justice” (Vasquez, 2012,

p. 337). Social justice was discussed by four of the interviewees as an important defining feature of localisation, both in the present and future, within and across localities, and particularly in relation to the problems arising from globalisation. Social justice is commonly perceived by the experts to occur when a community prioritises care and cooperation, believed to be facilitated and encouraged by localisation and social proximity, in contrast to the social distance created by globalisation. Social health as described by this group of experts may then be summarised as comprising socially just, cohesive communities, able to meet their own essential needs without compromising other communities both in the present and the future, within and across localities.

All interviewees perceive that self-reliant, local economies are important in achieving environmental and social health, and sustainability. There was variation in the level of self-reliance perceived as desirable, some including self-reliant governance as a way to regulate and maintain economic independence. However all interviewees see local self-reliance particularly in relation to the production of essential needs, as fundamental to localisation. Local economies comprise communities able to and govern and meet their essential needs, locally.

#### **4.3.2 Additional key theme: sustainability**

Throughout the interviews, all described localisation to be an essential prerequisite for or component of sustainability, and vice-versa. That is, sustainability cannot be achieved without localising, and conversely you cannot remain localised without being sustainable. This perception is consistent with calls for localisation as an answer to sustainability as arising in the literature. For example the recently published 'Localisation Reader' suggests the need for sustainability clarification regarding conceptualising localisation (De Young, 2012). "...as the unsustainable nature of high-consumption societies becomes obvious, people from all walks of life will be looking for practical models of how to live on less. We believe that building those models conceptually and on the ground is the localisers' main task" (De Young, 2012, p. xii). Providing clarity and definition regarding exactly what localisation is, conforms to this recommendation for conceptual sustainability model building.

Ecological economics research by Frankova (2012) also recommends investigating localisation in answer to questions regarding sustainability, as sustainability is a key concern of ecological economics. However production scale is a central issue but only in relation to how much should be produced globally, not how much should be produced in each locality as is explored in conceptions of localisation (Frankova & Johanisova, 2012). Frankova concludes her research results with the recommendation that, "To develop the theory of economic localisation further, we suggest first discussing and elaborating on a comprehensive definition and operationalisation of the term (economic) localisation, instead of focusing on partial arguments and issues" (Frankova & Johanisova, 2012, p. 320).

### **4.3.3 Additional key theme: Localisation type**

Unreflexive localisation is criticised and described as uncondusive to reflexive, sustainable localisation (DuPuis & Goodman, 2005; Hinrichs, 2003; North, 2010; M. Winter, 2003). Consistent with this perception, the interviewees qualified that in order for localised communities to be sustainable, the community should be localised in a reflexive, socially-just way. Socially just communities are not isolationist or protectionist, or "...based on the interests of a narrow, sectional, even authoritarian, elite, what we call an "unreflexive" politics" (DuPuis & Goodman, 2005, p. 361).

Though only two experts specifically raised the issue of reflexive localisation, social justice issues as identified by all the experts are consistent with the perception that it is important to aim toward reflexive localisation. Because of the importance of this issue, and as it is discussed by other localisation researchers (e.g. DuPuis & Goodman, 2005; Frankova & Johanisova, 2012), it was decided that the concept should be included in a localisation definition as embodied in the concept of social justice. All the interviewees believe that social justice is an important feature of localisation, whilst socially unjust localisation is perceived as unsustainable. This indicates that a comprehensive localisation definition useful in the pursuit of sustainable strategies and planning should include reflexive localisation. This may be represented by social-justice.

## **4.4 Localisation definition**

A concise and holistic localisation definition determined from the interview responses, accords with the common views of these experts regarding precisely what should be included. The definition additionally addresses views arising in literature regarding important localisation concepts. The definition comprises those concepts raised by all or most of the interviewed experts to varying degrees throughout the interviews.

In defining localisation, three key themes emerged. These were scale, social health and the importance of local economies. Additionally, interviewees identified the subthemes of sustainability, self-reliance, and reflexive localisation. These sub-themes are consistent with the emphasis placed by all of the experts to varying degrees throughout the interviews, on the necessity of localisation in order to achieve sustainability, and the need for localisation to be sustainable. These key themes and subthemes identified from the interviews are summarised in the following definition:

*Localisation is a sustainable, socially-just process that facilitates healthy local communities, economies and environments through local governance, ownership, trade, and resource utilisation to meet essential needs within a radius of political, economic and resource dependence that is as small as practicable for any particular purpose, and that diminishes with distance.*

## Conclusion

This chapter answers *Research question 1c*, and builds on the work of previous researchers that identify localisation as a worthy field of investigation in its potential to provide a necessary and alternative trajectory to that of globalisation (Frankova & Johanisova, 2012). The definition was formed using the input of localisation experts and current literature, and is believed to be a representative, concise, holistic localisation definition. The definition may assist in making this important field of investigation more accessible, so that localisation may be more readily available and investigated as a strategy to assist sustainability planning and implementation.

## Chapter 5 Determining localisation metrics

In order to achieve *Research objective 3*, this chapter provides the results of interviews with six localisation experts. The interviews aimed to determine localisation qualities that should be captured in order to measure localisation, and/or metrics that might be used to measure these qualities. The shared expert belief and opinion regarding these qualities and metrics, was expanded using writings by these and other experts to answer *Research question 3a*.

### 5.1 Context for developing a way to measure localisation

There is nothing in the literature regarding localisation assessment. It has though been suggested that sustainable communities are highly localised due to factors such as constrained consumption and strong social cohesion (Abdallah et al., 2009; Norberg-Hodge, 2008; Rees, 2010; Trainer, 2012). Localisation qualities such as these might be utilised as metrics with which to form an index to determine how localised communities, regions or nations are.

A localisation index (LI) might be used to identify places that are highly localised. A LI might also be compared to a SI (sustainability index) comprising the same places, in order to determine the strength of relationship between sustainability and localisation. If this relationship is strong, this might indicate a causal relationship between localisation and sustainability. The identification of localised places might determine places that best enable exploration regarding the causality of this relationship.

This chapter seeks to determine the most effective metrics with which to measure localisation, so that the relationship between localisation and sustainability may be determined. Clarification regarding the suggested metrics was obtained using the NVivo encoded interview transcripts relating to all interview questions and additional detail was obtained from literature by the interviewed and other authors.

### 5.2 Localisation expert interview results

Six localisation experts were asked, “What metrics do you believe might best represent localisation for measurement purposes?” As localisation measurement has never been written about, it was not anticipated that any of the interviewees would be able to suggest a complete set of metrics. Rather it was anticipated that this group would hold the collective knowledge required to form such a set. The

responses were qualitatively and thematically analysed in order to identify those qualities or metrics that were suggested by all or most of the interviewees.

### 5.2.1 Resource self-reliance

Resource self-reliance was discussed by all of the interviewees in the context that essential needs should be sourced locally in order for a community to be self-reliant. For example as described by one interviewee, “...one would be looking at the provision of food, clothing and shelter for the local population as a priority, and what is the best way of providing that from the shortest distance...Of course water as well”. Another stated, “...localisation means that you can live from the resources of your region. Food, water, clothing shelter is mostly produced locally”. Resource self-reliance is then seen as the ability to provide for the essential needs of food, water, renewable energy and housing materials, locally.

Resource self-reliance was also described in relation to sustainability and its potential to preserve the local environment. “An interesting metric on environment is to what extent do local goods contain local resources that have been sustainably managed...looking again at the degree of self-reliance on local resources tells me something about the sustainability of the community in a way that is consistent with localisation”. This expert suggests that sustainably managed resources are important to self-reliance and localisation measurement.

Other interviewees also raised the issue of sustainability with regard to local resources. For example one expert suggested measuring, “Percentage of energy used. Is it renewable and produced in the region?” As suggested by other interviewees, this expert believes that a community reliant upon locally sourced non-renewable energy would no longer be able to meet its energy needs, if this energy source ran out. “You know a town could be self-reliant because they have a coal mine there. So that might be a local energy source but it’s not renewable...” The more dependent a community is on non-renewable resources that are locally, or even more so externally sourced, the more vulnerable (and unsustainable) it is then believed to be. For example “Its not a lot of wind and solar and renewables, as much as they would be central to a well localised community. Because you could have more wind power and still be just as dependent on fossil fuels”. Local, renewable energy sources are then seen as an essential component of sustainably localised communities, however measuring renewable energy sources alone is insufficient, as non-renewable energy reliance will not be captured by this metric.

Half of the interviewees discussed the importance of resource self-reliance in relation to global equity and peace. For example, “I think most of the unhealthy, undesirable political things we see are driven by a perception of resource scarcity, whether its energy or raw materials, minerals, access to land...So if we can move to a model where countries and nations are much more able to meet their needs for food and reduce their consumption of other goods...it takes the pressure off in terms of the perception that we always have to be rampaging around the world

*wrestling resources off everybody else*". Localisation in relation to resource self-reliance for basic needs is perceived as a way to prevent unfair trade rules and relationships, in order to achieve equitable and fair resource use, globally.

In relation to measuring resource self-reliance one localiser described, "*...you could have a static indicator that just gave you the overall percentage of self-reliance as a composite of all the (industrial) sectors...dollar leakage. I don't know exactly what the metric would look like, but looking again at the degree of self-reliance on local resources*". This interviewee referred to industrial self-reliance and measuring dollar leakage resulting from external dependence, as a potential measure of resource self-reliance.

All of the interviewees qualified that resource self-reliance does not mean isolation from other communities. Rather, self-reliance comprises a situation where "*...basic needs will be provided very close to home*", most interviewees seeing a role for international trade that does not compromise self-reliance. For example, "*...globalisation in terms of the transport of goods and services is a silly thing, and has to be cut right down (however) there is definitely global trade. I envision that the global economy will be a network of sustainable local economies...So I see the localisation movement not being provincial in terms of eliminating long-distance trade*". As described by the other economic localisation specialist, "*A community that is maximising self-reliance is able then to use the wealth that it gains...to import the things that it cannot produce for itself*". Self-reliance is seen by these localisers to comprise providing for essential needs locally, with nearby trade for essential needs that can't be provided locally due to resource constraints, and global fair-trade of unique cultural and technical goods and resources.

Resource self-reliance measures recommended by the interviewed experts then comprise the ability of a community to provide for its own essential food, water, housing and energy needs from renewable, local resources, and also dollar leakage.

### **5.2.2 Resource dependence or the external supply of goods and services**

Minimising resource dependence, or the predominantly local as opposed to global supply of goods and services, was identified as an important aspect of localisation by all interviewees. As this was discussed particularly in relation to food and essential goods, this relates to self-reliance as it is possible to be self-reliant whilst also importing a lot of additional non-essential goods and services, or exporting those goods and importing their equivalent. This would indicate resource dependence and globalisation as opposed to localisation.

One expert discussed resource self-reliance and dependence interchangeably in relation to localisation measurement. "*What percentage of food consumed is grown in the local region? Percentage of energy used, is it renewable and produced in the region? Water, is it piped in from somewhere else, lesser amounts clothing*

*and building materials? Are the houses made from stone from the local quarry and wood from the local forest or is it trucked in from other countries?"* Another referred to the dependence, especially of cities, on imported goods and services. *"It would be something that could measure the dependency of a community on its own resources versus external resources. Lets take New York City 'coz its a great example because its so dependent on infusions of food, energy, capital, skills, from outside. And if that inflow stopped it would be dead"*. These experts believe that minimising resource dependence is necessary to sustainable localisation.

Some interviewees discussed resource dependence in relation to the leakage of money from the local economy. One interviewee explained, *"...once you've mapped, for example, the way you spend money on food every year, 30 million quid, and then you identify that 22 million of it leaves with just the two supermarkets in town...then for me one of the measures is the amount you manage to pull back money into the local economy"*. This expert referred to dependence on externally supplied goods, resulting in money that could have circulated in the local economy leaving in the form of profits to international suppliers. Another similarly referred to external dependence in relation to local wealth. *"...the second metric to deal with the level of self-reliance is the dollar leakage in every sector of the economy...One indicator that I think that would be interesting would be looking year by year, at the number of sectors that have increased self-reliance compared to those that have decreased self-reliance. So that would be a dynamic indicator"*. These interviewees see dollar leakage resulting from external dependence as an important way to measure the degree of localisation.

Resource dependence is then recommended as an important localisation metric in order to determine communities that are not localised, because communities may have the resources and production ability to be localised but depending on the amount of goods and services that they import, they may not be. A measure that does not capture this external dependence would then indicate only the potential to be localised, rather than localisation. Additionally external dependence is believed to result in dollar leakage from local economies, and this might be measured using dollar leakage from all economic sectors.

### **5.2.3 Social health**

A belief in the importance of local relationships, connection, strong community and individual wellbeing, was expressed by all of the experts throughout their interviews. These qualities are described collectively in the literature as social health (Ekins, Dresner, & Dahlström, 2008; Jackson, 2012; Wilkinson et al., 2010), and were described in the previous chapter. Five of the interviewees mentioned the importance of one or more of these social health components when measuring localisation, and issues that were not covered in the previous chapter are outlined below.

Exactly what constitutes social health and individual wellbeing was not discussed in detail during the interviews by many of the experts, though they all

made reference to both of these during the interviews, particularly in relation to the meeting of wellbeing needs such as quality of life and security. Most of the interviewees have however written elsewhere in more detail about their perceptions of wellbeing, as described later in this section. There is also a wealth of wellbeing literature from which to draw upon.

All interviewees referred often to the idea of community or 'strong community' throughout their interviews, indicating by inference that social cohesion is an important concept in relation to localisation. Community was the fourth most used word in the interviews, after local, localisation and people. Social cohesion then seems important to localisation measurement. The following descriptions relate to interviewee beliefs about aspects of social health that are important to capture in order to measure localisation.

### **5.2.3.1 Community**

What community entails varied in the interview descriptions and consistent with literature commonly referring to community, was generally undefined. The interviewees expressed that it is not possible to specifically determine what constitutes a typical community or the spatial dimension of a 'local' community. For example as described by one interviewee, *"So what is the community, neighborhood or a city, state or region? And I really do think that the essence of localisation is that it is up to people and communities to define that answer for themselves, there are no objective, one-size fits all answers"*. Another stated that situation or purpose provides a key context for defining community in different instances. *"Its not a situation where absolutely everything is sourced within five, ten, twenty miles whatever, its really about things being appropriate on different scales"*. However the interviewees generally believe that what constitutes community varies according to the context, and that local community is as small as practicable for any particular purpose e.g. for governance, trade or provision of essential needs.

Energy and basic needs provision offer an environmental context for community. The experts describe opportunities and constraints provided by environmental contexts or bioregions as a way to determine the spatial aspect of a community. It was also explained that community might refer to spatial scales such as suburbs, regions and towns, the key feature being diminishing dependence on the wider area as is practicable or possible.

Community was also described in terms of local culture and relationships. *"...there is more likely to be local traditions, a sense of joy, that they get from having local community. And they have local traditions and celebrations...I'm not sure how you measure that though...whether there's a local cultural identity to a place in terms of the way people treat each other, a sense of cooperation and care, that there's relationships. You know grows your food, and who bakes your bread and brews your beer and those types of things. That's a sign of localisation when you know where things come from and have relationships"*. This interviewee

stresses the importance of local cultural identity and relationships (or social cohesion), as an important part of community that might be measured to determine localisation.

The interviewees frequently referred to 'community', and generally believe that community is a description that must vary according to each context. One interviewee stated, "*In a localised world, the intent of...any activity is to strengthen communities*". A common understanding that is representative of the interviewed experts might be that community is determined by contexts and appropriate scales such as bioregions and environmental constraints and opportunities, and that social cohesion and local culture are important aspects of localised community.

### **5.2.3.2 Social cohesion**

As with the concept of community, the interviewed experts tended to refer to social cohesion without elaborating very much on what this comprises. Further detail was obtained from these and other authors in the literature.

Some interviewees stated directly the importance of measuring social cohesion with comments like, "*...do people feel better connected than they did before?*" and, "*We would need really good measures of whether that town is robust, able to identify its problems, able to look after each other, as distinct to being selfish and irrational, with poor communal processes*". One believes, "*...in the farmers markets people will have ten times more conversations with each other than they do when they shop in the supermarket. So all measures of social cohesion would be extremely important. Intergenerational contact, and of course participation or participatory approaches...*", and from another, "*We need indices of a complex sort...things like the level of social cohesion, to what extent is the town functioning well?*" Four experts suggested that social cohesion is important to localisation measurement, describing this to comprise strong community, care, cooperation, connectedness, participation and intergenerational contact.

### **5.2.3.3 Individual wellbeing**

Wellbeing was suggested as an important localisation metric by three of the interviewees. Wellbeing was sometimes referred to directly, others suggesting subjective wellbeing using concepts such as happiness and quality of life. Other objective wellbeing components such as essential resources were suggested by all of the interviewees, as being important to localisation measurement.

The opinions of interviewees concerning what wellbeing, quality of life and happiness entail, may be seen in the following comments. "*Happiness is wellbeing, which comes from feeling secure, which comes from having strong community...I think happiness has to do with health...as well as joy of celebrations and fun*". One interviewee explained that in relation to achieving localisation and

wellbeing, “...we want to take our responsibilities to the climate really seriously, and we actually see wellbeing as where we want to focus”. This expert was referring to the importance of prioritising wellbeing over other concerns such as the economy, and that climate change impacts on our wellbeing. Another suggested “a sense of purpose” is extremely important to localisation and wellbeing, and the important role and benefits of intergenerational contact comprising, “...absolutely one hundred percent employment, including... apprenticeship of younger people working with their elders, a very different approach to education and work that would allow for much more intergenerational contact...deindustrialised basic primary production...value-added work, the artisan production...certainly meaningful work for everyone”. This interviewee explained that sense of purpose might be useful in measuring localisation and wellbeing.

Some interviewees directly suggested that wellbeing measurement is important to determining localisation. One stated, “What is their level of happiness, wellbeing?” Another suggested that in determining quality of life (or wellbeing), “...three things matter: one is material level of affluence/income, but...you don’t need more than a certain level to be ok. The other one is relationships, having enough good relationships...and a third thing...is purpose, commitment, things to do”.

None of the interviewees suggested using economic indicators to measure wellbeing or localisation, one even stating “...the most silly measure ever thought of is GDP, one index that doesn’t matter much and is misleading and warped”. Rather the interviewees referred more to the importance of objective wellbeing needs such as food, water, housing, and social health in relation to the determination of wellbeing.

All of the interviewees see wellbeing as important to, and some as inherent in, localisation. One related wellbeing to local ownership, and though there were differing interpretations as to exactly what wellbeing entails, there was commonality in the idea of wellbeing as it relates to strong, secure and cohesive community, and the importance of localisation in order to achieve this. The interviewed experts perceive wellbeing as important to localisation measurement and as including security, local ownership, connectedness, strong local community and a sense of purpose.

### **Summary**

Social health as perceived by the interviewed experts may be summarised as the extent to which bioregion characteristics and social priorities such as culture, relationships, wellbeing, care, cooperation, connectedness, participation, intergenerational contact and a sense of purpose, shape and determine all activity. Social health might then be assessed using measures of local culture, social cohesion, wellbeing, community strength and sense of purpose.

#### 5.2.4 Environmental depletion/impact

Four of the experts described that environmental indicators are important to localisation measurement. In relation to environmental impact and depletion, one interviewee summarised that we need to measure, *“...to what extent could the world live...without running down ecological capital...Are we living in ways that allow everybody to live, without running down the environment?”*

Others referred to indirect environmental measures. For example one suggested measuring *“environmental standards”*, another, *“An interesting metric on environment is to what extent do local goods contain local resources that have been sustainably managed”*, and *“...one of the first metrics would be food miles”*. These interviewees recommend measures of environmentally harmful, or conversely, beneficial activities or activity regulation.

One interviewee mentioned indirect environmental impact measures that he believed would not be helpful to localisation measurement. *“It’s easier to say what it’s not. And it’s not food miles or anything like that, and it’s not even low energy consumption. It’s not a lot of wind and solar and renewables, as much as they would be central to a well localised community...I would advise you to stay away from just conventional notions of environmentally correct, low consuming metrics”*. This interviewee described important aspects of a localised community that would not indicate the extent to which that community was also reliant upon environmentally harmful, unsustainable environmental impacts such as fossil fuel use.

Direct environmental measures were also recommended. These include, *“...measures of the environment, is the amount of forest depleting, is the atmosphere getting worse?”* Another referred to, *“...healthy food and clean air because you don’t live next to a coal-fired plant”*. These interviewees refer to measures that directly measure environmental depletion or health.

Some referred to localisation as a strategy or condition that ensures local environmental health. For example one interviewee believes that in a localised community, *“There will be greater understanding of our dependence on healthy natural resources”*. Another described localisation *“...as a strategy for the environment, by encouraging local sources of sustainable energy from sun and wind and so on and less transportation”*. Another described localisation strategies to comprise *“...farming, particularly as it is being combined with permaculture... you reduce the need for machinery... soil erosion, massive use of energy...so with mining there is a massive reduction, and in forestry the same thing...using much more human intelligence and smaller-scale technology means huge environmental benefits”*. Summarised by one expert, *“Is the focus on...regenerative processes?”* Measuring strategies that conserve, regenerate and sustain the environment may then be helpful to localisation measurement.

Localisation as inherently involving carbon reduction to decrease global environmental impacts and pressures, was a strong theme in relation to the environment. For example, *“I think that you would be looking at a world which is*

*much lower carbon*". And, *"A big factor is walkability...And I think that is a strategy for lowering carbon, when people can walk to the shop and to the school and to the train and so on"*, and from another, *"In terms of the environment, coming back down on carbon from long-distance trading"*. Interviewees indicated that localised communities have a low environmental impact, and are low carbon. Localisation measures of environmental impact might then incorporate carbon emissions.

Policies and economic strategies were included measures that might help to identify localisation. For example, *"...what it constitutes is very definitely a shortening of distances and a subsuming the economic activities under an umbrella of politically determined environmental and social protection"*. And from another, *"...policies that tend to strengthen communities and ecosystems are almost inherently localising"*. Another interviewee described policies in relation to localised farming and food consumption as being of prime importance to environmental protection. *"...the reversal of the food economy toward localising and shortening food distances should be preminent"*. Policies and economic priorities that protect the environment are seen as very important to localisation measurement.

Measuring the level of environmentally protective policies and standards was then recommended, as was measuring the level of locally produced goods that are sustainably produced. One expert suggested that measuring environmentally correct, low consuming measures would not capture environmentally harmful activities. Some suggested measures such as environmental depletion and pollution, another suggesting that localised communities entail greater environmental connection and awareness. Some believe an inherently decreased environmental impact results from localised community, and that this is one way to recognise how localised a community is.

### **5.2.5 Local ownership**

Local ownership was outlined in the previous chapter in relation to local economies. In relation to measuring localisation, local ownership was identified as important by four of the interviewed experts. One referred to the importance of measuring local ownership as a component of localisation because it is, *"A strategy for economic justice, for creating more owners, for diversifying ownership and wealth"*.

In referring to localisation qualities that are important to measure one interviewee stated, *"I think it is something which is about returning assets to community ownership"*. And from others, *"...strong community. And I think that local ownership is a big part of that"*. One expert described, *"...entities that are involved in that chain of custody and delivery are locally owned. In my view the ownership piece is perhaps more important than the proximity"*. These experts see local ownership as a way to measure localisation.

Others described measuring local ownership in the form of, *“...basic needs...the community owns and manages a lot more of its own assets”*. And, *“...the percentage of land and property in the local community which is owned by the local community. It would be the number of new enterprises that have emerged with the support of the local economy, or specifically as part of the push for this approach to a local economy”*. Another stated, *“...the most important indicator of localisation is what percentage of people and jobs in a community are in locally owned enterprise...including home-based”*. These experts describe measuring local ownership as basic needs, land, business, jobs and assets.

The two business focused localisers explained measuring local ownership in relation to self-reliance, local dollar circulation, the multiplier effect and dollar leakage. *“...looking year by year at the number of sectors that have increased self-reliance compared to those that have decreased self-reliance...would be a dynamic indicator. Or you could have a static indicator that just gave you the overall percentage of self-reliance as a composite of all the sectors”*. The other described local dollar circulation as, *“...a strategy for long-term economic security when we own the means of production within our community for our basic needs. That keeps the capital circulating in our local communities”*. These interviewees believe that locally owned production and consumption helps to ensure community self-reliance, creating a local multiplier effect and preventing dollar leakage, which is then suggested as a useful localisation metric.

Other interviewees explained the social and economic benefits of local ownership and the local multiplier effect. *“Bringing economic power back to communities, decentralising ownership will spread ownership and therefore wealth, and economic power more broadly”*. Other social benefits of local ownership were also described, *“...when they own their own company or they know their boss lives in their own community they feel more empowered. So there is more of a sense of security and wellbeing”*. Local ownership might then be evidence by more broadly spread economic power and resulting equality.

To summarise, the interviewed experts see local ownership of land, businesses, jobs and assets as resulting in increased local stakeholders and stewardship, retained local wealth and an associated multiplier effect. Social equity is seen to result from more equally spread wealth and ownership, local development determination and improved social and environmental regulation, and increased feelings of security and wellbeing. Local ownership metrics might then comprise equity and locally owned land, business, jobs and assets.

### **5.2.6 Localisation type**

Two of the experts expressly stated that it would be important to include a measure of localisation type when assessing localisation. As the interviewed experts see sustainability as essential to localisation, unsustainable practices such as unreflexive governance make such a community unsustainably localised, or characterised by unreflexive localisation.

One of the interviewees theorised, *“There are all these studies around about reflexive and unreflexive localisation. You know the degree to which it’s a good version or a rubbish version. So I guess you’d also be measuring some of the indicators about whether it’s a good version or not”*. Another explained, *“...I don’t know whether there is any kind of governance structure, you know high levels of participation for example, and then the question of what types of participation is a necessary condition for localisation”*. These interviewees were both talking about the importance of identifying a democratic, participatory form of localisation when measuring localisation.

Localisation type might then be described as reflexive or unreflexive. Reflexive processes bring together a broadly representative group of people from the local community to explore and discuss changes to their society. Localisation type might then be measured by the extent to which the local community participates in and determines local governance.

### **5.2.7 Sustainability**

All of the experts referred to sustainability as an important component of localised communities throughout the interviews. Three explicitly recommended that sustainability be measured in localisation assessment. What the experts believe localised sustainability to comprise was outlined in the previous chapter as referring to generalisable, socially cohesive communities of place, consisting of strong local relationships, community and culture.

In recommending sustainability measures in localisation assessment one interviewee described, *“What I think we should focus on is, to what extent is our model sustainable...sustainability implies generalisability, like to what extent could the world live in the way that we are talking about, without running down ecological capital”*. This interviewee recommended that the degree of sustainability might be an indicator of how localised a community is, and that this form of localised sustainability should be achievable globally.

Another of the experts suggested some of the components of sustainability that might be measured. *“So to me sustainability, there would a whole lot of indices and domains like how much energy do we use? To what extent is that coming from within the town, how good have we been at figuring out how we could cut it down? Are we using imported energy, which we could replace locally?”* Another of the interviewees referred to measures of sustainability that are already in use that might be utilised for this purpose. *“The third indicator would be on labour and environmental standards. Obviously there is a lot of work that has been done on this...I don’t know exactly what the metric would look like, but looking again at the degree of self-reliance on local resources tells me something about the sustainability of the community in a way that is consistent with localisation”*. These experts recommend measurement of the degree to which communities are

reliant upon sustainable, local resource usage, one suggesting inclusion of labour and environmental standards measurement.

Recommended sustainability measures then include generalisability, local renewable energy and resource sufficiency, and labour and environmental standards. The interviewees also described sustainability as comprising ecological preservation, local culture, strong local economies that are resource and governance self-reliant, equality and social justice, and democracy.

### 5.3 Discussion

After coding and clarification of the suggested localisation qualities or metrics emerging from the interview responses, a set of six qualities or localisation metrics were determined. In order of perceived importance by the group as a whole (as determined by frequency of agreement between experts), these are:

1. Resource self-reliance;
2. Resource dependence;
3. Social health;
4. Environmental health or damage/impact;
5. Control and ownership of resources, assets and business; and
6. Localisation type: sustainable reflexive or unsustainable unreflexive.

The number of experts identifying each emergent theme is recorded in Table 8. The measures that these metrics might comprise are also listed in Table 8, and will be further discussed, with additional information regarding these measures as identified in the literature.

**Table 8: Localisation metric suggestions by interviewed experts**

	<b>Metric Themes and sub-themes</b>	<b>Expert count</b>
1	Resource self-reliance/dependence:	6
	• Food;	
	• Water;	
	• Renewable energy; and	
	• Housing materials.	
2	Resource dependence:	6
	• External supply of goods and services.	
3	Social health:	5
	• Social cohesion: trust and community of place;	
	• Self-rated wellbeing;	
	• Objective wellbeing: infant mortality; and meeting essential resource needs;	
	• Equality;	
	• Justice;	
	• Culture;	
	• Environmental diversity and abundance.	
4	Environmental depletion/impact:	4
	• Harvesting rates not exceeding regeneration rates;	
	• Waste emissions not exceeding the renewable assimilative or waste-sink capacities capacity;	
	• Food miles; and	
	• Energy use or source.	
5	Local ownership land, assets, businesses and jobs:	4
	• Local stewardship;	
	• Retained local wealth and associated multiplier effect;	
	• Social equity; and	
	• Feelings of security and wellbeing.	
6	Sustainability:	3
	• Generalisability;	
	• Local renewable energy and resource sufficiency;	
	• Labour and environmental standards;	
	• Resource self-reliance;	
	• Social justice; and	
	• Democracy.	
7	Localisation type: reflexive or unreflexive	3
	• Governance structure; and	
	• Levels of participation.	

### 5.3.1 Community

What comprises a community is relevant to resource self-reliance, which must pertain to a particular community. As described above, community is seen by the

interviewed experts to be determined by contexts such as bioregions and culture, and appropriate scales such as resource requirements and economic activity. However no specific community size or definition was advised, rather the experts believe that what community entails is dependent upon context.

A definition of community that is consistent with the interviewed expert views, is provided by a participatory public health study: "...a group of people with diverse characteristics who are linked by social ties, share common perspectives, and engage in joint action in geographical locations or settings" (MacQueen, McLellan, Metzger, & Kegeles, 2001, p. 1929). For Hines (2003), the boundary is set by the size of the community needed to produce the range of goods and services whose environmental costs the community has decided to bare. Curtis (2003) describes more specifically an eco-local economy or community as best conceived as being the size of a region, state or a watershed a few hundred or thousand square kilometres. Colclough and Sitaraman (2005, p.477) identify that social relationships, "...foster a sense of belonging and social identity that constitute fundamental characteristics of community consistently found in the literature".

Community then seems a concept that cannot be specified, but is rather determined by the context in which it is conceived. To summarise the interviewed expert opinion and relevant literature, localised community or community of place, comprises socially bonded people living within geographical locations that are ecologically determined by resource capacity. Resource capacity comprises the ability of the bioregion to provide for the essential needs of the community, without resulting in degradation of that bioregion.

### **5.3.2 Resource self-reliance**

Resource self-reliance is the most agreed upon measure of localisation by this group of experts, and is described as comprising the ability of a community to locally meet its own essential resource requirements. Adequate food, water, energy and housing, or objective wellbeing needs and their relation to infant mortality, have long been used to measure essential human requirements, (Goldstein, 1985). The ability of a community to locally provide these requirements might then be used to measure local resource self-reliance.

Resource self-reliance metrics as recommended by the interviewed experts and supplemented by literature review, might then comprise locally sourced essential food, water, housing and renewable energy needs. Measures of resource self-reliance might then include locally sourced essential resource needs including food, water, and renewable energy and housing materials. The specification of exactly what 'community' is being measured is essential in order to calculate this metric.

### 5.3.3 Resource dependence

The only suggested metrics for resource dependence were the import of resources and dollar leakage. These might be captured using trade data and the dollar amount that is spent on goods and services that are not produced locally. Alternatively if it is possible to capture the amount of consumption, and also the amount of production, the balance might represent external dependence. Such data is difficult to capture at a regional level, as it requires the recording or movement of produce into and out of communities or regions.

Measurement of the overall amount of goods and services imported from elsewhere may be used to capture resource dependence. This measure indicates how localised the resource use of a place actually is, rather than just its potential to be localised due to its own production ability if it were not additionally importing a large amount of goods and services.

### 5.3.4 Social health

Social health, an important aspect of quality of life and wellbeing (Eckersley, 2006; Stiglitz, 2009), was identified as the second most important localisation indicator as recommended by the interviewees. Social health is described as comprising social integration, cohesion, wellbeing, justice and equality (Ekins et al., 2008; Jackson, 2012; Wilkinson et al., 2010). These qualities provide the parameters or inputs to, and indirect estimates of social health (Knight & Rosa, 2011; Veenhoven, 2005). Additionally and as previously described there is a wealth of wellbeing literature discussing how these needs may be met, and that objective wellbeing may be distinguished from subjective wellbeing (e.g. Abdallah et al., 2012; Helliwell, 2003; Lane, 2000a; O’Riordan, 2013).

Social health is described by the interviewed experts to comprise reflexive, socially just, cohesive community, able to meet its essential needs without compromising other communities both in the present and the future, within and across localities. In determining indicators with which to measure these social health qualities, suggestions from the interviewed experts included measures of social cohesion, wellbeing, equality, justice, culture and community of place. These suggestions conform with the literature, adding the dimensions of locality and democracy pertinent to localisation measurement.

Some interviewees write of the connection between wellbeing and the environment. For example Norberg-Hodge (2012, p.1) describes localisation as “...an economics of personal and ecological wellbeing”. Princen (2012, p.12) describes localisation in relation to “...more direct connection to the natural world, especially that which provides sustenance - food and shelter, for instance - and that which enhances wellbeing - greenery and clean rivers, for instance...to shift the nature of work and consumption from earning and spending money, to provisioning goods that are good not just because they sell but because they secure livelihood and wellbeing”. Trainer (2010, p.35) writes, “...wellbeing will

derive primarily from public wealth, such as edible landscapes, rich cultural activities, and the security and peace of mind that a well organised community provides”.

Research also indicates a connection between wellbeing and the environment (Engelbrecht, 2009; Vemuri & Costanza, 2006). For example subjective wellbeing is, “...positively associated with species richness and abundance and vegetation cover and density and negatively associated with urban development” (Luck, Davidson, Boxall, & Smallbone, 2011, p. 824). The same study found that the environment is even more strongly associated with neighborhood wellbeing (Luck et al., 2011).

There is on-going debate surrounding the relationship between income level and wellbeing. Some report the strength of this relationship to diminish after a comparatively modest level of income had been reached (Easterlin, 1995; Lane, 2000a; Wilkinson & Pickett, 2009), and it is also widely claimed that beyond modest increases in GDP and income, economic growth correlates with increased consumption, environmental destruction, psychological and social degradation (Cullen, 2004; Dietz et al., 2009; Jackson, 2012; Knight & Rosa, 2011; Lane, 2000b; Max-Neef, 2010). None of the interviewed experts suggested using income levels to measure wellbeing, and one explicitly advising against such a measure.

Social cohesion and subjective wellbeing have been measured using trust as an indicator (Knight & Rosa, 2011). As previously described subjective wellbeing is measured in many countries using interview methods and surveying of representative samples of respondents, to question people directly on their perceived level of wellbeing. Measurement of the objective aspects of wellbeing comprising essential food, water, energy and housing needs, is carried out using infant mortality, believed to be indicative of the meeting of most basic needs (Goldstein, 1985).

The basic needs, of food, water, energy, and housing have long been used to measure objective wellbeing, with the addition of health, education and sanitation (N. Hicks & Streeten, 1979). Hicks and Streeten (1979) additionally identify that infant mortality is a good indication of the satisfaction of water and sanitation needs, and Goldstein (1985) reported that health and nutrition were additionally found to relate to infant mortality. Goldstein believed that infant mortality is thus indicative of the meeting of four of the six basic needs, and for this reason is a good indicator of (objective) wellbeing (Goldstein, 1985). When measuring localisation the source of the basic needs provision additionally needs to be determined, though infant mortality may indicate how well these basic needs are being met, and the objective wellbeing of a given population.

Klein (2013) summarises several definitions of social cohesion into some ideas that include the importance of shared values, trust and relationships among members of a society. Klein (2013) also describes social cohesion taking place within and at the same time creating community. Klein (2013) believes that this creates a “bonding effect”, and increases community strength.

Social health might then be measured using submetrics such as social cohesion, as represented by measures of trust and community of place, self-rated wellbeing, objective wellbeing as represented by infant mortality and the meeting of essential resource needs, and measures of equality, justice, culture, and environmental diversity and abundance.

### **5.3.5 Environmental health or damage/impact**

Measures of environmental depletion or impact are described by the interviewed experts as impacts that a community has on both local and on the Earth's regenerative processes. These include harvesting rates that should not exceed regeneration rates, and waste emissions that should not exceed the renewable assimilative or the waste-sink capacities of the environment.

The only metrics for which there was disparity amongst the interviewed experts were food miles and energy use or source. Some experts described these as important environmental impact measures. However, one expert explicitly stated that such metrics should not be used, as the same community may also be reliant on unsustainable resource use, making that community unsustainably localised regardless of their level of renewable resource use.

The commonly used environmental impact measure that accounts for harvesting and regeneration rates, waste emissions and waste-sink capacities, at both the local and global environmental level is Ecological Footprinting (EF) (Bilbao - Ubillos, 2013; Dietz et al., 2009; Max-Neef, 2010; Wackernagel, Rees, & Testemale, 1996). EF in combination with biocapacity measurement is commonly used to indicate the ability of a community to meet its own natural resource needs, and the impact that this will have on both local and global ecosystems and human equity (Global Footprint Network, 2010).

### **5.3.6 Control and ownership of resources, assets and business.**

Local ownership of land, assets, businesses and jobs were suggested as important to localisation measurement by four of the interviewed experts. They believe that these might be evidenced by local stewardship, retained local wealth and its associated multiplier effect, social equity and feelings of security and wellbeing. Local ownership might then be measured using government records, or conversely dollar leakage is suggested as a way to measure the degree of external ownership and might be determined using trade data. Social equity, security and wellbeing measures might also relate to the degree of land ownership, as opposed to the inequality characterised by globalisation.

### **5.3.7 Localisation type: sustainable reflexive or unsustainable unreflexive**

If localisation measurement is to be of use to sustainability research, determination of whether a community is predicated on unsustainable foundations such as non-renewable resource use or unreflexive localisation is required. This was identified by two of the interviewees, who explained that a localised community that is socially unacceptable or unlikely to exist for very long is not sustainably localised.

As described by some of the experts, measuring localisation type as reflexive or unreflexive (positive or negative) is an important determinant of the sustainability and social justice aspects of localisation. Localisation type then adds sustainability dimension to social cohesion, wellbeing and resource-use dimensions, described as capturing localisation. Localisation type might then be measured by looking at whether governance is carried out by a representative group from within the local community, as opposed to over-representation by those from outside the community, or a dominant group within the community. A metric to capture localisation type might then be represented by the level of local governance participation.

### **5.3.8 Sustainability**

Sustainability, suggested as an important metric by three of the interviewees and discussed throughout the interviews as a crucial aspect of localisation, is described in the literature as being commonly determined using many of the suggested localisation metrics. Sustainability measures that were suggested during the interviews included: generalisability; local renewable energy and resource sufficiency; labour and environmental standards; resource self-reliance; social justice; and democracy. Many of these are included in suggestions relating to other metrics, and for this reason it was decided that it is unnecessary to include sustainability as an individual metric.

As with the Happy Planet SI method (Abdallah et al., 2012), sustainability may be additionally indicated by signifying where a country or district is unsustainable regarding a particular metric. As with the HPI, specifying sustainability thresholds in relation to an individual metric might determine sustainability, considered by the experts to be an essential and inherent aspect of localisation. Any metric that exceeds a threshold indicates unsustainability, such as EF exceeding the global fair share of 1.8 hectares on global localisation measurement. This would automatically disqualify a community, region or nation from achieving a viable localisation status. Rather they might be seen as progressing toward localisation, but not yet sustainably localised.

## Conclusion

Localisation measurement has not been discussed in the literature. Many localisers and practitioners around the world might inform such measurement, and it is believed that the interviewed experts are representative of this group. Using the combined interview results and relevant literature, a comprehensive set of localisation metrics includes:

1. Resource self-reliance;
2. Resource dependence;
3. Social health;
4. Environmental damage/impact;
5. Localisation type; and
6. Control and ownership of resources, assets and business.

The formation of this metric set achieves *Research objective 3*, and answers *Research question 3a*. This enables further exploration of *Research question 3*: through the formation of LIs with which to correlate localisation and sustainability.

## Chapter 6 Measuring localisation

In order to examine the relationship between sustainability and localisation at regional and national levels, and to achieve *Research objective 4* and *Research objective 5*, localisation measurement was carried out. Secondary source data was gathered according to the developed metrics, which were then weighted, standardised, scored and ranked. This enabled the formation of national and global localisation indexes (LIs) with which to address *Research question 3*.

### 6.1 Method

LIs were developed at both regional and national levels. In order to form a Bhutanese localisation Index (BLI) for the 20 districts of Bhutan, data for each district was collated during a two-month research trip to Bhutan. A global localisation index (GLI) was formed for the 103 countries where the required localisation metric data was available. This data was gathered using Internet search, and email requests were made to relevant organisations such as the UN for data clarification.

Bhutan was chosen for regional localisation measurement due to the availability of detailed, regional data. Additionally as this data is used by the GNHC to monitor sustainability every five years in the form of the GNHI, Bhutan is unique in its frequent and comprehensive regional sustainability monitoring (Dahl, 2012). The GNHC assisted data collation for the localisation metrics, by providing access to all government departments and records relevant to localisation measurement. The GNHC also assisted with Industry contacts for additional data. The collated data was gathered according to the formed metrics, and used to form a Bhutanese district or regional-level BLI.

As may be seen in Appendix 8 and 9, the localisation metrics were weighted according to the number of experts identifying each metric as important. This was achieved by dividing the number of experts that suggested a metric into the total number of suggestions from all experts (28) e.g. for resource self-reliance 6 expert suggestions / 28 responses = 0.21% weighting. Localisation submetrics were assigned equal weighting within that metric. This metric weighting approach is limited as it relies upon the opinions of individuals. However as suggested by Singh et al (2012) the individuals are relevant (localisation) experts and their opinion has been combined to aggregate the data and avoid reliance upon the opinion of just one expert. Uninformed or a predetermined opinion by the researcher has then been avoided, and this method sets a precedent for weighting localisation metrics by utilising previously established metric formation methods.

The localisation metric data was then standardised to account for the different units that each metric measures (See Appendix 8 and 9). Standardisation was

achieved by scaling all data between 0 and 100. These standardised values were then converted into normalised scores to ensure wide-ranging scores do not carry extra weight. The normalised scores were summed to obtain an overall localisation score, and ranked to form LIs.

### **6.1.1 Resource dependence inclusion**

Once the GLI was formed, it became apparent that the very high levels of imports of industrialised countries such as Australia were not being reflected. In order to overcome this problem, and in accordance with the opinions of localisation experts that resource dependence is an important measure of localisation, an extra metric was included in the GLI. This metric relates to the level of imported goods and services to each country, giving an indication of the level of globalisation in that country, as opposed to localisation.

Total goods and total services made up the two submetrics for the new resource dependence metric, total imports on the GLI. This metric provides some idea of resource dependence as suggested by many of the localisation experts, one suggesting this as being the most important localisation metric. However as imports of goods and services may be unrelated to life requirements, rather representing the import of luxury items, the level of import may not reflect import dependence, and may give misleading results if used for this purpose. Rather this metric was able to indicate a degree of 'unlocalisation', or globalisation, dropping the scores of countries with high levels of imports regardless of whether these imports were providing essential goods and services or whether they were surplus to these needs.

The potential need for metrics to indicate resource dependence was identified by one of the localisation experts in relation to renewable versus non-renewable energy. He explained that the more dependent a community is on non-renewable resources that are locally, or even more so externally sourced, the more vulnerable (and unlocalised) it is. This interviewee described that as a result, metrics such as local renewable energy production are insufficient due to the potential for non-renewable energy reliance to not be captured. Similarly when measuring resource self-reliance, metrics that capture production of basic needs are insufficient, as they do not capture additional consumption of resources that have been produced elsewhere.

Resource dependence figures were then included on the BLI as a percentage figure reflecting the amount of district consumption that is not locally produced. This figure is then the amount of consumption that assumed to have been imported. This percentage figure is then used to represent resource dependence, rather than being an actual measure of imports.

The inclusion of a resource dependence metric was then in keeping with the suggestions of localisation experts, and better captured localisation than the measurement of only resource self-reliance as indicated by local produced

consumption. This initial omission was a result of assuming that self-reliance and dependence are interchangeable, rather than being two separate issues needing to be measured and included as separate metrics. As a result of including resource dependence as a sixth metric, the localisation rankings of countries importing large amounts of goods and services dropped, and it is believed that the inclusion of this sixth metric greatly improved the performance of the LIs, and better reflected the views of the interviewed experts.

### **6.1.2 Regional (BLI) metric data clarification**

There is no formal data available for water self-reliance in Bhutan. However Bhutan has an abundance of water, and apart from the consumption of bottled drinking water (which is impossible to determine at a district level and is not significant), water supply in Bhutanese districts is completely local. Water use was then determined by speaking with government representatives, rather than from monitored data.

Due to the majority of energy that is consumed in Bhutan being locally produced hydropower, and also due to the lack of available regional fuel consumption data, it was decided that all Bhutanese regions be allocated 100% energy self-sufficiency for the BLI.

Due to lack of data regarding the movement of goods and services between Bhutanese districts, a resource dependence indicator for the BLI was not easily determined. However resource self-reliance figures on the BLI are a percentage figure reflecting the amount of locally produced consumption. This figure then captures resource dependence to some degree, as the percentage that is not produced locally, may be assumed to have been imported. This non-locally produced percentage has then been used to represent resource dependence, rather than an actual measure of the amount that is imported.

The assumptions made regarding local ownership (LO) in Bhutan are limited, as district land and business ownership data is unavailable. Government and foreign land and business ownership data is available, so it is assumed for the purpose of the BLI that this is the only district ownership that is not local.

Gifted food, which has been included as local production, may have been produced in a region other than where it is consumed. However the inclusion of gifted food, and also of domestic production as local production, is consistently applied to all regions.

### **6.1.3 National (GLI) metric data clarification**

As previously described the water self-reliance figure is limited. However this measure may at the least serve the purpose of identifying countries that have exceeded or are in danger of exceeding their water supply availability. It is then

intended that the water self-reliance submetric provide some indication of water security, rather than comprising an accurate self-reliance figure.

The energy self-reliance figures are also limited, as they do not reflect the dependence of countries upon imports of certain fuel types. It is not possible to display a more comprehensive energy measure that reflects every energy consumption type, and the level of local production versus export and import of each energy type. As a result the energy self-reliance figures act as the best available figure and provide some measure of energy production capacity, rather than precisely measuring energy self-reliance.

Housing self-reliance is described by the interviewed localisation experts as important to localisation measurement though not as important as food, water and energy self-reliance. National housing self-reliance data is unavailable, and for this reason housing was not included as a submetric for the GLI. It was then decided that localisation would be determined without housing material figures, though it would be preferable to include this for more accurate results.

National resource dependence submetrics included total goods and services imported per person in \$US. Some or much of this import may be for luxury or excess consumption that is not actually required in order to be localised. That is, these goods and services may not be necessary to achieve a satisfactory level of objective or subjective wellbeing. As a result this dependence figure may over-represent resource dependence. However as this is not able to be determined, imported goods and services represent resource dependence.

It is acknowledged that self-reported governance participation data may not reflect the actual level of governance participation compared to another country. Citizens in one country may have little experience of governance participation occurring in other countries, where there is more or less participation in governance. Localisation type scores may then not provide an accurate country comparison.

Control and ownership of resources, assets and business is represented by the most accessible data, foreign investment. As this is an annual investment figure that does not cover all assets, businesses and resources, this is not a comprehensive reflection of national resource, asset and business ownership. Rather, this metric is a comparable measure of foreign investment that affects resource, asset and business ownership in all countries, and is used as an indication of foreign as opposed to local ownership.

## 6.2 Regional-level localisation assessment

In order to achieve *Research objective 4*, data for the identified localisation metrics was gathered for each of the 20 Bhutanese districts. This data was compiled using secondary sources from Bhutanese government and

government-funded publications such as the Bhutan Living Standards Survey (BLSS) (Royal Government of Bhutan, 2012b), the National Statistics Bureau Bhutan (NSB), the Centre for Bhutan Studies (CBS) who provided GNHI survey data, and also from Otago Polytechnic who were contracted to calculate district EF results using data gathered for this project by the researcher (See Appendix 8). The gathered data was then utilised to form a regional BLI.

### **6.2.1 Resource self-reliance**

All interviewed localisation experts identified resource self-reliance as crucial to localisation measurement. As suggested by the experts, resource self-reliance is represented by the submetrics: water self-reliance %; food self-reliance %; energy self-reliance %; and housing self-reliance %. This data was sourced from secondary sources as supplied by the NSB, and determined from the Bhutan Living Standards Survey (Royal Government of Bhutan, 2012b).

#### **6.2.1.1 Water self-reliance %**

There is no formal data available for water self-reliance. However each Bhutanese district has ample water supply. This was determined through information provided by the GNHC and the Ministry of Agriculture, and interviews with government administrators and community representatives during research trips across Bhutan. Water supply is highly localised in Bhutan, each region supplying 100% of its own water requirements.

#### **6.2.1.2 Food self-reliance %**

NSB provided all food supply and consumption data for each Bhutanese district. This was available as the percentage of food consumed that is: imported; domestically produced; and home produced or gifted food. Total food consumed was also available as a total dollar value.

The recorded localisation submetric food data is the total of domestic, home and gifted produce, as a percentage of total food consumed. Due to the lack of necessary data it is impossible to determine exactly where the domestic production had occurred, however because much of the domestic produce is consumed locally this figure was included as local production.

#### **6.2.1.3 Energy self-reliance %**

Bhutan is 100% hydropowered, residents consuming power supplied from the hydroelectric station nearest them. Excess power is exported to neighboring India. Fuels are mostly imported from India, and regional fuel import data is unavailable, as this is not collated.

During conversations with government officials, it was determined that there is little difference in the energy consumption patterns of Bhutanese districts. As a result it was decided that this metric is unlikely to greatly affect index rankings. The capital Thimphu was suggested to be the likely exception to this generalisation, as there may be higher fuel consumption in Thimphu due to greater vehicle and industrial fuel use. It was then decided that because regional fuel consumption data is unavailable and the majority of consumed power is locally produced hydropower, all Bhutanese regions would be allocated 100% energy self-sufficiency. This makes the Bhutanese regional energy self-sufficiency figures limited, however this is unlikely to significantly affect BLI rankings, with the potential exception of Thimphu which ranks last anyway.

#### **6.2.1.4 Housing self-reliance %**

Housing self-reliance data was obtained from the BLSS (Royal Government of Bhutan, 2012b). This data is available as the percentage of locally sourced housing materials for each district. The percentage figure is used to represent the housing self-reliance for each district. This figure does not comprehensively include all house-building materials, however it does uniformly capture all locally available building materials for each district. Each district imports additional house-building materials such as metal roofing from domestic and international sources, however these figures are not available and was then omitted for all Bhutanese regions. Due to the similarity of house construction and need for the same construction import materials across the Bhutanese districts, this should not greatly affect housing self-reliance scores, which are given as a percentage, rather than an amount.

### **6.2.2 Resource dependence**

Six of the interviewed localisation experts believe that resource dependence data is important to localisation measurement. The resource self-reliance figures on the BLI are a percentage figure reflecting the amount of locally produced consumption. This resource dependence figure uses the percentage of consumption that is not produced locally, and assumes that this amount is imported. This percentage then represents resource dependence, rather than being an actual measure of the amount that is imported. The percentage of consumption produced locally that was used to determine the resource dependence figure, was provided by the NSB.

### **6.2.3 Social health**

Five of the interviewed localisation experts believe that social health data is important to localisation measurement. In order to gather GNHI data, the CBS regularly surveys a large, representative sample of Bhutanese residents regarding a wide range of social health issues. The CBS made available the

relevant social health data. This includes percentage data for each submetric: individual wellbeing (WB); a high level of trust in neighbours; and a strong sense of belonging to the local community.

#### **6.2.3.1 Individual wellbeing (WB)**

Individual wellbeing data takes the form of a mean subjective happiness score on a 0-10 point scale for each district. These scores were determined by the CBS, through the surveying of residents for the GNHI regarding their level of satisfaction with their health, relationships, spirituality (contentment), financial security, education and job satisfaction (Ura et al., 2012). The highest wellbeing scored district then represents the highest score for this submetric on the BLI.

#### **6.2.3.2 Trust in neighbours**

When surveying 'Trust in neighbours', the CBS gathers a range of responses including 'Trust none of them', 'Trust a few of them', 'Trust some of them', 'Trust most of them', or 'Don't know'. The percentage score entered into the submetric 'High level trust in neighbors' was the percentage for each district that reported 'Trust most of them'. The district with the highest percentage of residents reporting 'Trust most of them' is then the top-scoring region for this submetric on the BLI.

#### **6.2.3.3 Strong sense belonging to local community**

Responses to 'A sense of belonging to the local community' as collected and provided by the CBS range from 'Weak', 'Somewhat strong', 'Very strong' or 'Don't know'. The percentage score entered into the submetric 'Strong sense belonging to local community' is the percentage recorded for each district on the BLI. The district reporting the highest percentage of 'Very strong sense belonging to local community' responses then represents the best score.

### **6.2.4 Environmental damage/impact**

Four of the interviewed experts believe that environmental health or impact is important to measuring localisation, however regional, comprehensive environmental impact data is not available for Bhutan. As it is believed that of the currently available environmental impact measures, EF best represents the impact of humans on ecosystems (Cuçek et al., 2012; Dietz et al., 2009), it was decided that this data would be used to represent environmental impact on the BLI. EF data was then collated from relevant Bhutanese government departments during the two-month research trip in Bhutan, and Otago Polytechnic was then contracted to use this data to calculate an EF for each Bhutanese district (see Appendix 7). Environmental impact for each Bhutanese region was then determined using EF scores.

The Bhutanese EF calculations were determined using local Bhutanese hectares. Local hectare EF calculation is used to determine national as opposed to global results, in an attempt to more accurately represent actual local environmental consumption or impact, as opposed to a globalised average (Lenzen & Murray, 2001). This local EF calculation method was chosen due to its applicability to a specific national LI as opposed to a GLI. Each region has then been assigned an EF score in Bhutanese hectares to represent environmental impact, the lowest score being the optimal.

### **6.2.5 Control and ownership of resources, assets and business**

Four of the interviewed localisation experts believe that control and ownership of resources, assets and business, is important to measuring localisation. NSB provided all data regarding control and ownership of resources, assets and business. The two submetrics are % local land, and % local business ownership.

NSB provided data regarding the percentage of government owned land, and as foreign land ownership does not exist in Bhutan it is assumed that the remaining land is locally owned. Similarly regarding business ownership, government ownership is recorded, as is foreign investment in local businesses. It was then decided that the percentage of land and businesses not owned by government or comprising foreign investment, would best represent local ownership.

The assumptions made for this metric are limited as it is possible that residents from other regions may own land or businesses within a given region. However discussion with government representatives reported this as likely being a minority of cases, the exception being Thimphu. The regions with the lowest level of government ownership and foreign investment in local land and businesses then score the highest, as represented by the highest percentage of control and ownership of resources, assets and business for this submetric.

### **6.2.6 Localisation type**

Three of the interviewed experts believe that determining localisation type is important to localisation measurement. Localisation type was determined using CBS data collected for the GNHI regarding participation in local governance, as represented by the percentage of residents who participate in local planning and development meetings. Participation in local governance through voting data was also available from the CBS, and could have been used to contribute to this metric. However the voting scores for the 20 districts are very similar with a high percentage of residents in all districts reporting that they vote. It was then decided that percentage vote would add little to regional variation in local governance participation, and these scores were then not included. There is more variation in participation at local meetings, which has then been used as a percentage score to represent localisation type. The highest participation at local

meetings then represents the best localisation type score.

### **6.2.7 Regional LI analysis**

The BLI results are shown in Table 9 (and also Appendix 8). It is difficult to draw causal conclusions from these results alone, however it is of interest to note that the top six regions are in less developed areas of Bhutan. Limitations of this index relate mostly to data availability, principally whether regional consumption is from locally produced goods and services. Another limitation includes the potentially worse localisation score for regions such as Thimphu, if more accurate and comprehensive data was available regarding local ownership, and the origins of resources consumed within each region.

#### **6.2.7.1 Regional LI results**

Table 9 reports the BLI results. These results include the localisation score for each region in order of index rank, including all submetric scores (also shown in Appendix 8).

The BLI was calculated using the following:

$$\text{BLI} = (\text{EF scaled} * X) + (\text{RSR}\% * X) + (\text{RD}\% * X) + (\text{SH}\% * X) + (\text{Localisation Type}\% * X) + (\text{Local ownership}\% * X),$$

where X is the decimal weight of the metrics.

The results show that Dagana scores first with a localisation score of 69.14. It does well on all metrics, and does not compromise any sustainability limits. Indeed the top 3 ranked districts, including Monggar and Trashigang, do not compromise these limits, and Wangdue and Samste are the only two of the top 10 ranked districts, to demonstrate the need for sustainability improvements with regard to one metric each.

Most of the 9 lowest ranked districts show the need for improvement in relation to two metrics. Thimphu ranks last with a localisation score of 52.67, and is the only district determined unsustainable with regard to two metrics. These are social health and localisation type, or governance participation. Paro is the only other district to be determined unsustainable on any metric. This was localisation type.

**Table 9: Bhutanese localisation index (BLI)**

	Submetric	Resource self-reliance (RSR) %				RSR / 100	Resource dependence	Social Health (SH) %			SH	EF Bha	EF /100	Ownership (O)	Localisn type (LT)	
		Water	Food	Energy	House			WB	Trust	Belong						
	<b>submetric weight</b>	0.25	0.25	0.25	0.25			0.33	0.33	0.33						
	<b>Expert suggestions</b>					6	6				5	4		4	3	28
	<b>decimal weight</b>					0.215	0.215				0.18	0.14		0.14	0.11	100
Rank						/100	/100				/100		/100	/100	/100	Score
1	Dagana	100	57.6	100	81.6	84.8	15.2	59.3	58.1	70.1	61.9	1.25	74.9	98.3	81.2	69.14
2	Monggar	100	52.5	100	95.9	87.1	12.9	58	52.1	78.4	62.2	1.2	75.9	98.3	72.3	68.61
3	Trashigang	100	52.7	100	93.3	86.5	13.5	61.6	57.5	82.0	66.4	1.42	97.4	98.9	79.1	68.56
4	Samtse	100	60.4	100	82.6	85.7	14.2	60.4	56.2	85.4	66.7	1.25	0.0	95	66.9	67.98
5	Tsirang	100	56.8	100	92.9	87.4	12.6	62.1	59.1	87.3	68.8	1.63	65.6	98.9	82.1	67.78
6	Trashi Yangste	100	67	100	97.4	91.1	8.9	60.8	52.8	83.2	64.9	1.53	60.0	99	77.2	67.31
7	Sarpang	100	41	100	83.2	81.0	18.9	64.1	58.3	83.2	67.9	1.6	100.0	99.1	76.2	67.21
8	Zhemgang	100	57.3	100	95	88.1	11.9	59.1	58.4	76.1	63.9	1.45	64.1	98	70.8	66.87
9	Wangdue Pho	100	54	100	92.7	86.6	13.3	63	46.0	69.8	59.0	1.72	62.1	98.4	71.58	64.16
10	Pema Gatshel	100	39.6	100	98	84.4	15.6	56.1	50.5	78.1	60.9	1.94	67.7	98.3	81.0	63.90
11	Bumthang	100	46.9	100	97	85.9	14	62.6	39.1	69.1	56.3	1.69	79.5	98.3	71.6	63.89
12	Sandrup Jong	100	48.1	100	85.7	83.4	16.5	57.1	44.8	68.9	56.3	1.6	97.4	98.6	64.6	63.84
13	Punakha	100	52.5	100	98.2	87.7	12.3	61.6	40.0	75.7	58.5	1.83	79.5	98.6	66.8	62.78
14	Lhuentse	100	58.7	100	91.6	87.5	12.4	58.1	47.0	82.4	61.9	1.98	56.4	98.4	69.6	62.56
15	Haa	100	40.8	100	98.2	84.7	15.2	64.9	45.8	70.3	59.7	1.87	88.7	97.9	63.4	62.24
16	Tronsga	100	51.1	100	90.5	85.4	14.6	60.1	47.1	66	57.1	1.85	83.1	97.6	59.4	61.46
17	Chhuka	100	35.8	100	96.8	83.1	16.8	60.8	39.9	65.0	54.7	1.67	66.7	98.5	39.2	60.29
18	Paro	100	47.7	100	82.6	82.5	17.4	60.7	31.4	72.5	54.3	1.9	77.9	99.1	54.2	60.24
19	Gasa	100	59	100	97.6	89.1	10.8	64.4	57.5	85.8	68.5	3.15	73.3	96.5	74.5	55.43
20	Thimpu	100	39.6	100	83.9	80.8	19.1	61.7	21.4	48.5	43.4	2.05	87.2	97.6	14	52.67

Sustainability colour coding: green = good, amber = needs improvement, red = unsustainable. EF fair share is 4.7 Bha p/p green = good, amber = needs improvement, red = unsustainable  
 Social health: >60 good, amber = >50 needs improvement, red = <50 unsustainable. Localisation type: green >70% = good, amber 60-70% = needs improvement, red <60% = unsustainable

### 6.2.7.2 Regional LI discussion

The BLI indicates that the most localised districts tend to be predominantly rural. As may be seen in Table 13, Dagana at rank 1, Trashigang at rank 3 and Tsirang at rank 5 all have high rural percentages and very low EF scores, additionally scoring relatively well on all other submetrics. The Thimphu district where Bhutan's only city occurs scores lowest on the BLI, and 3 of the 5 most urban regions occur in the bottom 10 ranks including Chhuka at rank 17 which is 46.9% urban, Sandrup Jongkhar at rank 12, 28% urban, and Thimpu at rank 20, 87% urban. Thimphu, by far the most urban area in Bhutan has then ranked lowest on the BLI, and 3 of the 5 most urban areas in Bhutan are in the lowest half of the rankings. Localisation then seems to decrease as urban development increases. Table 13 provides this contextual demographic information, including each region's population, number of households, and the percentage of urban/rural households.

**Table 13: Bhutanese district demographic statistics, LI scores and rankings**

Bhutanese region	Pop.	Households	Urban%	Rural%	LI score	LI rank
Dagana	19,352	4,474	14	86	69.14	1
Monggar	38,284	7,578	20	80	68.61	2
Trashigang	16,057	10,175	12	88	68.56	3
Samtse	55,009	11,699	20	80	67.98	4
Tsirang	18,947	4,120	9	91	67.78	5
Trashi Yangste	16,057	3,754	15	85	67.31	6
Sarpang	34,426	7,725	35	65	67.21	7
Zhemgang	19,053	3,485	19	81	66.87	8
Wangdue Phodrang	33,967	6,966	31	69	64.16	9
Pema Gatshel	22,336	4,681	12	88	63.90	10
Bumthang	12,707	2,827	25	75	63.89	11
Sandrup Jongkhar	30,432	7,198	28	72	63.84	12
Punakha	21,926	4,519	21	79	62.78	13
Lhuentse	14,254	3,040	9	91	62.56	14
Haa	8,691	1,770	17.8	82.2	62.24	15
Tronsga	13,361	2,810	20	80	61.46	16
Chhuka	54,861	12,792	46.9	53.1	60.29	17
Paro	31,485	7,090	11	89	60.24	18
Gasa	3,049	688	14	86	55.43	19
Thimpu	89,376	20,551	87	13	52.67	20

A very strong negative relationship was found to exist between localisation and EF ( $r = -0.86$ ,  $N=0$ ,  $P<0.01431$ ), indicating that as localisation increases, EF decreases.

### 6.2.7.3 Regional LI limitations

The food self-reliance figures are likely to be limited and even overestimated, because some produce recorded as locally produced, may have been imported from other regions. Additionally the food gift category may not always comprise local production, and is generally rurally produced food such as rice that is shared with the family wherever they are. From conversations with the Bhutanese Ministry of Agriculture, GNHC and government officials during field trips, few regions are likely to import a disproportionate amount of gifted food

from other regions. Thimphu is believed the likely exception, with food gifted to Thimphu residents from family all over Bhutan, and domestically produced food in Thimphu district more likely to originate from elsewhere in the country than is the case in other districts. Gifted food is a tiny portion of the food self-reliance figure, and food self-reliance contributes only approximately 5% to the overall rankings. Food self-reliance figure limitations are then unlikely to significantly affect the BLI ranks.

Due to lack of available district fuel use data, the Bhutanese regional energy self-sufficiency figures are limited. However fuel use is a small percentage of overall energy use in Bhutan, and energy self-sufficiency contributes only approximately 5% to the overall rankings. The limitations of this submetric are then unlikely to affect BLI rankings. Again the likely exception is Thimphu, where fuel use may be higher due to greater car use and commercial activity.

LO data is limited, as it is possible that Bhutanese residents from other regions may own land or businesses within a given region. Discussion with government representatives reports this as likely being a minority of cases. Again the likely exception is Thimphu. LO is weighted 14% in the BLI, and there is little variation in the district scores for this metric. The limitations of the LO metric are then unlikely to affect the BLI ranks.

It is believed that as Thimphu already ranks last on the BLI, these metric limitations described as most likely to significantly pertain to Thimphu, will not significantly affect the BLI rankings.

### **Summary**

The BLI is believed representative of localisation in Bhutan, and may be improved in the future with more accurate data availability. As a result of unavailable data, some figures may be under or overestimated, though this is likely most relevant to Thimphu. However it is believed that due to the low weightings and relatively uniform consumption across the country in relation to the limited metrics, these will not significantly affect the BLI ranks. Again the likely exception is Thimphu, which may consume more imports than has been captured, and scores last on the BLI anyway.

## **6.3 National level localisation measurement**

In order to achieve *Research objective 5*, localisation measurement was carried out at the national level using internet-sourced data from numerous sites and organisations, to measure the identified localisation metrics. This data was

readily available and sourced from mostly global bureaucracies such as the UN and WB. These sources are summarised in Table 14, the data types explained in the following sections.

**Table 14: National localisation index metrics**

<b>Metric</b>	<b>Data used</b>	<b>Data source</b>
1.Resource self-reliance	Water self-reliance % Imported K/Cal pp per day \$US Energy import p/p \$US	UN water use data UN Food and agriculture organisation UN Trade of Goods data
2. Resource dependence	Goods imported \$US Services imported \$US	UN commodity import data UN commodity import data
3.Social health	Individ wellbeing Infant mortality Most people can be trusted	The World Happiness Report (2012) WB Infant mortality data Interpersonal trust index WVS Director
4.Enviro damage/impact	Ecological footprint (Gha)	Global footprint network
5.Localisation type	Participation governance	WB governance index rank
6.Control and ownership of resources, assets and business	Foreign investments \$US Goods imported per person \$US Services imported per person \$US	UN foreign investment data UN trade data UN trade data

### **6.3.1 Resource self-reliance**

Resource self-reliance comprises percentage of water self-reliance, imported Kilocalories per person per day, and energy imported per person in \$US. Housing self-reliance data was not able to be determined from the available data. Housing self-reliance was therefore not included as a submetric for the GLI.

#### **6.3.1.1 Water self-reliance %**

Water use data was sourced from the UN website at <http://data.un.org>. This data was obtained as the percentage of nationally available water used by each country. This percentage was then subtracted from 100, to determine the percentage of water remaining and available to each country. Though this percentage does not measure water self-reliance, and due to lack of precedence and lack of a more suitable measure, this figure has been used to represent water availability and resulting independence within each country.

Countries that are consuming all or a large proportion of their available water are presented as being less water self-reliant than countries using a small percentage of their available water. Countries with the highest water self-reliance score then represent countries that have the greatest amount of available water (as a percentage). This is then a limited measurement of water-self-reliance, however this was the most appropriate data available to compare water self-reliance, and it is believed that this measure may serve the purpose of identifying countries that have exceeded or are in danger of exceeding their water supply availability.

### **6.3.1.2 Imported K/Cal pp per day**

Food self-reliance data was determined using UN Food and Agriculture Organisation food production and import data from <http://faostat3.fao.org>. The amount of food (by item) consumed per capita in each country was subtracted from the amount of food produced in each country. Where there is less food produced than consumed, the food gap is converted into kilocalories and used to represent the amount of food required for consumption that needs to be imported for each country. It is believed that the use of kilocalorie data avoids the over-representation of heavy food imports such as rice. The countries with the lowest scores then represent the best food self-reliance scores, or the lowest amount of kilocalories imported that are required for local consumption.

### **6.3.1.3 Energy import p/p \$US**

Energy import and export data for each country was sourced from the UN Trade of Goods Energy data at <http://data.un.org/Data.aspx?q=energy&d=ComTrade>. The amount of energy exported from each country was subtracted from the amount imported, to give a total energy import required for each country. If the amount of energy exported from a country exceeds its import, then that country is assumed to be relatively energy self-reliant. That country then scored zero, while the countries with higher imports than exports are assumed to be energy reliant. To determine an energy import score the amount of imported energy was divided by the population, the lowest score being the best, and the highest the worst.

The energy self-reliance figures are limited, as they do not reflect the dependence of countries upon certain fuel types. For example as in the case of Bhutan, a country may be completely self-reliant for electricity production, whilst still being dependent on imported fuels. However if the amount of energy exported by that country exceeds its supply, this excess cancels any indication of dependence. As it is not possible to display a more comprehensive energy measure, this rough approximation of energy self-reliance is utilised.

### **6.3.2 Resource dependence - Imported goods and services**

National resource dependence submetrics include: total goods imported per person in \$US, and total services imported per person in \$US. This data was sourced from the website <http://data.un.org/Data.aspx?q=goods&d=ComTrade>. Resource dependence was determined by totaling all imported commodities and all imported services per person for each country. These amounts are in \$US, the highest amount representing the highest level of dependence, or the worst score.

### **6.3.3 Social health**

National level social health data submetrics included: individual wellbeing; infant mortality; and trust. This data was sourced from global reports and wellbeing data. Many more metrics might be included to represent social health, however the employed metrics have long and widely been used to measure objective and subjective wellbeing (Goldstein, 1985).

#### ***6.3.3.1 Individual wellbeing***

Life satisfaction or wellbeing data was sourced from The World Happiness Report (2012). The data was taken from the Average Cantril Ladder whereby, "...respondents are asked (using fresh annual samples of 1,000 respondents aged 15 or over in each of more than 150 countries) to evaluate the quality of their lives on an 11-point ladder scale running from 0 to 10, with the bottom rung of the ladder (0) being the worst possible life for them and 10 being the best possible" (Helliwell, Layard, & Sachs, 2012, p. 11). The top score then represents the 'happiest' country or the country with the highest level of self-reported individual wellbeing.

#### ***6.3.3.2 Infant mortality***

Infant mortality data was sourced from the WB at <http://data.worldbank.org>. The infant mortality rate is the number of infants dying before reaching one year of age, per 1,000 live births in a given year. The highest index value for infant mortality rate is then the worst score.

#### ***6.3.3.3 Most people can be trusted***

Interpersonal trust data was sourced from the Interpersonal Trust Index, reported by the by World Values Survey Director from <http://www.jdsurvey.net>. The index was compiled from international comparative surveys from 1995-2009, using the most recent survey for each country. The interpersonal trust survey question asks, "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" (Medrano, 2012, p. 1). The highest index score represents the highest level of trust, the

highest value in the GLI being the top scorer. The Trust Index used the equation,  $\text{trust index} = 100 + (\% \text{ Most people can be trusted}) - (\% \text{ Can't be too careful})$ .

#### **6.3.4 Environmental damage/impact**

Of the currently available environmental impact measures, EF is believed to best represent the impact of humans on ecosystems (Cuçek et al., 2012; Dietz et al., 2009). EF values were sourced from Global Footprint Network [http://www.footprintnetwork.org/en/index.php/GFN/page/footprint\\_for\\_nations/](http://www.footprintnetwork.org/en/index.php/GFN/page/footprint_for_nations/). The reported EF values are in global hectares, the highest value or land area being the highest EF, and representing the worst score or the highest level of environmental impact or damage. The GLI then uses EF values in global hectares to measure environmental impact or damage, the highest value being the worst score.

#### **6.3.5 Localisation type**

Localisation type or participation in governance metric data was sourced from the WB at <http://info.worldbank.org/governance/wgi/index.aspx#faq-2>. 'Voice and Accountability' data was used to represent level of governance participation for each country. This value is described as reflecting self-reported, "...perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media" (World Bank, 2012, p. 1). Governance index scores range from -2.5 to 2.5, the highest score representing the highest level of governance participation. The highest localisation metric values then represent the highest level of governance participation.

Self-reported governance participation data of one country may not accurately reflect the level of governance participation compared to another country. Citizens in one country may have little experience of governance participation occurring in other countries where there is more or less participation in governance. However there does not appear to be a more accurate global index available to measure governance participation.

#### **6.3.6 Control and ownership of resources, assets and business**

Control and ownership of resources, assets and business was represented by foreign investment data, sourced from the UN at <http://unctadstat.unctad.org/wds/TableView/tableView.aspx>. The data reports foreign investments for each country in \$US. The highest level of investment then represents the highest level of foreign ownership, and is reflected as the worst score for the localisation metric 'Control and ownership of resources, assets and business'.

### 6.3.7 Global localisation index analysis

As may be seen in Appendix 9, a GLI was formed comprising 103 countries for which the required data was available. These results are summarised below in Table 16. The GLI ranks these countries according to their level of localisation, and highlights metrics that indicate the compromising of sustainability thresholds using the traffic light system as developed by Abdallah (2009). Where any metric compromises a threshold, a country is unsustainable and therefore not positively localised regardless of the achievements on the other metrics.

#### 6.3.7.1 National LI results

**Table 16: GLI results summary**

1	Costa Rica	27	Albania	53	South Africa	79	Jordan
2	Bhutan	28	Uruguay	54	Denmark	80	Slovenia
3	Argentina	29	Ethiopia	55	Finland	81	Portugal
4	Norway	30	Vietnam	56	Hungary	82	Morocco
5	El Salvador	31	Romania	57	Bosnia and Herzegovina	83	Cyprus
6	Ecuador	32	Uganda	58	Bulgaria	84	Russia
7	Bangladesh	33	Madagascar	59	Nigeria	85	Estonia
8	Mozambique	34	Cambodia	60	Kyrgyzstan	86	Egypt
9	Zambia	35	Phillipines	61	Lithuania	87	Trinidad and Tobago
10	Colombia	36	Chile	62	Mexico	88	China
11	New Zealand	37	Ukraine	63	Latvia	89	Germany
12	Nicaragua	38	Senegal	64	Armenia	90	Italy
13	Namibia	39	Burkina Faso	65	Czech Republic	91	Lebanon
14	Guatemala	40	Brazil	66	Botswana	92	Iran
15	Benin	41	Pakistan	67	Zimbabwe	93	Israel
16	Thailand	42	Indonesia	68	Austria	94	Saudi Arabia
17	Malawi	43	Georgia	69	Greece	95	France
18	Serbia	44	Venezuela	70	Algeria	96	Spain
19	Paraguay	45	Croatia	71	Iceland	97	Netherlands
20	Honduras	46	Rwanda	72	Japan	98	Switzerland
21	Panama	47	Mali	73	Sweden	99	Malta
22	Ghana	48	Australia	74	Slovakia	100	Luxembourg
23	Dominican Rep	49	Kenya	75	Malaysia	101	Kuwait
24	Bolivia	50	Turkey	76	Mongolia	102	Belgium
25	Peru	51	Poland	77	USA	103	Hong Kong
26	India	52	Belarus	78	Azerbaijan		

#### Factors influencing GLI rank

The resource self-reliance scores of the top 10 GLI ranked countries, comprising water, food and energy, are very high. Water self-reliance ranges from Mozambique with 99.96 % to El Salvador at 92.7%. Food imports range from Argentina at 128 k/Cal per person per day as the lowest on the index, to Norway at 2671 k/Cal per person, compared to the maximum on the GLI of 3363 K/Cal

per person for Kuwait. Finally energy imports per person, per year range from 0 for Colombia, Ecuador and Norway, to US\$497.3 per person, per year for Costa Rica, as opposed to the worst GLI score of US\$4533.8 for Luxembourg who ranks 100.

Resource dependence, or resource import scores for the top 10 GLI ranked countries range from Bangladesh with the lowest imports at US\$112.4 goods imported per person per year, up to US\$3933.1 for Costa Rica. Bangladesh also has the lowest (best) score of the group for services imported per person per year at US\$42.2, with Argentina the highest (worst scoring) service importer of this top-ranking group at US\$457.4. The worst resource import scorer on the GLI is Hong Kong at \$76663.4, who comes in at the lowest rank of 103 on the GLI.

Regarding social health, self-rated wellbeing scores for this top-ranking group range from Costa Rica with 7.3, to Mozambique with 4.7, as compared to the top score of the GLI of 7.8 for Denmark, and the bottom score of 3.6 for Botswana. Infant mortality ranges from Norway with the best score of 2.2 infant deaths per 100 live births, to 63.1 for Mozambique. These scores compare with the best GLI score of 1.7 for Luxembourg, and the worst score of 79.6 for Mali.

Finally in relation to whether 'Most people can be trusted', Norway tops the GLI with a score of 148, Zambia at the lowest score for this group with 28.1. Trinidad and Tobago are the lowest social health scorers on the GLI at 7.1, and rank 87.

The environmental impact scores of the top 10 ranked countries in the GLI, range from and EF of 0.7 gha for Bangladesh, to 4.8 gha for Norway. The highest or worst EF score on the GLI is 10.7 for Luxembourg, who ranks 100.

For participation in local governance, the top-ranking GLI group scores range from the best score on the GLI of 1.75 for Norway, to the lowest score of -0.43 for Bangladesh. This may be compared with the lowest governance participation score on the GLI of -1.8 for Saudi Arabia who ranks 94 on the GLI.

Finally for control and ownership of resources, assets and business, top GLI ranked country scores range from the lowest foreign investment amount for Bhutan at US\$23 million, and US\$ 191103 for Norway, compared with the poorest GLI ownership score of US\$610517 million annually for the US, which ranks 77 on the GLI.

Countries that score in the middle range of the GLI, ranged from resource self-reliance scores of 99.4% water self-sufficiency for Croatia, to 75.8% for South Africa. Denmark has the lowest imported K/Cal per person per year at 891, Kenya importing 1867. Australia and Denmark score 0 for annual imported energy per person per year, up to US\$1599 for Finland.

Resource import scores range from Rwanda with the lowest imports at US\$187 per person per year, to US\$16365.5 for Denmark. Kenya has the lowest (best) score of the group for services imported per person per year at US\$52.3, with Denmark the highest importer (worst score) at US\$10600.5.

Social health scores range from wellbeing scores of 7.8 for Denmark, to 3.8 for Mali. Infant mortality is lowest in Finland with 2.4 and highest in Mali at 79.6. Trust ranges from a score of 131.9 in Denmark, to 10.2 in Rwanda.

Environmental impact scores range from an EF of 0.7 Gha for Rwanda, to 8.3 Gha for Denmark.

Participation in local governance ranges from the best score of 1.69 for Denmark, to the lowest score of -1.24 for Rwanda.

Finally control and ownership of resources, assets and business range from the lowest foreign investment amount for Rwanda at US\$743 million, to the poorest score with Australia receiving US\$610517 million annually.

With respect to the low-scoring countries, resource self-reliance scores range from 98.1% water self-sufficiency for Luxembourg, to 0% for Kuwait and Saudi Arabia. France had the lowest imported k/Cal per person, per year at 989, up to 3363 for Kuwait. Saudi Arabia and Kuwait score 0 for energy imported per person per year annually, up to US\$4533 for Luxembourg.

Resource import scores range from Saudi Arabia with the lowest imports at US\$ 5187 goods imported per person, per year to US\$ 43680.1 for Luxembourg. Spain has the lowest (best) score of the group for services imported per person, per year at US\$1991.0, with Luxembourg the highest importer (worst score) at US\$83372.7.

Social health scores for this group are quite high, ranging from wellbeing scores of 7.5 for the Netherlands and Switzerland, to 5.6 for Hong Kong. Infant mortality is lowest in Luxembourg with 1.7 and highest in Kuwait at 9.5. And trust ranges from a score of 107.4 in Switzerland, down to 37.9 in France.

Low GLI scoring country environmental impact scores range from Israel and Saudi Arabia with and EF of 4 Gha, to Luxembourg at 10.7 Gha.

Local governance participation scores for this group range from the best score of 1.67 in Denmark to the lowest score of -1.8 in Saudi Arabia.

Finally control and ownership of resources, assets and business for this group ranges from the lowest foreign investment amount for Kuwait at US\$12767 million per year, to the poorest score with France receiving US\$1094961 million annually.

### ***6.3.7.2 National LI discussion and limitations***

In-depth analysis of the GLI is beyond the scope of this study, though there would be great value in such an analysis. Instead in-depth analysis was carried

out in relation to the BLI and a regional level analysis, as this was more achievable in the timeframe of this research project. However some general observations about the GLI results seem important.

Some countries score highly on the GLI, though they are relatively localised for negative reasons. Such countries include Bangladesh at rank 7, Mozambique at rank 8, Zambia at rank 9, Namibia at 13, Benin at 15, Serbia at 18, and Ghana at 22. These countries are characterised by poverty and/or war-stricken conditions, and likely for this reason do not import many goods and services, or buy very much food or electricity.

For example Bangladesh, Mozambique and Zambia all have wellbeing scores below 5.3, relatively high infant mortality rates of between 33 and 56, and low governance participation of between -0.18 and -0.42. Due to low consumption levels these countries also have extremely low EF scores between 0.7 and 0.8 Gha. Low imports, consumption levels and resulting EF's, will improve the rankings of these countries despite social indicators showing that these are not happy countries.

Use of the Worldwide Governance Indicator (WGI) data set for governance participation is not ideal for measuring sustainable localisation. Many of the indicators used on the Worldwide Governance Indicator data set are economic participation measures, and as a result they may not indicate sustainability and may even better indicate unsustainability (Ekins, 1993; Guri, 2007; Knight & Rosa, 2011; Wilkinson et al., 2010). Further to this Lee (2001) notes the tendency for UN associated assessment such as the WGI (produced by the World Bank (Kaufmann, Kraay, & Mastruzzi, 2010)), to misrepresent sustainability impact assessment, demonstrating this in relation to WTO trade agreements. Due to the requirement that localisation is of a positive, sustainable type, ideally a different governance participation data set that more suitably reflects assessment for sustainability would be used on a GLI. However currently there is not one that is available.

The Bhutanese score on the WGI index provides an example of the inability of the WGI data set to adequately capture governance satisfaction. Bhutan scores poorly on the WGI, likely due to their relatively low participation in globalisation e.g. non-member of the WTO. As a result Bhutan's WGI score is likely very low for economic rather than governance reasons, and as is reflected on the GNHI their score is not reflective of the local governance accountability measurement (Ura et al., 2012). A more accurate measurement is determined using this more culturally appropriate measure (Ura et al., 2012). On the GNHI, approximately 60% of the Bhutanese population report political participation and fundamental rights sufficiency, and 80% government performance sufficiency (Ura et al., 2012). In contrast Bhutan score -0.18 on the 2013 WGI for voice and accountability, which does not reflect the specifically Bhutanese GNHI governance results.

As Bhutan is a focus of this thesis, the culturally appropriate Bhutanese governance participation data is used to form a more accurate score on the GLI.

This has been determined by assigning a 70% score of 0.10 on the WGI range of -0.25 - +0.25. However this has not been carried out for other countries, and as a result their scores may also not be ideal reflections of governance participation.

## Overall discussion and conclusion

According with the previously reviewed literature and expert-recommended metrics, the higher BLI scoring districts generally have higher resource self-reliance, better social health, lower environmental impact and higher governance participation. The BLI then appears to identify localised places. Why this might be, will be discussed using qualitative information from Bhutanese interview results regarding localisation and sustainability in Chapter 9.

Analysis of the GLI is more complex and beyond the scope of this research. However it is of interest to note that Bhutan, a highly localised country (as will be discussed in Chapter 9), scores second on the GLI. It is also of interest to note that many Latin American countries also score highly on the GLI, as they also do on many holistic sustainability indexes (as previously described). This may be due to the prioritisation of social and environmental health in these countries (Abdallah et al., 2012). As has been noted, some countries score well on the GLI for negative reasons, highlighting the need for improvement of the index.

The data used for both the BLI and GLI, is not the perfect data with which to represent the identified localisation metrics. However the data is the best that could be determined for this research. It is then believed that while the LIs formed from this data are a good indication of localisation, they can be improved with the inclusion of more accurate and comprehensive data.

The formation of global and regional LIs achieved *Research objective 4* and *5*. The achievement of these objectives enables further exploration of *Research question 3* to be investigated using correlation analysis.

## Chapter 7 Assessing sustainability - contextualising sustainability and localisation correlation

This chapter reviews sustainability assessment according to differing sustainability discourse philosophies and methods, completing the second part of *Research question 2c*. It does this by outlining the sustainability assessment approaches of the Status Quo, Limits and Transformation sustainability discourses, and outlining methods for identifying best practice sustainability. *Research question 2d* is also addressed in this chapter, by identifying SIs at regional and national levels that best include the desirable sustainability features agreed by sustainability academics and practitioners (Gasparatos & Scolobig, 2012), and that best meet 'assessment for sustainability' criteria as outlined by Gasparatos and Scolobig (2012) and Pope (2004).

### 7.1 Assessing sustainability

Describing challenges in sustainability assessment Todorov (2011, p.1398) notes, "...the required new scientific approaches, tools and methodologies are still in their infancy". As with the multitude of sustainability interpretations, new forms of assessment have rapidly spread across the world, a 2001 internet search identifying only a few dozen websites presenting 'sustainability assessment', compared to over 26 million sites mentioning the term and outlining thousands of initiatives in 2006 (R. Gibson, 2006). In 2008, 600 sustainability assessment projects were listed on the 'Compendium of Sustainable Development Indicator Initiatives' (Graymore, Sipe, & Rickson, 2008).

Dietz (2009, p.114) notes that initiatives differ greatly in their interpretations of how to assess the requirements for and achievements of sustainability initiatives concluding, "The question of how to measure sustainability remains vexing". Further to this, Rinne (2012, p.7) states, "The development of universally agreed, balanced, and comprehensive indicators, indices, or indicator sets is challenged by changing natural and social conditions, scientific discoveries opening new questions and changes in public and policy concerns" (Rinne et al., 2012, p. 7).

Cucek (2012, p.7) observes that while tools for evaluating the (un) sustainability of "humans, nations, processes, products or activities" have been developed, "...the definition of a suitable environmental and/or sustainability metric for supporting objective environmental and/or sustainability assessments is still an open issue within the literature". Pope et al. (2004, p.595) claim that there are few examples of "...effective sustainability assessment processes implemented anywhere in the world".

In a review of sustainability reporting systems in Australia, Davidson (2011) concludes that indicator development is limited to available data and framed by neoliberal ideology. Davidson (2011, p.364) reports that these systems, "...reveal a discourse and an approach that precludes discussion of tensions or contradictions and disregards the interdependence of the economic, social and environmental dimensions of sustainability, preferring from either habit or ideology to privilege the economy, and regard the other dimensions as either the economy's handmaiden or thrall". Davidson (2011, p.364) believes that neoliberal ideology and associated discourse likely inhibits the use of new indicators better able to, "...represent the issues of sustainability in Australia".

Despite the barriers to a different approach and the apparent inability of current dominant discourse and methods to fully assess sustainability, improvements are being achieved as researchers explore ways to better meet the requirements for sustainability. As identified by Ng (2008), though it is difficult to adequately measure sustainability using wellbeing, environmental and equity indicators rather than those relating to economic criteria when these alternatives have not yet been fully developed, it is important to attempt to do so. Ng (2008) believes that such attempts may begin to reorient governments and the market in a way that enables human success to be achieved, whilst ensuring that the cost to others of achieving that success is captured, so it may then be highlighted and minimised.

### **7.1.1 Sustainability assessment**

Upon completing a review of 1700 national reports on the state of the environment and sustainability for the UN, Dahl (2012, p.15) states, "...we are still far from what most would consider adequate indicators of sustainability". Dahl (2012) reports that most sustainability indicators measure dimensions of unsustainability, stating that while these may guide management, they do not define or ensure sustainability. These address the "hardware" of sustainability in the form of measurable trends such as pollution levels, energy consumption and poverty, rather than the "software", or the processes of decision-making and control and indicator systems showing progress toward sustainability targets (Dahl, 2012, p. 15).

Dahl (2012) believes no indicator system yet captures key 'software' factors, and as a result significant dimensions of sustainability remain "unrecognised and unmanaged". Dahl observes that a dimension describing institutional, cultural or ethical measures such as governance is lacking from most indexes. Dahl (2012, p.16) believes that it is important to capture this dimension because, "...environmental, economic and social states are the result of complex processes of development". Dahl (2012, p.16) explains such process indicators are difficult to define, and believes that Bhutan's Gross National Happiness (GNHI) is one of the "...rare national efforts in this direction".

Wilson et al. (2007) investigate inconsistencies between 6 recognised SIs that may influence decisions regarding sustainability, noting that the differing results from competing sustainability assessment measures are frustrating sustainability initiatives (J. Wilson, Tyedmers, & Pelot, 2007). A high correlation was found to exist between the Environmental Sustainability Index (ESI), the Wellbeing of Nations Index (WBNI), Gross Domestic Product (GDP) and the Human Development Index (HDI). This likely results from a common sustainability framework representing a weak sustainability position that fails to qualify ecological thresholds and thus to identify the requirements for sustainability (J. Wilson et al., 2007). Little correlation between the two strong sustainability perspective indexes, Ecological Footprint (EF) and the Surplus Biocapacity Measure (SB), is believed due to the differing scale (national and global) adopted by these two approaches. Different metrics are then suited to differing scales.

In reviewing 41 sustainability assessment tools, Singh et al. (2012) conclude that few involve a holistic and integrated approach that combines environmental, economic and social aspects, most focusing on only one of these (Singh et al., 2012). Holistic sustainability assessment as outlined by Gasparatos et al. (2008 and 2012) necessarily considers the key points of the four sustainability dimensions, environment, society, economy and governance simultaneously, whilst also capturing the synergistic effects of these complex dimensions. As inter-linkages and dynamics result in the sum being more than just the parts, separate indexes that focus on one aspect of sustainability cannot just be combined to form a comprehensive index, and a poorly constructed index of this kind would likely provide misleading results (Singh et al., 2012).

In reviewing 5 regional SI assessment methods including EF, WBNI, ecosystem health assessment, quality of life and natural resource availability, Graymore et al. (2008) report that only the WBNI attempts to capture holistic sustainability. Graymore et al. (2008) do not address Wilson's observation (above) that WBNI uses a weak sustainability approach, rather suggesting that aspects of this approach may be useful, the large indicator set however making it impractical for regional use. Graymore et al. (2010, p.459) have since developed a regional assessment tool they feel has the potential to effectively monitor sustainability, inform regional communities and decision makers about the sustainability of their region, and "help guide strategic planning to progress sustainability". The potential of this tool would require the addition of sustainability thresholds and thus the means to identify the requirements for sustainability (Graymore et al., 2010).

Sustainability assessment findings then indicate that a tool with which to adequately assess sustainability does not yet exist. This would require holistic sustainability assessment incorporating thresholds and interconnections between these. Graymore et al. (2010) do though believe that in the meantime, their assessment tool may be used to inform sustainability direction and planning and raise awareness (Graymore et al., 2010).

### 7.1.2 Defining and describing sustainability assessment

Sustainability assessment is defined as, "...a process aimed at operationalising sustainable development as a decision-guiding strategy through the identification of the future consequences of current and planned actions" (Huge et al., 2012, p. 2). Due to the potential for broad definitions to result in widely varying interpretations of sustainability assessment, Pope et al. (2004, p.607) suggest that sustainability assessment be defined more specifically as, "...a process to determine whether or not a particular proposal, initiative or activity is, or is not, sustainable" (Pope et al., 2004, p. 607). This they describe as "assessment for sustainability" (Pope et al., 2004, p. 607).

Huge et al. (2012) explain that how one defines 'sustainable' and what this is believed to entail, is determined by the discourse from which particular sustainability beliefs emerge, and is critical to how sustainability is consequently assessed. The framing of sustainability determination occurs as the values of the prevailing discourse, "...both 'rules in' certain ways of talking about a topic and defining acceptable behavior, yet...'rules out', limits and restricts other ways of talking, of conducting ourselves or constructing knowledge..." (Gasparatos & Scolobig, 2012). Discourse then refers to more than just words, the framing of sustainability beliefs further influenced by core messages and images propagated by the relevant discourse. Any particular discourse will then, "...carry with it a set of assumptions, prejudices, blindnesses and insights" (Prasad & Elmes, 2005, p. 851).

Particular discourse biases the way policy problems are conceived and the solutions considered in solving these problems (Pope et al., 2004). "The ethical implication lies in the fact that by choosing a certain tool to evaluate a project, the analyst "subscribes to" and in effect "enforces" a specific worldview as the correct or most appropriate yardstick to measure the performance of a project" (Gasparatos, 2010, p. 1618). Bias necessitates that the 'sustainability' that is being measured, is well defined and understood.

Pope et al. (2004) and Gasparatos (2012), suggest that it is helpful to distinguish between three types of sustainability assessment. The first of these follows traditional environmental impact assessment (EIA) methods that trade-off between and integrate sustainability pillars (Pope et al., 2004). The second is an objectives-based approach that attempts to clearly define specific targets and objectives, and is usually policy driven (Pope et al., 2004). Thirdly an "assessment for sustainability" approach has the express purpose of determining whether or not an initiative is actually sustainable (Pope et al., 2004).

Pope et al. (2004, p.604) claim that an objectives-based approach is proactive as it provides a direction to aim for, as opposed to EIA driven integrated assessment whereby, "the position of the sustainable state is unknown" and assessment is based on trade-offs between and integration of, social, environmental, governance and economic pillars. However when using an objectives-based approach, incorrect objectives will result in unsustainable outcomes (Pope et al., 2004). EIA and objectives-based sustainability assessment

both seek to minimise ‘unsustainability’, as opposed to an ‘assessment for sustainability’ approach whereby in seeking to determine whether an initiative is or is not sustainable, sustainability must be well defined (Pope et al., 2004).

Pope et al. (2004), O’Riordan (2012) and Sadler (1999) claim that the use of limits or targets is essential to the concept of sustainability. O’Neill (2003) and Meadows (1998) outline that meaningful indicators only become sustainability (or unsustainability) indicators with the addition of time, limit, or target. “Without targets, indicators only provide contextual information” (O’Neill, 2012, p. 229). Meadows (1998) further stipulates that sustainability indicator targets should be related to carrying capacity, or to threshold of danger. This is due to the meaninglessness of figures such as tons of nutrient released into waterways, without the context of the capacity of waterways to absorb these nutrients without harm (Meadows, 1998). This figure then becomes an environmental indicator as a threshold or target, which may form one component of a sustainability metric as opposed to being a sustainability indicator on its own. This is important because as outlined by Deitz (2009), measuring a single environmental stressor is limited and may underestimate environmental costs, such as a nation reducing GhG while substituting nuclear power. Threshold figures that represent all relevant aspects must be combined in order to form a comprehensive and valid sustainability indicator.

Assessment for sustainability involves generation of sustainability criteria that begins with the concept of sustainability as the desired state, and then defines this in terms of criteria against which the assessment is conducted with the aim of determining whether or not an initiative is sustainable (Pope et al., 2004). Graymore et al. (2010) adds that effective assessment methods provide overall sustainability information without losing information about system parts, and uses an aggregation method that recognises system dimensions in relation to the systems upon which they are dependent, with quantifiable monitoring criteria that is easy to understand.

Dietz (2009) states, “The question of how to measure sustainability is of great policy importance because answering it will allow us to assess the efficacy of alternative strategies for achieving sustainability”. Gasparatos and Scolobig (2012) report that after 25 years of debate since sustainability was defined in the Brundtland Report, a consensus has emerged from sustainability academics and practitioners indicating that for sustainability assessments, it is desirable that key features are captured including:

- Integration of economic, environmental, social and institutional issues and their interdependencies;
- Future consequences of present actions;
- Precautionary bias;
- Public engagement; and
- Intra and intergenerational equity considerations.

The simultaneous capturing of these dimensions is then believed important to valid sustainability assessment. Such assessment processes necessarily involve

holistic measures that are able to synergistically capture the sum of the parts. Gasparatos and Scolobig (2012, p.5) further claim that sustainability assessment methods that use multi-criteria indicators (MCA) with specifically indicated targets for each sustainability issue, are the “...sound methodological choice for assessment for sustainability”. Tools that entail trade-offs between the separate sustainability dimensions during the aggregation process, assign no values to these dimensions (Gasparatos & Scolobig, 2012). In MCA indicators are not aggregated, and “distinct valuation perspectives can be identified” (Gasparatos & Scolobig, 2012, p. 3).

### **7.1.3 Best practice sustainability assessment**

Best practice as “benchmarks of excellence” is defined as, “...representing the top ten percent of performers for a particular process within a given sector” (Styles, 2012, p. 137). In relation to sustainability assessment, Bulkeley (2005, p.1029) explains that ‘best practice’ and ‘good practice’ may be used interchangeably and that in both cases, “...the term relates to an initiative, policy measure, procedure or programme which is singled out as meeting (sometimes undefined) sustainability criteria”. Due to limited best practice sustainability literature, best practice as outlined by Styles (2012) and Berkeley (2005) will be used to identify top sustainability performers (in relative terms), comprising the top ten percent that meet defined assessment for sustainability criteria.

Top achievers represent a continually evolving benchmark or guideline for others to aim toward, providing case study information for gap analysis that may be used to assess what must be addressed to improve achievements (Bulkeley, 2006; Gray, 2010). Benchmarks or guidelines may then be used for innovation-diffusion, providing examples that are generalisable though context-specific, and directly applicable only in similar circumstances (Shiferaw, Okello, & Reddy, 2009). Innovation diffusion relies upon adaptation by users in differing circumstances, and is employed as a method of continual improvement using case-study guidance (Styles, 2012).

Transfer of best practice information is described as comprising copying, emulation, combinations, and inspiration (Bulkeley, 2006). Bulkeley (2006, p.1029) explains that despite the many available best practices and known transfers, little is understood about the ways in which best practices are “constructed, used, and contested, or their implications...”, describing these as the “software” of best practice sustainability reporting. Bulkeley (2006) claims this ‘software’ is rarely addressed in the uptake of best-practice sustainability, with diffusion and uptake usually promoted within the bounds of the dominant discourse. The resultant framing of best practice conceptions then blocks alternatives, and “The political rationalities which they reproduce tend to be focused on the environmental and economic dimensions of sustainability, at the expense of issues of equity and justice, and to be concerned with issues of efficient resource consumption, rather than any more fundamental challenge based on ideas of limits to growth” (Bulkeley, 2006, p. 1037).

Bulkeley claims that best practices resulting from within the context of a particular sustainability discourse may result in frustration at adoption attempts if promoted within the bounds of a differing discourse (Bulkeley, 2006). It is then essential that the framing discourse of the best practice be understood as the underlying context for that practice. In relation to government policy, rather than serving only to focus on concrete examples, best practice is better understood as a discursive process whereby new knowledge is created and, "...the nature and interpretation of the policy problem itself are challenged and reframed" (Bulkeley, 2006, p. 1029). This involves addressing not only the hardware of best practice, or the programs and implementation, but also the software comprising the ideas, concepts, attitudes, policy programs and goals behind best practice (Bulkeley, 2006).

It is suggested that in order to provide support for local governments and communities that are interested in implementing sustainability friendly models, a toolkit of best practices should be developed (Royal Government of Bhutan, 2012c). Evidencing the need for such examples, McNab (2007) explains that the concept of sustainability is still relatively new in China. During the 'Yunnan Environment Development' technical cooperation project between the UK and Chinese governments, Chinese local officials were keen to hear about international best practice in sustainability solutions, in order to contemplate innovation and operationalise sustainability (McNab, 2007, p. 80). In key lessons learned from the project, McNab (2007, p.83) outlines that, "...scientific solutions demonstrated to constitute international best practice are most likely to be considered", and "...demonstrating practical change on the ground is likely to encourage emulation". Sustainability assessment would then ideally make it possible to identify best practice examples so that sustainability can be better understood and implemented, as is common practice in innovation diffusion.

## **Conclusion**

A sustainability assessment tool that adequately captured sustainability might enable identification of top-scorers that represent best practice to be investigated for innovation diffusion, case study and policy development. These might provide working sustainability examples useful to policy formation, and the development of methods of best practice planning and implementation. However it is important that best practice sustainability be understood in reference to the framing discourse and according policies and implementation practices, processes, and procedures in which it occurs, as the framework within which these practices are able to occur.

## 7.2 Sustainability assessment methods

Sustainability assessment is framed by the discourse in which it is conceived and to which it adheres. Each discourse has its own goals, objectives and frameworks, resulting in different assessment methods, criteria and outcomes. It is then useful to examine the differing sustainability assessment practices, and the relevant discourse from which these arise.

### 7.2.1 Four pillar or EIA-driven assessment tools

Sustainability assessment has commonly been practiced using a three, and more recently four pillar approach that combines separate economic, social, environmental and governance and/or cultural pillars (Hopwood, 2005). These pillars are integrated in a weighted assessment process, the implication being that each pillar, at least in part, is independent of the others and that this allows for trade-offs between them (Hopwood, 2005). . For example some pollution may be acceptable to increase growth, or some pastureland may be sacrificed to create a park, or jobs created at the expense of cleaner air. In a three or four-pillar assessment these economic, social, environmental and governance aspects are weighted and traded-off.

Gibson (2006, p.173) explains that the pillar approach is not conducive to concentrating attention on the main requirements for improvement rather than the established pillars or categories of expertise. In such an assessment process, the weighting process might result in perceived economic benefits over-riding environmental and social damage even if these are irreversible. Trade-off methods assume that it is possible to offset environmental and social costs with manmade capital and economic benefits (Gutes, 1996).

Further to this, isolated developments might be construed as acceptable and balanced, necessary economic decisions. However isolated situations and assessments contribute to the cumulative global effects of many individual assessment outcomes (Hines, 2003). Assessment that focused on the requirements for sustainability and included contributions to global environmental and social damage regarding current and future generations, might determine the contribution of an individual project to be unsustainable and unacceptable. This would over-ride any short-term economic or single sustainability dimension gains.

Continuing to define sustainability pillars separately perpetuates fragmentation, and the focusing on one dimension of sustainability in isolation from its wider context. Cause and effect are then ignored, resulting in the creation of further problems (R. Gibson, 2006; Psarikidou & Szerszynski, 2012; Udo, 2008). For example Psarikidou and Syernsgnski (2012, p.33) claims that treating the environment as belonging to the natural sciences and the social as belonging to the social sciences, leads to neglect of the crucial yet often hidden political issues

that connect the two, and this results in “inequalities of power and affluence”.

Using sustainability impact assessments for new WTO trade agreements as an example, Lee and Kirkpatrick (2001) outline that a trade-off method is unreliable due to inconsistencies in the methods and paradigms of these separate dimensions. Inconsistent pillar assessment methods and information sources that are difficult to compare include: assumptions based on weak versus strong sustainability; expert informal judgments; semi-quantitative local case studies; and quantitative modeling studies (Lee & Kirkpatrick, 2001). It is believed that this makes trade-off assessment results unreliable, and additionally the combined effects of the measure sets as a whole are, “...more than the simple sum of the impacts of their constituent measures because of synergistic effects” (Lee & Kirkpatrick, 2001). Unless synergistic effects are captured, sustainability assessments are inadequate.

The separation of sustainability into pillars that may be traded-off is then criticised, and it is claimed that to the detriment of sustainability outcomes the pillar approach has enabled the ‘cherry-picking’ of elements to suit the user (Huge et al., 2012; Pope et al., 2004). This is observed to frequently result in the over-riding of social and environmental with economic concerns, based on neo-liberal (Status Quo) concepts of sustainability (Davidson, 2011; Psarikidou & Szerszynski, 2012). Further to this without the ability to capture synergistic and cumulative effects, sustainability assessment will continue to ignore the combined impact of individual decisions, initiatives or projects, and contribute to worsening global environmental and social conditions. For these reasons, the traditional pillar approach to sustainability is undesirable.

### **7.2.2 Composite sustainability indicators**

In many fields the simultaneous capturing of complex factors is carried out using indicators to measure, assess and plan complex actions and phenomena. Indicators are now thought to have become central to the sustainability debate (Gasparatos & Scolobig, 2012, p. 301) and are defined as, “...an operational representation of an attribute of a system” (Gasparatos & Scolobig, 2012). No single indicator captures all aspects of complex concepts such as sustainability. Rather a collection of indicators that comprise a composite or aggregate indicator, chosen and analysed using valid criteria, best describe complex concepts and systems (Jain & Jain, 2013; Rinne et al., 2012; Turcu, 2012).

Composite sustainability indices (CIs) aggregate indicators into a single index that should include all relevant aspects of social, governance, economic and environmental dimensions (UN, 2011). Gasparatos (2008, p.301) define CIs as, “...an aggregation of different indicators under a well developed and pre-determined methodology”. Böhringer et al. (2006, p.13) state that CIs that compare performance between countries, “...are increasingly recognised as a useful tool in policy analysis and public communication”, and that they may be used to illustrate complex issues in wide-ranging fields, simply. CIs are thought

to be particularly useful in identifying trends and issues, and presenting information in an easily communicable form (Böhringer & Jochem, 2007).

Weighting and aggregating component scores is important to the development of composite indices (Singh et al., 2012). Multivariate techniques such as principal component analysis are believed ideal (Singh et al., 2012). Each indicator is then transformed into a component score, and these are aggregated to form a composite score. Sensitivity analysis and validation should be done on composite indices, however most important is the soundness of the overall theoretical framework (Nardo et al., 2005).

Some of the drawbacks of sustainability CIs include the potential for the aggregated data to hide “serious failings” in some dimensions, and prevent identification of appropriate remedial action if the index construction process is not transparent (Böhringer & Jochem, 2007, p. 13). Bohringer (2007) notes that index failings may be due to the ignoring of dimensions that are difficult to measure, and some believe that such indices may be misused to support inappropriate policy (Böhringer & Jochem, 2007; Gasparatos & Scolobig, 2012). Singh (2012) notes that the use of CI’s may involve issues of uncertainty due the data selection and erroneous data and imputation methods. Gasparatos et al. (2012) further note that the normalising, weighting and aggregation of indicators required to transform CI data into a single figure, represents a reductionist EIA driven approach that essentially allows trade-offs that are not conducive to sustainability assessment.

O’Riordan and Voisey (1997) note that when the social dimension of sustainability indicators is inadequately represented, the role of aggregate indicators is primarily evaluative for environmental quality change, rather than holistic sustainability. Supporting this, Cuthill (2010, p. 370) observes that the emphasis on economic and environmental aspects of sustainability compared with the lack of attention to social sustainability has resulted in a lack of understanding of the social dimensions. Consistent with these observations it has also been observed that few sustainability measurement tools use the aggregate indicators required to capture a holistic picture of sustainability (Gasparatos & Scolobig, 2012).

Meadows (1998) notes that targets are essential to sustainability measurement due to the meaninglessness of figures such as tons of nutrient released into waterways, without the context of the capacity of waterways to absorb these nutrients without harm. CIs that present index scores or rankings without providing the sustainability targets required to interpret whether these scores compromise the requirements for sustainability, may then be misleading, inadequate or misrepresentative.

CIs may then present complex, broad data simply. However if sustainability dimensions are not appropriately represented, CIs may hide important data and provide a misleading picture. Further to this, it is believed that CIs that do not present the information or targets required to interpret whether scores or rankings meet sustainability requirements, are inadequate (Meadows, 1998).

### 7.2.3 Holistic, synergistic, objectives-led sustainability indicators

Indicator-based sustainability assessment tools entail highly value-laden methodological choices such as what indicators are selected, and how these are weighted and aggregated (R. Gibson, 2006). “Indicators arise from values (we measure what we care about), and they create values (we care about what we measure)” (Meadows, 2009, p. viii). Sustainability assessment processes, methods and tools then play the role of focusing attention on the selected indicators as those that are important, thus creating values. It may then be observed that all sustainability assessment is value-laden, as whatever is being measured or observed is what is determined by the assessors to be of value (Gasparatos & Scolobig, 2012).

Gasparatos and Scolobig (2012) outline that Multi-criteria assessment (MCA), where indicators are presented separately rather than being aggregated into one number such as with CIs, are the most appropriate method of assessment for sustainability. Due to the transparency achieved by presenting indicator data separately this allows specific sustainability targets to be specified in relation to each indicator, making the overall picture presented by the data more meaningful (Gasparatos & Scolobig, 2012).

In a study regarding the consequences of environmental decisions using the wrong or weak metrics, Gibson and Pannell (2014) found many negative consequences. These consequences included funding of the “wrong” projects, resulting in “...environmental losses of up to 80%” (F. Gibson & Pannell, 2014, p. 4). Gibson and Pannell (2014, p.4) reported that this outcome was, “...not much better than completely random uninformed project selection”. This study highlights the importance of using valid sustainability metrics for determining appropriate development projects, and the dangers of inadequate or incorrect selection such as a focus on economic measures.

Podger (2010) notes a shift within the field of traditional sustainability indicators toward those that focus on simple, global and (relatively) timeless sustainability objectives such as wellbeing, environmental health and quality of life. A study by Pope et al. (2004) found that such principles-based approaches emphasising interconnections and interdependencies rather than promoting the conflicts and trade-offs involved in weighted, separate pillar type assessments are likely to result in more accurate sustainability assessment. Gibson (2006) claims that sustainability assessment approaches such as these that avoid the pillars and concentrate attention on the main objectives and requirements for improvement, are advantageous.

Vemuri (2006, p.120) notes a recent “explosion” of wellbeing research. This has resulted in many “candidate” wellbeing measures, none of which have been universally accepted (Dietz et al., 2009, p. 118). Wellbeing measurement is complicated by many factors such as cultural differences, social class and personality types, and it is proposed that though fundamental human needs themselves are universal, each culture attempts to meet these needs in its own, culturally distinct way (Helliwell, 2003; Jackson, 2005a; Max-Neef, 2010).

Conventional attempts to overcome these differences using universal measures, have relied upon those associated with affluence, such as income levels or GDP per capita, wellbeing being equated with easily measurable indicators such as economic consumption and education levels (McCloskey, 2012; UN, 2011). Here it is assumed that wellbeing is best measured by what is easily measurable and valued, such as economic wealth and Western educational achievement, and that these will lead to improvements.

The adequacy of conventional measures such as GDP to capture wellbeing has been challenged since the 1970's (Easterlin, 1995; T. Smith, 1979). The relationship between per capita GDP and wellbeing is complex, the strength of this relationship tending to diminish after comparatively modest income levels have been reached (Easterlin, 1995; Lane, 2000a). For example Easterlin (1974) and Smith's (1979) seminal research indicated that US happiness, or subjective wellbeing peaked in 1956 and then fell until the early seventies. It is claimed that US happiness has decreased ever since (Lane, 2000a; Norberg-Hodge et al., 2011).

Guri (2007) claims that education may be a vehicle whereby people learn to live unsustainably through the instilling of principles regarding the virtues of infinite growth and exploitative globalisation. Education levels may then relate to unsustainability, and without determining whether the education referred to in assessment actually involves education that leads to sustainability, it is problematic to include education as a sustainability indicator. As such, if we do not know that education leads to sustainable outcomes, and if we cannot demonstrate that increasing income leads to increased sustainability, then such indicators are not valid for sustainability assessment, as they may not validly represent wellbeing. As noted by Abdallah (2009, p.19) when discussing the importance of using the correct sustainability indicators to ensure validity, "If an indicator is not measuring what it claims to measure, societies may be fooled into thinking they are faring better (or worse) than they really are" (Abdallah et al., 2009, p. 19).

Measures oriented toward socio-ecological health are suggested to be more valid than monetary-oriented wellbeing measures (Cullen, 2004; Dietz et al., 2009; Duraiappah, 2011; Jackson, 2012; Knight & Rosa, 2011; Lane, 2000b; Max-Neef, 2010; Raudsepp-Hearne et al., 2010; Wilkinson & Pickett, 2009). These measures focus on the meeting of essential human wellbeing needs without compromising the environment.

## **Conclusion**

Sustainability assessment as framed by the discourse in which it is conceived, has particular goals and objectives that result in different assessment methods, criteria and outcomes. The differing sustainability assessment practices employed by different discourses include: three or four pillar or EIA-driven assessment, which assumes that sustainability dimensions can be meaningfully

traded off; composite sustainability indicators which focus on the requirements for sustainability; and holistic, synergistic, objectives-led sustainability indicators that focus on global and (relatively) timeless sustainability objectives such as wellbeing, environmental health and quality of life, emphasising inter-connections and dependencies.

### 7.3 Sustainability assessment discourses

The criteria employed to assess sustainability varies greatly according to the framing discourse regarding social, cultural, environmental and governance dimensions, and their interdependencies. These differing sustainability criteria result in differing assessment methods, results and outcomes. Ensuring that valid sustainability criteria are those that are used in the assessment process, is believed to be the key issue in sustainability determination (Davidson, 2011) (and thereby best practice sustainability).

#### 7.3.1 Status Quo sustainability assessment

Currently status quo or integration discourse largely determines how sustainability assessment is defined, carried out and thus what is measured and determined by assessments (Huge et al., 2012). This in turn shapes policy and project implementation resulting from sustainability assessment findings (Huge et al., 2012). The boundaries set by status quo discourse then often determine policy and project implementation resulting from sustainability assessment.

Status quo assessment has commonly been practiced using an EIA driven, three and more recently four pillar approach (Pope et al., 2004). Status Quo discourse and agenda emphasises economic growth, thereby resulting in sustainability assessment value-choices that are largely determined by economic priorities emphasising the economic pillar (Huge et al., 2012). For example, “...most of the CSR (Sustainability) resources are spent...on relative sustainability (efficiency) and eco-efficiency” aimed at reducing production costs (Malovics et al., 2008, p. 915). The sustainability tools used in this process reflect profit driven values, tending to emphasise or disproportionately weight economic elements such as cost-saving efficiencies.

As described by the ‘Jevons Paradox’, eco-efficiency is not a measure of sustainability and does not lead to sustainability (Foster et al., 2010). Rather eco-efficiency sustainability approaches are believed to lead to increased resource use (Foster et al., 2010). Status quo sustainability assessment tools have then reinforced policy that reflects and is driven by criteria that are consistent with Status quo values such as cost-saving (eco-efficiency), and economic growth. Such tools, when used to measure sustainability, are then likely to provide misleading results indicating that sustainability is improving, when it is only

efficiency that improves.

Many seemingly balanced decisions are made using status quo sustainability assessments, enabling the prioritisation of economic elements to suit the user and the ignoring of individual project, initiative or policy contribution to cumulative environmental and social damage. Evidence of this is provided by Pope et al. (2004) in relation to Western Australian integrated Environmental Impact 'sustainability' assessment (EIA). They found that EIA processes actually increased the chances of unsustainable mining project proposals being approved, in spite of the clear negative environmental impacts recommended as unacceptable by assessors such as the Environmental Protection Authority.

A study regarding sustainability within the Costa Rican coffee industry found that strategies were too limited in scope to offer comprehensive sustainability guidance (Adams & Ghaly, 2007). Objectives focused on increased production or certification for sustainability and green-marketing leaving policies required to enact and achieve sustainability measures "largely untouched" (Adams & Ghaly, 2007, p. 233). In a study regarding the triple-bottom line sustainability objectives of the UK Department for Environment, Food and Rural Affairs (DEFRA), it was determined that DEFRA determined that environmental, social and economic objectives within the decision-making process typically concerned issues that related to development that was not necessarily sustainable (Pope et al., 2004). For example income per capita and education levels were included by DEFRA as sustainability indicators, despite that there is no clear relationship between these and sustainability (Ekins, 1993; Guri, 2007; Knight & Rosa, 2011; Wilkinson et al., 2010). Unsustainable outcomes due to a sustainability framework that sets incorrect objectives have then resulted in socio-ecological concerns being traded off for economic benefit, and the ignoring of the cumulative effects of these projects.

The effects of global assessment tools are also noted. The Human Development Index (HDI) claims to show, "...how sustainability is inextricably linked to equity..." (UN, 2011, p. 185), is commonly perceived to indicate sustainability (Pope et al., 2004), and is referred to as a sustainability or wellbeing index (e.g. Bilbao - Ubillos, 2013; Singh et al., 2012). However because the HDI does not capture essential sustainability components such as environmental impact and important objective wellbeing measures, it does not reflect an erosion of global sustainability (Duraiappah, 2011; Jain & Jain, 2013). Further to this the objectives that the HDI does focus on, such as increasing income and education, do not necessarily indicate sustainability (Bilbao - Ubillos, 2013; Easterlin, 1995; Guri, 2007). Togtokh (2011, p.269) notes that while the UN "goes out of its way" to promote sustainability, the HDI mostly ignores sustainability and, "Worse still, the index celebrates gas-guzzling developed nations". Jain and Jain (2013, p.118) claim that countries basing development decisions on the basis of the HDI are proceeding, "...without proper signals...(that)...may result in short term gains at the cost of future suffering".

Status Quo sustainability assessment methods that suggest an initiative is "heading in the right (sustainability) direction" as opposed to achieving the

minimum requirements for sustainability, might suggest that one project or place is more sustainable than another because it is more economically efficient, it uses resources more efficiently, or it has achieved a higher standard of living (Pope et al., 2004, p. 607). However such tools do not holistically address the effect on both current and future generations in terms of overall environmental and social impact, and do not assess for sustainability (Pope et al., 2004).

### **7.3.2 Reform or Limits sustainability assessment**

'Reform' or 'Limits' sustainability emphasises objective ecological limits and policies that encompass resource scarcity and critical natural capital to be conserved for future generations (Hopwood, 2005; Hugel et al., 2012). Reform discourse conceives of sustainability as respecting nature's capacity, with 'sustainable' harvest utilised within this capacity being distributed equally (Hopwood, 2005; Hugel et al., 2012). Constrained, equitable distribution may then be carried out through careful global monitoring and administration, improved information, education and technology providing the means to become sustainable. Some sustainability assessments employ this 'Limits' framework whereby objective limits guide sustainability targets and assessment, and are consistent with the objectives-led, integrated assessment approach as outlined by Pope et al. (2004).

A widely used assessment tool that combines environmental limits into one composite metric is Ecological Footprint (EF). In addition to calculating the limit of the earth's productive capacity and determining whether humans are exceeding this, EF calculates the productive area of the globe and divides this by the world population (Global Footprint Network, 2010). The area required to sustain one person is currently specified as 1.8 global hectares (Gha) (Global Footprint Network, 2010). Where EF is calculated to be higher than this amount, it may be perceived that an unfair share of the globe is being consumed. EF may be determined for an individual, region, nation or the entire world population.

The strengths of EF are reported to include the ability to capture tradeoffs, nature's carrying capacity and the extent that nature is stressed by human activities (Borucke et al., 2013; Dietz et al., 2009). Another reported advantage is that the results, in terms of land area, are relatively simple to understand (Borucke et al., 2013). The weakness of EF include that it considers mainly GHG emissions, since other emissions cannot be converted into land, and it does not account for the sustainability of consumption or the resource depletion of non-renewable fossil fuels as the land that is required for this is negligible (Fiala, 2008; Wackernagel et al., 2002). In addition EF adjusts to world-average productivity, losing much regional detail, including whether impacts occur within the respective country or elsewhere due to imported consumption, and also whether the imports have come from very nearby (Lenzen & Murray, 2001; McManus & Haughton, 2006). Ecological balances then do not determine whether countries are managing their own ecosystems sustainably (Lenzen & Murray, 2001). Furthermore, with increasing recognition of the need to measure

human wellbeing as well as environmental impact and equality, EF is more commonly seen as the world's most effective environmental, rather than sustainability measurement tool (Bilbao - Ubillos, 2013; Dietz et al., 2009; Max-Neef, 2010; Wackernagel et al., 1996). Local hectare EF calculation is used to determine national as opposed to global results, in an attempt to more accurately represent actual local environmental consumption or impact, as opposed to a globalised average (Lenzen & Murray, 2001).

Reform or Limits sustainability assessment tools such as EF, do not adequately assess dimensions and interdependencies required to capture holistic sustainability. Such dimensions include the external costs and sustainability of consumption. Reform or Limits tools address sustainability within a framework that assumes that sustainability may be addressed within a growth paradigm.

### **7.3.3 Transformation sustainability assessment**

It is suggested that ultimately, a paradigm shift or transformation is required for sustainability (e.g. Max-Neef, 2010; Meadows, 2009). Such a shift entails sustainability assessments requiring minimum conditions for sustainability (Max-Neef, 2010; Sadler, 1999). Dahl (2012, p.14-18) believes that sustainability assessment requires developing a new set of values-based indicators capable of motivating ethical principles, referring to an ultimate purpose that may be defined differently by, "...particular cultures, societies or spiritual traditions". The transformation paradigm emphasises value-driven change that prioritises considerations and limits such as socio-ecological health, over considerations such as economic growth that may compromise sustainability.

O'Riordan (2012, p.1) proposes a transformation of sustainability assessment whereby the combination of planetary boundaries as outlined by Rockstroem et al. (2009), may provide a "planetary ceiling" and "irreducible platforms of human wellbeing". This provides a "social floor" that may provide a "safe space" in which to operate, or a "sustainable space" (O'Riordan, 2012, p. 1). This proposal is criticised on the basis that some parameters involve fixed limits rather than boundaries, and that issues of scale require that global and local problems are assessed and treated differently (Lewis, 2012). However the model provides clear, objective planning and assessment guidelines, and represents transformation sustainability values necessitating economic considerations do not compromise a safe social and environmental operating space.

Sadler (1999, p.31) states, "Now that cumulative and large-scale effects are a pervasive feature of development, it is time to reconsider the prevailing approach to impact minimisation. Otherwise we risk irreversible or structural changes which by definition cannot be compensated, restored or otherwise offset". Sustainability assessment would then provide criteria to assess whether proposed actions would compromise minimum thresholds or a 'safe operating space'. Any action that compromised this space would be deemed unsustainable, unsafe and unacceptable, regardless of economic benefit. "Identifying,

measuring, monitoring and safeguarding this critical planetary “safe operating and socially fair space” will surely become the driving force for sustainability” (O’Riordan, 2012, p. 2). Sustainability assessment that focused on such thresholds would result in top-scorers being furthest from these thresholds.

## **Conclusion**

Sustainability assessment that entails the meeting of essential human needs without compromising the environment, may compromise economic growth. The acceptability of such sustainability assessment methods would require a transformation of the current dominant globalisation and economic growth paradigm, and status quo and reform or limits sustainability assessment. Assessments would compromise non-negotiable prerequisites aimed at preserving socio-ecological health thresholds.

This conforms to the perspective of Pope et al. (2004) and Gasparatos (2012), proposing that sustainability assessment refers to assessment that seeks to determine whether or not an initiative is actually sustainable. Further to this, assessment must be within a transformative framework that adheres to the requirements for sustainability with a clearly defined means of doing so, and that incorporates thresholds and system interdependencies (Gasparatos & Scolobig, 2012; Graymore et al., 2010; Meadows, 1998; Pope et al., 2004). Additionally sustainability assessment should be holistic, transparent and easily understandable and communicable (Graymore et al., 2010). Assessment that meets these criteria may be described as ‘assessment for sustainability’, and may best identify best-practice sustainability.

### **7.4 Transformative assessment for sustainability tools**

Some assessment for sustainability tools that conform to the Transformation discourse are summarised below. These tools tend to focus on environmental and social health and wellbeing measures, capturing ecological or social limits in the form of targets for minimum sustainability requirements and focusing directly on sustainability objectives such as wellbeing, equity and environmental health. This overview utilises the perspective of Pope et al. (2004) and Gasparatos (2012), proposing assessment for sustainability.

#### **7.4.1 Happy Planet Index**

The New Economics Foundations (NEF) launched The Happy Planet Index (HPI)

in 2006 (Abdallah et al., 2012), combining EF with human wellbeing and health as represented by longevity, to form a composite indicator. Objective minimum thresholds and stipulate a “safe operating space’ for sustainability achievement. As observed by Pillarisetti et al. (2013, p.141), “The HPI reflects the belief that nations should focus on the wellbeing of citizens, if necessary, at the cost of reducing economic growth”. Premised on an alternative trajectory to that of economic growth, the HPI is a transformation sustainability assessment tool.

In specifying how far each country is from the score required to achieve a ‘safe operating space’, defined by the maximum EF allowable for planetary health, and minimum requirements for wellbeing and health, the HPI stipulates minimum social, wellbeing and environmental score requirements for the achievement of sustainability (Abdallah et al., 2009). As a result none of the assessed countries are deemed sustainable (Abdallah et al., 2012). Rather, all assessed countries are presently unsustainable and ranked according to how close they are to achieving minimum sustainability requirements (Abdallah et al., 2012).

Due to the EF drawbacks outlined by Wackernaegel et al. (1996) and Ayers (2000), the HPI might be criticised for its use of EF to determine environmental harm. However EF is recognised as the most comprehensive and widely used measure to capture the environmental impact dimension of sustainability (Cuçek et al., 2012; Dietz et al., 2009). The HPI has also been criticised for imperfectly calculating ‘Happy Life Years’, and for failing to capture some measure of per capita cost of resource consumption imposed by a particular country on other areas of the global community (Ng, 2008). Knight and Rosa (2011) further critique the HPI as using a method in which the EF must be adjusted so that it does not dominate the score and provide misleading results, and that this affects rankings. They also claim that because objective and subjective wellbeing are combined in the HPI, this makes results interpretation less straightforward (Knight & Rosa, 2011).

The first HPI (2006) innovatively combined human wellbeing and environmental impact to indicate the cost to the planet of a given level of human wellbeing, and was recalculated twice since then. As acknowledged by the authors the HPI does not capture governance issues and human rights abuses, or the economic aspects of sustainability, except as these may be indicated in subjective wellbeing measures (Abdallah et al., 2009). The index then cannot be then described as holistically assessing for sustainability.

#### **7.4.2 Environmentally Responsible Happy Nation Index**

Ng (2008) claims a measure of national success is very important, and that happiness alone is insufficient to measure this. Ng (2008, p.440) believes that if each nation seeks to increase its own happiness without regarding the costs that this imposes on the rest of the world then, “...we may still have the tragedy of the commons”. Ng (2008) aims to measure happiness whilst capturing the costs to other nations and future generations, with the formation of the Environmentally

Responsible Happy Nation Index (ERHNI).

The ERHNI seeks to progress the HPI by improving the measurement of happy life years, and using GhG rather than EF. Ng (2008) believes that GhG more accurately captures the producers of production costs, and that GhG represents the most important environmental costs in terms of current threats to the global environment. Ng (2008, p.441) then uses GhG consumption as a measure of the external costs of achieving happiness. Ng (2008) states that much more information would be required to estimate the per capita external environmental costs of nations, but that GhG is “provisionally” used, “...as a very rough estimate for illustrative purposes and to get people interested”. The ERHNI = Adjusted Happy Life Years (HLY) - per capita external costs (GhG).

Ng (2008, p.441) believes that though the current index results are rough and incomplete, the ERHNI may begin to re-orient markets and governments toward, “something more fundamentally valuable and less damaging to our life support system”. Ng (2008, p.444) hopes that the ERHNI will be improved upon stating, “...our estimation is meant to be no more than an illustration, further explorations on the more appropriate indices to use may be forthcoming”.

Knight and Rosa (2011) claim that in attempting to capture the external costs of consumption, the ERHNI offers a critical improvement on the HPI. However they also believe that the limitations of the ERHNI including the lack of comparison with the HPI that it claims to improve upon, provide little grounds for recognition as an improvement on other measures. Further to this, GhG cannot be used in isolation to assess environmental dimensions of sustainability (Dietz et al., 2009). Additionally the ERHNI does not include a governance metric. The ERHNI then does not assess for sustainability, however in attempting to capture the cost of development to other nations and future generations, the ERHNI provides an innovative addition to previous sustainability assessment.

#### **7.4.3 Environmental efficiency of wellbeing (EWEB) Index**

Knight and Rosa (2011, p.931) claim significant sustainability research indicates consumption is the main cause of environmental degradation. This refines the concept of sustainability as the maximising of human wellbeing, whilst minimising environmental impact (Knight & Rosa, 2011). They describe the balance between human wellbeing and minimising environmental impact, as the environmental efficiency of wellbeing (EWEB) (Knight & Rosa, 2011). EWEB “...indicates the degree to which a society is achieving a desirable level of wellbeing without compromising the wellbeing of future generations by depleting natural capital” (Knight & Rosa, 2011, p. 932).

EWEB employs average life satisfaction and EF to indicate sustainability. Knight and Rosa (2011) state that because they keep objective and subjective wellbeing measures separate, and because the EWEB indicator is not measured as a ratio, this reduces the “risk of spurious findings”. They believe that because of this, EWEB gains advantage over the HPI, providing greater analytical clarity (Knight

& Rosa, 2011). However Knight and Rosa (2011) report that EWEB scores correlate highly with the HPI rankings, Latin American countries dominating the top-scoring positions, and African countries the lower positions.

Knight and Rosa (2011) suggest future sustainability assessment research should refine and extend the concept of the EWEB. This could be achieved by improving understandings of the link between human environmental use and wellbeing, to identify social structural changes that preserve and enhance human wellbeing and reduce environmental threats (Knight & Rosa, 2011). Further to this the EWEB does not incorporate governance or economic measures. The EWEB does not yet indicate holistic assessment for sustainability.

#### **7.4.4 The Sustainable Human Development Index**

Incorporating environmental impacts and sustainable consumption limits, Jain and Jain (2011) improve the HDI with the addition of EF and biocapacity to form the Sustainable Human Development Index (SHDI). Jain and Jain (2011) examine the ratio of EF (E) to biological capacity (B), and countries that have a value of EFBI index 0.5 or greater are determined to be unsustainable. 145 countries are included in the assessment.

The SHDI incorporates income, education, life expectancy, EF and biocapacity data. SHDI rankings are significantly different to HDI rankings, many top-HDI ranked countries dropping much lower in ranking. This change indicates that the authors achieved their goal of highlighting the environmental performance of HDI ranked countries.

There is no subjective wellbeing or governance data included in the SHDI. Additionally it is claimed that education and income are not necessarily measures of sustainability (Easterlin, 1995; Guri, 2007). The SHDI index results then do not meet assessment for sustainability requirements.

#### **7.4.5 The Wellbeing of Nations Index (WBNI)**

The Wellbeing of Nations (WBNI) assessment combines 87 indicators as a “Barometer of Sustainability”, and is formed from component Human Wellbeing (HWI) and Ecosystem Wellbeing (EWI) Indexes. Prescott-Allen also presents the ratio of human wellbeing to ecosystem stress as a Wellbeing/Stress Index (WSI). The index employs a subset of 123 variables, and assesses 183 countries.

The Human wellbeing indicators include measures such as wealth, health, access to knowledge, crime, equity, and community aspects such as governance, freedom and peace. The ecosystem index includes many aspects of environmental health and land protection such as water, land and air quality and species and genetic diversity. As such the index covers a very broad range of measures covering the four dimensions of sustainability. The Index assigns

humans and the ecosystem equal weight to reflect that humans cannot survive without healthy ecosystems, and is described by Sharpe (2004) and Graymore (2005) as systematic and transparent.

Many important sustainability indicators such as diverse ecosystem and wellbeing measures are then included on the HWBI. However the HWBI also includes many indicators such as education levels and economic measures that do not necessarily indicate sustainability, potentially rather reflecting the degree to which unsustainable Western culture is imposed on other cultures (Akomolafe & Dike, 2011; Guri, 2007) and the degree to which important social health aspects have been degraded (Easterlin, 1995; Lane, 2000b). Further to this despite the high level of importance placed on environmental health on the WBNI due to the assigning of equal weight, Wilson et al. (2007) point out that the index uses a weak sustainability approach, as it does not incorporate environmental or sustainability thresholds. Due to this use of potentially invalid sustainability metrics and the failure to incorporate thresholds, the WBNI does not meet the assessment for sustainability requirements.

#### **7.4.6 Gross National Happiness Index**

The GNHI is widely perceived as a sustainability assessment tool, and is described as “One of the rare national efforts...” to complement the pillars of sustainability with the less tangible dimensions, “...variously described as institutional, cultural or ethical, and that would include governance, efficiency, motivation, values and other less tangible factors that may be important determinants of sustainable human prosperity” (Dahl, 2012, p. 16). Daniels (2010) describes the GNHI as employing more sophisticated and potentially robust sustainability measures, than earlier attempts. As noted by Brooks (2013, p.3658), “...the guiding principles of GNH can be adopted elsewhere with appropriate adjustments to how it is measured in a given socio-cultural and economic context”.

In Bhutan, the GNHI assists and guides government planning and policy as an assessment tool for policy decisions (Cuçek et al., 2012; Daniels, 2010). The GNHI is used to monitor Bhutan at both regional and national levels, and in terms of a ‘safe operating space’ the index combines 9 ‘domains’ of ‘gross national happiness, into a composite figure for ranking, specifying minimum requirements for ‘sufficiency’ in each of the domains. The GNHI comprehensively captures human wellbeing, however it does not measure environmental health or impact in order to capture a ‘safe operating space’ in terms of environmental limits. The GNHI does not then meet assessment for sustainability requirements.

## 7.5 Regional-scale sustainability assessment

Duraiappah (2011) Graymore et al. (2010) and Devuyt (2000) describe the need for local or regional level sustainability assessment. Turcu (2012) states the need to further reduce sustainability assessment from the currently regional-focused scale to the local. Duraiappah (2011) emphasises the importance of scale to policymaking guidance, stating that most wellbeing changes occur locally.

Graymore et al. (2010) describe strategic planning and natural resource management to be focused on a regional scale that is below a state or province level, usually including two or more communities. Graymore et al. (2010, p.362) state that a regional focus is most appropriate for “progressing sustainability”, because ecological functioning and human activities “most intensely interact” at this scale and, “...a balance between the two is critical to studying and resolving...sustainability issues”. Graymore et al. (2010, p.362) also claim that the regional scale is, “...where the most difference can be made by decision making and community choice”. This is the level that sustained, reflexive public participation and face-to-face communication between strategic actors can occur (Graymore et al., 2010).

In contrast, state and national levels are described as too broadly based socially and politically to effectively incorporate, “...activities other than formal political action carried out by party political actors, formally organised private industry, public sector agencies, and civil society organisations” (Graymore et al., 2010, p. 460). At this level, though “sustained face-to-face social relationships” are “influential”, they are believed to usually occur between large organisations and powerful elites that are often internationally based (Graymore et al., 2010, p. 460). However Jackson (2005b, p. 126) explains that some sustainability issues “...do not have the characteristic of local resource scarcity issues typical of successful community management strategies”, and these problems such as climate change and ozone depletion, are “inherently global”, requiring international cooperation.

Graymore et al. (2010) describe a gap in sustainability science due to the lack of effective tools for regional level sustainability assessment. Cuthill (2010) also claims that regional-level social analysis is currently lacking, as this is required to compliment environment-focused measures. Cuthill (2010) recommends that these be developed to achieve significant social, economic, environmental and governance outcomes. However global level data is still often used to explain regional level sustainability causes and effects (Duraiappah, 2011).

Devuyt (2000) further outlines that government and UN initiatives such as Agenda 21 call for the importance of ‘sustainable development’ at the local level, developing the idea that this must incorporate local level sustainability assessment. Dale et al (2011) also explain the need for local input in indicator development. They describe the important role of local indexes developed in deliberative processes with decision makers at that scale, further qualifying that such indices developed by external experts have less value (Dale et al., 2011).

In seeking a set of sustainability indicators with which to measure urban sustainability, Turcu (2012) concludes that while there is guidance regarding existing methods, current methodologies have been determined unable to guide sustainability indicator development. As a result Turcu (2012, p.6) developed a new method for sustainability indicator selection aimed at measuring urban sustainability and incorporating the integration of expert and citizen-led models of sustainability indicator development. Turcu (2012) claims that there is a balance to be struck between the two, as while community control is only helpful if it increases sustainability, expert-driven assessment may neglect local needs.

Turcu (2012) concludes that sustainability indicators should not be seen as a definite set of indicators, but should rather be flexibly tailored to local needs. Turcu (2012) does not focus on minimum requirements for sustainability or on whether local objectives are actually sustainable and will therefore lead to sustainable outcomes (as described by Pope, 2004). The indicator developed by Turcu (2012) reflecting local values, is then unlikely to meet assessment for sustainability requirements.

Graymore (2008) evaluates current regional sustainability assessment methods including EF, wellbeing and ecosystem health assessment, quality of life, and natural resource availability. Of these assessment methods, wellbeing assessment was determined the most valid regional-level assessment type. "Because of its holistic assessment method, covering environmental, economic and social sustainability, including equity within the population, with indicators used tailored to the region, it is more relevant to local communities than the other methods" (Graymore et al., 2008, p. 368). However the study concluded none of the methods were entirely effective at the regional scale because they: require large amounts of data rarely available at the regional scale; did not assess the causes of system changes; and they did not use aggregation methods to produce overall sustainability assessment without losing systemic information (Graymore et al., 2010, p. 460). Graymore (2008) concluded the need for development of a new regional sustainability assessment method.

Graymore et al. (2010) describe their development of a new regional sustainability assessment tool based on human carrying capacity, to be more effective than any of the assessment methods described in their 2008 study (above). They believe human carrying capacity to be the most effective context for regional sustainability assessment, because human activities impacting a region must be within that region's ecological limits (Graymore et al., 2010, p. 460). Graymore et al. (2010, p.460) also describe that impacts must remain within the region's social and economic limits so that these systems can support the provision of adequate, "...health care, education, employment, welfare and all the other services required in an equitable manner".

The Sustaining Human Carrying Capacity assessment method uses available data believed to have the greatest impact, including population numbers and inflow, equity and ecosystem health indicators (Graymore et al., 2010). These metrics are compared to thresholds or targets, and the authors conclude that their

method is more able than others to assess regional sustainability. However due to data availability limitations not all pressures are covered or necessarily accurate (Graymore et al., 2010). They recommend the addition of new data for other indicators, as it becomes available (Graymore et al., 2010). Apart from population, income and education data, it may be noted that social, economic and governance limits described by the authors as providing the limits within which human impacts must remain, are not included in the assessment framework and the tool then does not meet assessment for sustainability criteria.

Described barriers to regional sustainability assessment include arbitrarily defined boundaries due to the lack of alignment between those of natural ecosystems and administration (Graymore et al., 2010). Additionally it is necessary to isolate material and human in-flows and out-flows from regions and with defined boundaries, however these are lacking (Graymore et al., 2010). Graymore et al. (2010) also describe lack of data availability.

It is then claimed that sustainability indicator development should be locally or regionally specific, whilst at the same time addressing universal sustainability requirements (Graymore et al., 2008; Turcu, 2012). Further to this as outlined by Turcu (2012), sustainability indicator development should incorporate both expert and community opinion to ensure that indicators address local needs and requirements.

## Conclusion

By seeking to determine SIs with which to identify sustainability, this chapter has aimed to achieve *Research objective 2*. It has done this through an examination of sustainability assessment discourse and methods. The reviewed tools are highly developed and might be perceived as compatible with the aims of Transformative sustainability. However most of the indicator authors state the need for improvement of their tools and methods, despite the advances that they have made in assessment techniques (Abdallah et al., 2012; Graymore et al., 2010; Ng, 2008). There is then not yet an adequately developed tool that meets the holistic assessment for sustainability requirements as described by Pope et al. (2004) and Gasparatos and Scolobig (2012) to accurately capture best-practice sustainability. It was then not possible to reliably locate sustainability or best practice using literature review. However this overview makes clear that progress is being made in this direction and presents clearly the strengths and weaknesses of, and reasons for choosing the tools that are used in the following chapter to correlate localisation with sustainability.

## Chapter 8 Correlating localisation and sustainability

This chapter describes the findings of correlation analysis to partially address *Research questions 3* and *3b*. Regional and national localisation and sustainability correlations were undertaken, using the Localisation Indexes (LIs) formed in Chapter 6, and the Sustainability Indexes (SIs) identified in Chapter 7. None of the identified SIs cover all aspects of sustainability, however these were the most comprehensive SI's that could be identified. The process of converting the GNHI into a more holistic BSI for the purpose of Bhutanese sustainability assessment and LI correlation is described, and the regional and national SIs are correlated with corresponding LIs. The correlations were carried out to determine the strength of relationship between localisation and sustainability, locate best practice sustainability, and determine whether this relationship might support calls for localisation to be investigated as a sustainability strategy (Curtis, 2003; Frankova & Johanisova, 2012).

### 8.1 Regional level localisation and sustainability correlation

Bhutan was chosen to research the relationship between localisation and sustainability, because in regularly and comprehensively monitoring sustainability on a regional basis, Bhutan is thought to be unique (Brooks, 2011; Dahl, 2012; Zurick, 2006). Comprehensive Bhutanese GNHI sustainability data enabled the formation of a Bhutanese sustainability index (BSI) with which to correlate localisation, in order to determine the relationship between localisation and sustainability in Bhutan.

#### 8.1.1 Converting the GNHI for sustainability assessment in Bhutan

The Centre for Bhutan Studies (CBS) carries out GNHI monitoring, in conjunction with the Gross National Happiness Commission (GNHC). CBS surveyors go into the field to interview five thousand randomly selected participants across the districts of Bhutan, every five years (Ura et al., 2012). The in-depth interviews cover many aspects of sustainability across social, economic and governance dimensions.

The GNHI does not assess sustainability per se; rather it is designed to measure happiness and wellbeing, and to guide Bhutanese policy direction in line with the Bhutanese vision of development (Ura et al., 2012). As such the authors do not describe the GNHI as a SI; instead they refer to the index as an effort to capture Bhutan's unique approach to development (Ura et al., 2012). "The GNHI is meant to orient the people and the nation towards happiness, primarily by improving

the conditions of not yet happy people” (Ura et al., 2012, p. 1).

Some recognise the GNHI as a rare and an unusually comprehensive attempt to capture social, governance and economic issues that are important though infrequently measured sustainability dimensions, due to the perception that they are difficult to measure (Brooks, 2011; Dahl, 2012; Zurick, 2006). These include institutional, cultural and ethical considerations that comprise, “...governance, efficiency, motivation, values and other less tangible factors that may be important determinants of sustainable human prosperity” (Dahl, 2012, p. 16). Because the GNHI so comprehensively measures these dimensions, some perceive it as a sustainability assessment tool (Dahl, 2012; Zurick, 2006).

In terms of a ‘safe operating space’ the GNHI combines 9 ‘domains’ into a composite figure for ranking Bhutanese ‘happiness’, specifying minimum requirements for ‘sufficiency’ in each of the domains. Specifically the GNHI comprises 9 equally weighted ‘Domain Indicators’ comprising 33 indicators. These include: 4 Psychological wellbeing indicators; 4 Health indicators; 2 Time use indicators; 4 Education indicators; 4 Cultural diversity and resilience indicators; 4 Good Governance indicators; 4 Community vitality indicators; 4 Ecological diversity and resilience indicators; and 3 Living standards indicators (Ura et al., 2012).

Though environmental aspects are included in the GNHI, these do not address measures of environmental impact. Rather the environment-focused aspects of the GNHI aim to assess the impact of the environment on people’s wellbeing, particularly in relation to: issues such as stock losses from wildlife attacks in rural areas; urban impacts relating to noise and air pollution; and also subjective personal perceptions of environmental responsibility and ecological issues. Because these do not measure environmental impact, the GNHI does not holistically address sustainability despite its remarkable social and governance measurement achievements.

In order to employ the GNHI for holistic assessment for sustainability, environmental data was incorporated to form a new BSI (see Appendix 10) so that localisation and sustainability correlation analysis could be undertaken. Inclusion of EF to form a BSI then better meets the requirements of assessment for sustainability. This enabled a more reliable result from the localisation and sustainability correlation, than would have been obtained using the GNHI in its original form.

As with the Wellbeing of Nations Index (2001) (WBNI) method of sustainability assessment using equally weighted environmental and human measures, the GNHI comprising comprehensive social, governance and economic metrics, and EF representing environmental impact, were given equal weighting in the BSI. The allocation of equal weighting to human and environmental dimensions reflects the opinion of the WBNI authors that as humans cannot live without the environment, environmental concerns are of equal importance to those of humans (Prescott-Allen, 2001). The newly formed BSI was employed to correlate localisation and sustainability for the 20 Bhutanese regions.

The BSI EF 50% results differ from the GNHI results, and there is only a weak negative relationship between them ( $r = -0.16$ ,  $N=20$ ,  $P<0.05$  (EF 50%)). As EF is the only difference between them, the variation between the rankings is due to high EF scores lowering the rankings of some districts, and raising those of others. For example Gasa and Thimphu, which are in the top 3 household consumption regions in Bhutan (Royal Government of Bhutan, 2012b), drop from rank 6 and 5 in the GNHI to ranks 16 and 11 respectively in the BSI. The low EFs of other regions such as Samste and Monggar, which are in the low consumption regions of Bhutan (Royal Government of Bhutan, 2012b), have lifted their rankings from 12 and 14 respectively on the GNHI, to ranks 5 and 6 on the BSI. Due to the lowered effect of the EF on the BSI when EF is weighted at 33%, there is a very strong positive relationship ( $r = 0.79$ ,  $N=20$ ,  $P<0.02$  (EF 33.3%)) between these two indexes.

The BSI with EF 50% weighting has been used to analyse the relationship between localisation and sustainability in Bhutan. This is because of the shared belief with the authors of the WBNI and the SHDI, that without environmental health there can be no people and no sustainability to measure. It then seems crucial that environmental health measures be assigned equal importance to human measures, to adequately reflect that human health and sustainability, is premised on environmental health.

Correlation has also been carried out with the BLI and the BSI, using the HPI sustainability calculation method for the BSI (Abdallah et al., 2012). This method comprises a 33.3% EF weighting and a 66.7% GNHI weighting (representing human issues) in the BSI, to further examine the effect of using EF when measuring Bhutanese sustainability.

### **8.1.2 Localisation and sustainability correlation results (see appendix 11)**

The BSI (EF 50%) correlation with the BLI yields a strong positive relationship ( $r=0.460$ ,  $N=20$ ,  $P<0.043$ ). As with the WBNI (2001) approach, the weighting of EF and GNHI results was 50% each for this correlation, with environmental impact weighted equally against social, economic and governance indicators. This means that when the environment and people in Bhutan are weighted equally, as localisation increases sustainability is also likely to increase and vice-versa.

Correlation of the BLI and BSI was also carried out according to the HPI method, using a 33.3% weighting for EF and 66.7% for GNHI. This weighted the environment low at 33.3% and people high at 66.7%, to calculate sustainability for Bhutan. There was negligible or no correlation ( $r=0.04511$ ,  $N=20$ ,  $P<0.055$ ) between localisation and sustainability in Bhutan, when human concerns were weighted high against those of the environment in the BSI.

Similar to the negligible relationship between the BLI and BSI (EF 33%), a weak negative relationship ( $r = -0.231$ ,  $N=20$ ,  $P<0.053$ ) exists between the BLI and the GNHI. It is then likely that the strong positive correlation between the BLI and

BSI (EF 50%) is due to the effect of the EF in both. This may be seen in the very strong positive relationship ( $r=0.847$ ,  $N=20$ ,  $P<0.003$ ) between the BSI and EF in Bhutan, the rest of the BSI or the GNHI component having little effect. There was a negligible relationship ( $r = -0.17$ ,  $N=20$ ,  $p<0.053$ ) between GNHI rankings and EF for the districts of Bhutan.

### 8.1.3 Discussion

Due to the rigor of the GNHI, and the inclusion of EF as a well-recognised measure of environmental impact, the newly formed BSI (EF 50%) provides a relatively holistic index with which to correlate the BLI. These results may then be usefully employed to guide further localisation and sustainability research regarding the relationship between localisation and sustainability, and the achievement of *Research objective 6*.

As it is possible to achieve aspects of human wellbeing, while these achievements simultaneously undermine environmental health and equality, the requirement for environmental impact inclusion in order to measure sustainability is discussed by many authors (Gasparatos & Scolobig, 2012; Pope et al., 2004). Such achievements are obtained at the cost of sustainability, making it necessary to include all dimensions when examining sustainability. The exclusion of environmental impact from the BSI would then highlight human wellbeing, while ignoring the effect on the environment and thus on sustainability, of achieving this wellbeing.

When EF is weighted 50% for the BSI (as with the WBNI (Prescott-Allen, 2001)), there is a strong, positive relationship with the BLI, where EF is weighted 18.18%. When EF is omitted from the BSI results (equivalent to GNHI), there is negligible relationship between localisation and the BSI. The relationship only becomes strongly positive when EF is added to the GNHI results, indicating that localisation is correlated with the EF component of the BSI, not with the economic, social or governance components of the index. However in order to correlate localisation with sustainability in Bhutan, the BSI indicators must be examined together, as without an environmental impact component they do not comprise a holistic BSI.

While indicating that in Bhutan sustainability and localisation are strongly related, the correlation result between the BLI and the BSI (EF 50%) does not tell us why this strongly positive relationship exists. To determine the 'causality' of this relationship, it was necessary to conduct further research. The research was carried out during interviews across Bhutan to achieve *Research objective 6*. This research includes investigation of whether there is a causal relationship between sustainability and localisation in Bhutan, and whether best practice sustainability in Bhutan is intentionally localised. This is described in Chapter 9.

### **8.1.4 Limitations of Bhutanese localisation and sustainability correlations**

One factor that makes the correlation analysis between the formed BSI (EF 50%) and BLI less than ideal is the use of EF and wellbeing in both indexes. Using the same indicators in two indexes that are being correlated, will increase the strength of relationship measured between them. However the required measurement of both of environmental impact and wellbeing dimensions in order to capture both sustainability and localisation, and the lack of alternative and available data, makes this drawback unavoidable.

Another shortcoming of the BLI and BSI (EF 50%) correlation is due to the lack of data regarding the movement of goods and services between Bhutanese districts. This is due to the resource dependence score being the percentage of goods consumed that are not locally produced, rather than an actual measure of the amount that is imported.

### **Conclusion**

*Research objective 4* was achieved with: the formation of a BLI; the modification of the GNHI with the inclusion of district EF to form a BSI; and the correlating of localisation and sustainability in Bhutan using these two indexes. This strongly positive relationship when EF is weighted at 50% on the BSI, as is done on the WBNI (Prescott-Allen, 2001) and the SHDI (Jain & Jain, 2013), indicates that in Bhutan when localisation increases, sustainability also increases and vice-versa.

## **8.2 National level localisation and sustainability correlation**

Global localisation and sustainability correlation was undertaken using GSIs that best meet assessment for sustainability criteria. This enabled determination of the relationship between sustainability and localisation at a global level.

### **8.2.1 Correlating localisation and sustainability globally**

GSIs identified as best incorporating the requirements for sustainability and attempting 'assessment for sustainability' as outlined by Pope et al. (2004) and Gasparatos (2012), have been employed to correlate localisation and sustainability at the national level. These indexes employ various methods to rank the sustainability of countries for which there is the available data. As previously described none of the indexes yet adequately employ the range of sustainability metrics believed to be necessary to adequately capture assessment for sustainability as described by Pope et al. (2004) and Gasparatos (2012).

## 8.2.2 Method

Five Pearson's linear correlation analyses were undertaken to explore the relationship between localisation and sustainability, globally. Not all countries captured by the employed GSI's were captured by the GLI, as not all of the required localisation data were available for all countries. As a result all of the GLI countries included in the employed GSIs, were re-ranked according to the GLI set of countries included in the GSIs. The correlations between the GLI and these indexes are explained below, and these are shown and summarised in Table 17 at the end of the results.

## 8.2.3 Results

### Happy Planet Index (HPI)

Moderate positive relationship ( $r=0.34646$ ,  $N=103$ ,  $p<0.00029$ )

The HPI captures objective wellbeing, EF and longevity (Abdallah et al., 2012). These indicators capture important requirements for sustainability including objective and subjective wellbeing, environmental impact and equity. Precautionary and future consequence considerations are also captured by HPI scores, that indicate whether a country has achieved the requirements for sustainability as defined by the authors.

$$\text{HPI} = \frac{\text{Experienced wellbeing} \times \text{Life expectancy}}{\text{EF}}$$

Important sustainability assessment dimensions that the HPI metrics do not capture include: participation or engagement in local governance, although subjective wellbeing may comprise some element of this sustainability dimension as it is believed that democracy contributes to wellbeing (Cuthill, 2010); and social trust or some other indication of social health or connectedness and engagement, although again peoples level of subjective wellbeing may in part reflect the level of social health, engagement and connectedness that they experience (Abdallah et al., 2009). The HPI authors acknowledge that the lack of social sustainability dimensions covered by the index may result in some misleading HPI scores, with some countries that experience human rights and environmental abuses scoring well on the HPI (Abdallah et al., 2012).

There is a moderate positive relationship between the HPI and the GLI. However because the HPI does not include metrics that capture some important aspects of sustainability, such as integration of economic, environmental, social and institutional issues and their interdependencies and public engagement as outlined by Pope et al. (2004) and Gasparatos (2012), the HPI may not be a reliable indication of sustainability.

## **Environmentally Responsible Happy Nation Index (ERHNI)**

Negligible relationship ( $r=0.07772$ ,  $N=96$ ,  $p<0.52586$ )

The ERHNI attempts to measure happiness whilst capturing the costs of this happiness to other nations and future generations, in the form of happy life years a nation achieves for an average person, less the per capita costs imposed on the global community (Ng, 2008). It uses GhG emissions to capture environmental impact and cost to the global community. These indicators capture important requirements for sustainability including objective and subjective wellbeing and environmental impact. Intra and intergenerational equity considerations are emphasised with the use of GhG emissions to capture external costs of consumption, introducing some precautionary bias and future consequences of present actions considerations.

Dietz (2009) claims that GhG cannot be used in isolation to assess environmental dimensions of sustainability, because a nation may reduce GhG while causing untold environmental damage in other ways, and threshold figures representing all of the relevant aspects must be combined in order to form an environmental indicator. Additionally the ERHNI does not include governance or public engagement metrics, or achieve integration of economic, environmental, social and institutional issues and their interdependencies. The ERHNI then does not represent assessment for sustainability as described by Pope et al. (2004) and Gasparatos (2012). However in attempting to capture the cost of development to other nations and future generations, the ERHNI provides an innovative addition to previous sustainability assessment whilst not yet capturing holistic assessment for sustainability.

This correlation result indicates no relationship between the GLI and the ERHNI. However because the ERHNI does not include metrics that capture some important aspects of sustainability, such as governance and many social health dimensions of sustainability, the ERHNI may not be a reliable indication of sustainability.

## **Environmental Efficiency of Wellbeing Index (EEWB)**

Negligible relationship ( $r=0.11434$ ,  $N=70$ ,  $p<0.337$ )

The EWEB index aims to capture the balance between human wellbeing and minimising environmental impact (Knight & Rosa, 2011). The index regresses average life satisfaction on EF per capita, and computes the unstandardised residuals to determine wellbeing relative to environmental consumption. This index captures important considerations regarding the efficiency with which the environment is converted into human wellbeing in the form of consumption.

The EEWB index uses what are widely regarded as valid sustainability metrics to indicate the environmental efficiency of wellbeing, but it is unlikely to indicate holistic sustainability as it does not meet the requirements for holistic

assessment for sustainability as outlined by Pope et al. (2004) and Gasparatos (2012). It does not incorporate the integration of economic, environmental, social and institutional issues and their interdependencies, or public engagement considerations.

The correlation result indicates negligible relationship between the GLI and the EWEB. However because the EWEB does not include some important aspects of sustainability, such as governance and many important interdependencies, the EWEB may not be a reliable indication of sustainability.

### **Sustainable Human Development Index (SHDI)**

Weak positive relationship ( $r=0.26531$ ,  $N=95$ ,  $p<0.018$ )

Jain and Jain (2011) impute EF and biocapacity into the HDI to form the SHDI. The incorporation of EF and biocapacity data aims to capture environmental impacts and sustainable consumption limits, combined with social and economic indicators. The SHDI index then incorporates income, education, life expectancy, EF and biocapacity data.

This correlation result indicates a weak positive relationship between the GLI and the SHDI. However the SHDI does not include metrics that capture some important aspects of sustainability. These include governance and objective wellbeing, the integration of economic, environmental, social and institutional issues and their interdependencies, and public engagement. Further to this education levels and economic measures that do not necessarily indicate sustainability, and it has been observed that they may rather reflect the degree to which unsustainable Western culture based on globalisation is imposed on other cultures (Akamolafe & Dike, 2011; Guri, 2007) and the degree to which important social health aspects have been degraded (Easterlin, 1995; Lane, 2000b). The SHDI may then not be a reliable indication of sustainability. This makes the SHDI index results insufficient as a reliable guide to sustainability, and the index does not meet the requirements for holistic assessment for sustainability as described by Pope et al. (2004) and Gasparatos (2012).

### **Wellbeing of Nations Index (WBNI)**

Negligible relationship ( $r=-0.173$ ,  $N=101$ ,  $p<0.08183$ )

The WBNI combines 87 indicators employing a subset of 123, to form a "Barometer of Sustainability" (Prescott-Allen, 2001). The human wellbeing indicators include measures such as wealth, health, access to knowledge, crime, equity, and community aspects such as governance, freedom and peace. The ecosystem index includes many aspects of environmental health and land protection such as water, land and air quality and species and genetic diversity. As such the index covers a very broad range of measures covering the four dimensions of sustainability. Graymore (2008) reports the WBNI (2001) as one

of the best attempts to holistically capture sustainability, covering environmental, economic and social sustainability, and including equity within the population using indicators that are tailored to each region that is assessed.

The WBNI includes many variables such as education levels and economic measures that do not necessarily indicate sustainability, and may rather reflect the degree to which unsustainable Western culture based on globalisation is imposed on other cultures (Akomolafe & Dike, 2011; Guri, 2007) and the degree to which important social health aspects have been degraded (Easterlin, 1995; Lane, 2000b). Due to the use of potentially invalid sustainability metrics, the WBNI may indicate distorted sustainability results and rankings. Further to this, Wilson et al. (2007) note that the WBNI likely results from a common sustainability framework representing a weak sustainability position that fails to qualify ecological thresholds and thus to identify the requirements for sustainability.

The correlation result indicates no relationship between the WBNI and the LI indexes. However because the WBNI includes many potentially invalid sustainability metrics that may rather indicate unsustainability, and likely results from a weak sustainability position, the WBNI does not meet the requirements for holistic assessment for sustainability as described by Pope et al. (2004) and Gasparatos and Scolobig (2012) and may not be a reliable indication of sustainability. This may cause the correlation analysis result to be negative.

Summary of GLI and GSI correlations

**Table 17: Correlation results between GLI and GSIs**

<b>Index</b>	<b>Pearson's correlation</b>	<b>Sample size</b>	<b>Strength of relationship</b>
<b>HPI &amp; LI</b>	0.35	103	Moderate Positive
<b>ERHNI &amp; LI</b>	0.06	97	None or Negligible
<b>EEWB &amp; LI</b>	0.11	80	None or Negligible
<b>SHDI &amp; LI</b>	0.24	95	Weak Positive
<b>WBNI &amp; LI</b>	-0.17	103	None or Negligible

#### **8.2.4 Discussion**

At present there are no comprehensive, holistic national assessment for sustainability measurement tools available (Graymore et al., 2010; Singh et al., 2012; Turcu, 2012). Additionally the authors of most of the above-described sustainability assessment tools explain that while advancing those previously developed, their indexes are not yet capable of fully capturing sustainability (Abdallah et al., 2012; Knight & Rosa, 2011; Ng, 2008; Prescott-Allen, 2001). These authors call for the improvement of their indexes with the addition of more accurate and comprehensive sustainability measures. Prescott-Allen

(2001, p.10) further observes that no method can provide a definitive assessment, rather sustainability assessment provides “a framework for reflection and debate”, regarding the relationship between people and the environment.

Because there is not yet a GSI considered sufficiently developed to capture sustainability, it is difficult to do an adequate correlation between sustainability and localisation. In addition to the limitations of existing SIs, as previously described the formed LIs have various limitations. These limitations include some countries being highly localised for negative reasons, achieving high localisation scores whilst also comprising a low level of wellbeing.

Important localisation qualities captured in the GLI are not included in most SIs. These qualities include resource self-reliance and dependence, and control and ownership of resources, assets and business. Furthermore governance and interdependency measures are not often included or adequately captured by SIs, some exceptions being the GNHI and the WBNI. Because the interviewed localisation experts identified these as very important localisation metrics, they are significantly weighted in the GLI. Due to the absence of such metrics in most SIs, this may result in differing GLI and GSI results and a corresponding lack of correlation between the two.

As with the GLI, it may be seen in Table 18 in the rankings of four of the five GSIs, that Latin America dominates the top 10 rankings. Costa Rica topped the GLI and the HPI, and ranked in the top three on the five GSI's. These include the HPI, ERHNI and the EEWB indexes. The two GSI's on which Latin America did not dominate, the WBNI and the SHDI, both employ a lot of HDI education and income data which may be invalid as a measure of sustainability, potentially even better indicating unsustainability (Akomolafe & Dike, 2011; Easterlin, 1995; Guri, 2007; Lane, 2000b). Scandinavian countries dominate the top rankings of these two GSIs.

**Table 18: Top 10 GLI and GSI achievers**

Rank	LI	HPI	WBNI	ERHNI	EEWB	SHDI
1	Costa Rica	Costa Rica	Sweden	Switzerland	Costa Rica	Australia
2	Bhutan	Vietnam	Finland	Denmark	Brazil	New Zealand
3	Argentina	Colombia	Norway	Costa Rica	Colombia	Finland
4	Norway	El Salvador	Iceland	Sweden	Dominican Rep.	Sweden
5	El Salvador	Panama	Austria	Austria	Panama	Norway
6	Ecuador	Nicaragua	Switzerland	Panama	Mexico	Estonia
7	Bangladesh	Venezuela	Germany	Colombia	Argentina	Argentina
8	Mozambique	Guatemala	Uruguay	Netherlands	Honduras	Latvia
9	Zambia	Bangladesh	Denmark	Venezuela	Saudi Arabia	Uruguay
10	Colombia	Honduras	New Zealand	Honduras	Finland	Brazil

### **8.2.5 Limitations of global localisation and sustainability correlations**

Some factors make the correlation analysis between the formed GLI and GSIs less than ideal, including the use of EF and wellbeing in both the GLI and many of the GSIs. The requirement for the measurement of both of these dimensions in order to capture sustainability, and the limited available data, makes this drawback unavoidable for the purposes of this research, and may increase the strength of relationship measured between localisation and sustainability. However as environmental impact and wellbeing are required in order to validly measure both localisation and sustainability, this seems unavoidable.

As identified in chapter 6 regarding limitations of the completed national localisation assessment, there are some factors that make the GLI used for national localisation and sustainability correlations not entirely reliable. To reiterate, these factors include: some countries scoring well on the GLI though they are highly localised for negative reasons; the water self-reliance figures are limited, provide some indication of the level of water security, rather than accurate self-reliance figures; the energy self-reliance figures are limited, as they do not reflect the dependence of countries upon imports of certain fuel types, rather providing some measure of energy production capacity; housing self-reliance data, identified by the interviewed localisation experts as important to measuring localisation, was not available for inclusion as a submetric for the GLI; national resource dependence figures may over-represent resource dependence; because citizens in one country may have little experience of governance participation occurring in other countries, self-reported governance participation data may not reflect the actual level of governance participation compared to another country, localisation type scores then potentially not provide an entirely accurate country comparison; due to cultural bias and the predominance of economic indicators, the WGI dataset may not accurately reflect governance satisfaction; and control and ownership of resources, assets and business data is not comprehensive, rather providing a comparable measure of foreign investment that affects resource, asset and business ownership in all countries.

### **Conclusion**

GSIs identified as best incorporating assessment for sustainability requirements have been employed to correlate localisation and sustainability at the national level, globally. It is acknowledged that none of these GSIs yet reliably capture sustainability globally, however no GSI was identified that is yet capable of doing so. In addition to the limitations of existing GSIs, the formed GLI has various limitations including some countries being highly localised for negative reasons, achieving high localisation scores whilst also comprising a low level of wellbeing.

Little relationship was determined between localisation and sustainability at the global level, and this may be due to the absence of important localisation indicators in GSIs such as social, governance and resource self-reliance and

dependence metrics. Attempting to determine the relationship between localisation and sustainability at a national level, globally, has completed the investigation of *Research question 3b*. Determining this relationship could provide the basis for exploration of *Research question 3c*, by locating places that may be seen to comprise best-practice sustainability achievement. However the inability of GSIs to reliably indicate sustainability currently prevents this at the global level.

### 8.3 Overall discussion and conclusions regarding localisation correlations

This Chapter described how *Research objectives 4 and 5* were achieved. Pearson linear correlation analysis was carried out using regional and national LIs and SIs. These correlation results are intended to indicate the strength of relationship between localisation and sustainability.

Due to the inability of current global sustainability assessment methods to adequately capture national sustainability, it was not possible to reliably determine the relationship between localisation and sustainability at the global level. It is hoped that in the future adequate national sustainability assessment methods will be developed, making it possible to better identify the most sustainable countries. Further to this it is hoped that improved localisation measurement at the national level will be developed, in order to better identify localised countries and more accurately determine the relationship between localisation and sustainability. Nonetheless the correlations were carried out to demonstrate a way that the relationship between localisation and sustainability might be carried out should reliable SIs and LIs become available.

It is observed that sustainability assessment is most appropriate at the regional level, due to the potential to capture interdependencies between sustainability dimensions at a regional rather than national level (Graymore et al., 2010). This may be why district economic, social and governance dimensions have been so comprehensively captured in Bhutan using the GNHI. The incorporation of EF into the GNHI as an attempt to holistically assess sustainability at a regional level for the purpose of regional localisation and sustainability correlation, is a move in this direction.

Despite the identified limitations of the BLI and BSI (EF 50%), the strongly positive correlation result indicates that at a district or regional level in Bhutan, as localisation increases, so does sustainability. The results suggest that it is useful to further explore the relationship between localisation and sustainability, in order to achieve *Research objective 6* and *Research question 3c*.

As a first attempt at localisation and sustainability correlation, this research indicates that LIs and SIs may be formed and correlated with best result at the regional level. It then presently seems most appropriate to further explore the

relationship between localisation and sustainability at a regional level. However in the future regional localisation results might be combined for one country, in order to assess how localised that country is and compare this to other countries. Perhaps the same process could be carried out in order to assess sustainability, nationally. More sustainable or more localised countries might then be explored in order to determine how sustainability is carried out in the regions of these countries.

## Chapter 9 Bhutanese sustainability interviews

In order to answer *Research objective 6* and further address *Research question 3c*, interviews were carried out across Bhutan. The interview results and discussion focus particularly on the top 10%, or two most sustainable Bhutanese districts, in order to determine how they plan and implement sustainability and whether is characterised by localisation intent. Interviews were also carried out in 8 other districts for a broader overview of Bhutanese sustainability planning.

The previous chapters have identified that localisation intent would likely include strategies aimed at promoting: environmental health; decreased resource dependence; local resource self-reliance; social health; high levels of local governance participation; and high levels of capital and resource ownership. If such planning and implementation is currently achieving successful sustainability results, then this provides useful guidance for those seeking to implement localisation as an effective sustainability strategy.

### 9.1 Bhutanese sustainability planning and implementation

#### **9.1.1 Gross National Happiness administration and planning**

In Bhutan, Gross National Happiness (GNH) is defined as occurring when, “...material and spiritual development occur side by side to complement and reinforce each other” (Ura et al., 2012, p. 6). The Bhutanese Prime Minister describes that in Bhutan happiness refers not to the predominantly Western “fleeting” concept of pleasure but rather to, “...serving others, living in harmony with nature, and realising our innate wisdom and the true and brilliant nature of our own minds” (Ura et al., 2012, p. 8). The Constitution of Bhutan (2008, Article 9) directs the State, “...to promote those conditions that will enable the pursuit of Gross National Happiness”. Government policies and programs then aim to conform to the pursuit of GNH, a defining Bhutanese concept (Ura et al., 2012, p. 6).

The Gross National Happiness Commission (GNHC) administers all Bhutanese government planning, and is the over-arching government department to which all others report. The GNHC explain their objective is to, “...ensure that GNH is mainstreamed into the planning, policy making and implementation process by evaluating their relevance to the GNH framework of: i. Developing a dynamic economy as the foundation for a vibrant democracy; ii. Harmonious Living – in harmony with tradition and nature; iii. Effective and good governance; and iv. Our people: investing in the nation’s greatest asset” (Gross National Happiness Commission, 2015). The GNHC comprises The Prime Minister as Chairperson, The Cabinet Secretary, All Ministry Secretaries, the Head of the National Environment Commission, the GNHC Secretary and is, “...the central government

body for coordinating and spearheading policy formulation, and shall ensure that all policies, irrespective of their origin, are processed in line with the (GNHC) Protocol for Policy Formulation” (Gross National Happiness Commission, 2015) (see Appendix 12). The GNHC then centrally administer Bhutanese sustainability planning through the provision of overarching national sustainability planning, guidelines and monitoring.

Local communities determine the initiatives that they will carry out within the GNHC sustainability framework, after budget approval by the regional Dzonkhag (Council), and then the GNHC. Planning occurs on a five-yearly basis, the GNHC compiling the final comprehensive five-year plan for Bhutan. A representative from every Bhutanese rural household is expected to contribute to local planning at community meetings, except in urban centres such as Thimphu. Due to the larger population and complexity of community participation in urban settings, GNHC planning officers assume the role that community members in rural areas take in sustainability planning and implementation.

### ***9.1.2 District GNH planning and implementation***

Bhutan comprises 20 districts (regions) (Appendix 4). Gewogs form a geographic administrative unit below the district (dzongkhag) level and subdistricts (dungkhag) where they exist, and are above municipalities (thromde). 205 gewogs average 230 km<sup>2</sup> in area, and these are divided into chewogs for elections and thromdes for administration.

All regions plan for sustainability in broadly the same way according to central government guidelines that focus on GNH. However each gewog has its own locally elected representative committee or Gup, which meets and plans with local village committees or Choegpa and Mungmees. All gewog members are trained in SWOT analysis, so that after consultation with the communities that they represent, they are able to meet and determine the strengths, weaknesses, opportunities and threats involved with community plans. The Gup are then able to make plans that represent the communities’ needs and pass these up to the Dzonkhag level for approval. The plans are finally submitted to the GNHC for budget approval and incorporation into the next 5-year national plan.

New policies and five-year plans that are passed by the government, are disseminated to the Dzonhags, and from there to local-level gewog leaders (Gup) who manage local level community planning. At the community meetings policy and planning information is disseminated to the public, who participate in Dzonhag planning and strategising by deciding upon the projects that will occur in their own local community for the next five years. In being made aware of government policies and guidelines, the public are able to carry out their own community planning with the relevant, overarching laws and policies in mind.

Local communities determine whether projects suggested by their members align with the whole community needs, this decision-making and planning

process involving a representative from every household. In order to ensure that these community projects and decisions align with GNH policies and aims, they are then screened at the lowest level of decision-making possible, the district or dzongkhag level. If there is need for further advice, for example in relation to large-scale projects, project screening is referred up to the relevant Ministries, the GNHC finally screening all projects and approving project funding.

In planning sustainability all Bhutanese regions follow centrally administered GNHC guidelines. Planning differences occur mainly due to the specific regional characteristics and needs, and local project planning priorities. Local culture and spiritual values also have an effect on planning and participation, most regions reporting that local traditions, cultural practices and spiritual beliefs act to ensure environmental and social protection priorities. This is expanded upon in the following reporting of Bhutanese sustainability interviews, focusing on the two top sustainability-scoring Bhutanese regions, Dagana and Sarpang.

## 9.2 Method

This chapter addresses *Research question 3c*. The research follows the recommendation of Styles (2012) in identifying best practice by focusing on the top 10% of achievers, which were Dagana and Sarpang on the BSI. Further to this and in accordance with the recommendations of Bulkeley (2006) regarding best-practice sustainability transfer, the ‘software’ or framing discourse of Bhutanese sustainability is captured above and in the results, and related as the essential ideas, concepts and attitudes behind this best practice, including policy, programs and goals that enable this.

Dagana Dzongkhag is a predominantly rural region (86%), with a population of approximately 19,352. It is located in southern Bhutan (see Appendix 4) and encompasses a total area of 1389 square kilometres ranging from 600 to 3800 meters above sea level. The district falls within both temperate and sub-tropical zones, with hot and wet summers and a dry cold winter (Royal Government of Bhutan, 2012a).

The Sarpang District population of approximately 34,426 is 65% rural, and the region is located in the southern foothills of Bhutan next to Dagana, and bordering India. Sarpang district encompasses a total area of 1,666 square kilometres, ranging from 200 to 3600 meters above sea level, and falls within both temperate and sub-tropical zones. The district experiences hot and wet summers and a dry cold winter, and fertile agriculture land (Royal Government of Bhutan, 2012a).

The six interviews were with local government and community group representatives: The Governor (Mayor); sustainability (GNHC) officer; and one of each region’s Gup (locally elected community leaders). These interviewees were

selected with the assistance of GNHC, due to their accessibility and involvement as key sustainability planners in their district. It was anticipated that interviewees would not be familiar with term localisation, so the interview questions were aimed at drawing out information regarding whether planning and strategising generally (see Appendix 11). The questions aimed to determine how sustainability is planned and implemented, and whether this consists of recognisable localisation qualities including promotion of: environmental health; resource independence; local resource self-reliance; social health, local governance; and capital and resource ownership.

The interviews were approximately one hour in duration, and recorded for later transcription. Relevant interview responses relating to sustainability planning and recognisable localisation intent in the form of planning and implementation were identified, in order to explore *Research question 3c*. The responses are grouped below into the 6 expert-identified localisation metrics (see Chapter 5), and then lessons for best practice. The responses are used to explore how localisation relates to sustainability planning and implementation in these two districts.

The perceptions of Bhutanese interviewees from Dagana and Sarpang are recorded below as excerpts relating to each expert-identified localisation quality. Additionally interview responses regarding understandings of sustainability, why districts score highly on the BSI, advice for others wanting to strategise localisation, and further relevant points are discussed. Correlations have been undertaken to further investigate interview results.

Note: interviewees sometimes refer to a 'rupee crisis'. In 2011 Bhutan reached a serious trade imbalance, and as a result in 2012 began attempting to address this by decreasing the outflow of Indian rupees through administrative and policy measures (National Council of Bhutan, 2013). These measures continue and include: bans on selected imported goods and construction loans; streamlining of Indian rupee payments; and encouragement of import substitution (National Council of Bhutan, 2013).

### 9.3 Results

#### ***Introduction***

The results are divided into two parts: 1) Expert identified localisation qualities; and 2) Lessons for best practice. As context for this, responses to the first interview question, '*What do you understand the term sustainability to mean?*', are described. How to ensure sustainability such that future generations are positively affected and their social and resource needs are not be compromised, is subsequently explored.

### 9.3.1 Expert identified localisation metric qualities

All interviewees referred firstly to sustainability in relation to the importance of ensuring that all development is long-lasting and positively impacts future generations without compromising their needs. For example, *“Whatever we do, be it development works or economic development, we intend it to sustain in the future so that the next generation has what they need”*, and from another *“Whatever we do or plan has to sustain for the future betterment of everybody”*. All interviewees see sustainability principally in relation to planning for the long-term, and ensuring that future generations are positively impacted.

The interviewees also commonly describe their understanding of sustainability in relation to the way that it is promoted by the GNHC and the four sustainability pillars: economy; environment; culture and society; and governance.

Interviewees explained: *“As far as possible when we plan anything we have four pillars in mind...and that is guided by the government. We have studied this and our people think it is a good approach and it is also good for them”*. Another said, *“We are planning according to the four GNHC pillars as designed by the King. We explain these policies and bylaws to the public, and then they will know and practice these things and suggest accordingly”*. One interviewee qualified this by saying, *“We have policies but they are not implemented radically. By and by we just educate them. This is sustainability: educate them slowly for a long-lasting effect for their family and their children for the long-term”*. It is clear that local sustainability planning is guided by the national GNHC strategy, and that this is important to the local community.

One interviewee gave an example of their understanding of sustainability in relation to a description regarding the sustainability commitment of the planning committee of local leaders in their district. *“They would not give approval for the one case we have had of an approval sought to establish a mine...So that shows they have a strong commitment to sustainability...In the short-term they are giving up a lot of economic benefits...the local community said that this would have a future impact for our children, so they don’t want to give up the land”*.

#### 9.3.1.1 Promoting local self-reliance and decreasing resource dependence

All interviewees stated that local resource self-reliance is important: *“Water, food, energy, clothing and housing materials are produced locally as much as possible”*. Examples of this include: *“The public has started buying and using greenhouses so that they can be self-sufficient all year round, rather than only produce in the season”*; and *“Generally there is a preference to buy local if they can afford...There is also a local belief that if you buy the local food you will bring local development for the local people. This is a common belief”*.

There were different beliefs regarding local self-reliance scales. One interviewee stated, *“Everybody is trying to be self-sufficient, first for the community, then the family, then Dagana, then Bhutan”*. Another said, *“We do not distinguish between our locality and Bhutan. It doesn’t matter it is all the same, we support the same”*.

However the same interviewee also described community and district self-reliance, as the way to support national self-reliance, and that Dagana needs to be self-sufficient due to low-income levels. *“The income they generate is much less than the income in other districts, so localisation is very important because whatever income they generate and whatever they produce should sustain themselves”*. Further to this one stated, *“The people like to buy the local things because they like to know that our money will stay in our country. Also if we buy locally we are able to know the quality and how it has been made. And if there is a problem we can return it, but not if it comes from India. Also because we are friends here so we would like to help each other and our community”*. Interviewees perceive local resource self-reliance as stimulating the local economy, ensuring quality, and benefiting local people.

Increasing resource self-reliance and decreasing resource dependence was also described as a government directive that is encouraged through policy. For example, *“We have policies like when we build houses you should use your local materials”*. Another explained, *“The government is trying to say that in the villages construction has to be done with local building materials...So if we use these we don’t have to depend on the Indian rupee and there is no tax. This kind of incentive is given by the government, and that way we will export more and import less”*. Interviewees describe that the government is encouraging but not enforcing local resource self-reliance to decrease imports.

Strategies currently being employed to enable district self-reliance and less resource dependence were also described. *“Now we can have local level shareholders in the community who can make a group, and collect these brooms and sell them at a reasonable rate of benefit to both the buyer and seller. This is to establish sustainable self-sufficiency and to help all people to earn money”*. Another explained, *“... there is policy and government is trying to encourage us to do for ourselves and stand on our own feet. For example here we have a dairy group, and we are asked to produce our own cheese, butter and milk to sell or to buy within our own communities”*. Local districts and communities then determine if and how they will implement self-reliance strategies, which are encouraged by central government.

#### 9.3.1.2 Promoting local social health

Interviewees describe social health as an important part of Bhutanese culture and tradition. For example, *“Here we are very helpful to each other. Like if something happens in my family if they die or they are sick, all of the community makes a collection and comes and helps us. So this relation is very good in our remote places like this. But if you are staying in town, you are staying in this house and I am staying in that house and we don’t know each other”*. This interviewee believes that the tradition of community care is declining in urban areas, as there is not the community connection to facilitate social health as in rural areas.

A tradition of community support was also described in relation to individual house construction. *“Earlier in the village we didn’t have money, so when we did a construction people from the neighbouring villages come and help, and we do the same in return. But this is fading away. But there are a few villages where, especially when it comes to a community temple, they will come. So we are telling people that it is very important that we keep this kind of a culture here so that it will sustain in the future”*. This interviewee describes that in the past people helped each other with construction, that this help is now aimed more at community-shared buildings such as temples, and that sustainability planners encourage community cooperation such as this.

Maintenance of religious traditions is described as facilitating community participation. *“Usually when it comes to social matters, like the village ceremony, people contribute voluntarily...this kind of culture still prevails in the villages”*. Local government works to preserve local culture, traditions and places in their planning process. *“... the Dzong itself is a sacred seat of Monastery and administration. Neece is opposite Dzong, a huge sacred stone that we have to preserve...Such important places we...keep in mind whenever development occurs”*.

Cultural practices are also preserved. *“For culture we have already from generations ago, where our grandparents’ religious practices should be maintained so that the next generation, the youth have them...our culture, the sechu, the government has put in our books...If I am uneducated I learn from my grandparents, if I am educated I can also learn from the book”*. This interviewee refers to the important role that both government and older generations have played in maintaining culture through religious traditions and education.

Another described the importance of preserving local tradition and culture, in terms of a specifically Bhutanese as opposed to a Western identity. *“We share with our young people how it is done and performed...We have to preserve our culture...Because if we try to develop in a way that it is not compatible with our culture, then in the future we will not have an identity”*. Another interviewee described the need to bring modern facilities to rural communities slowly so as not to disturb local cultures. *“People will think that their culture or tradition is being disturbed by all these modern facilities...We need to at the same time see the acceptance of the people, especially in the critical areas”*.

One interviewee described community vitality, one of the GNHI indicators, as an important development consideration. *“We also have community vitality, which is a very important part of Bhutanese sustainable development. For instance when we have development we try to ensure that the elderly are not separated from the family and that the younger ones take care”*. This interviewee explained that the local government aims to encourage community vitality by awarding funding to shared-projects. *“...we are trying to give development to the community not the individual, so in that way we keep the family and community intact. We are trying many things like government development benefits and subsidies such as agriculture, livestock, these are not provided to the individual but to the group”*. This interviewee describes the allocation of shared resources as a local government initiative to encourage and maintain community vitality.

Another interviewee described the importance of localisation to social health. *"We intentionally prioritise localisation because it makes the local community much stronger. Like with community contracting...through cooperation and working with each other and understanding each other's nature that leads to self-realisation of the local group through common goal. Localisation is at the base of our planning process"*.

Interviewees commonly claim that local people prioritise community health over economic gain. For example, *"A few people think that money is more important. Yet the majority of the people think that the environment and their health is more important"*. Another stated, *"I think the community they have to think very nicely, because when we get money on the hand it will be happy or good for a month or a year. But for the culture and what is here it will be lasting for many, many years. Not only for us, for our sons and grandsons...It will be rare that people would prioritise money over social or environmental health"*. A third interviewee commented on social health emphasis rather than economic gain, as a result of traditional practices and beliefs. *"In Bhutan development is now going ahead, but until now they knew the importance of religion and nature, not money. The public believes that these are more important than money, as money just goes...The amount of money needed to sustain is best achieved through our agricultural practices out here. This does not disturb our environment or villages"*. This interviewee describes traditional subsistence agriculture as opposed to a consumerist culture, with the addition of cash cropping to purchase what cannot be produced, is aligned with and best supports local culture and traditions.

Finally one interviewee described social considerations as the 'real' nature of things, as opposed to the short-term benefits of economic gain. *"So when we think about sustainability we take the economy and the potential of the area and we have to carefully study the sustainability of this. If we don't...it may give a short-term benefit and a long-term negative impact. So that's why we are considering the long term for the social, real nature of the things"*. This describes the prioritisation of long-term social health rather than damaging, short-term economic gain in order to achieve sustainability.

### 9.3.1.3 Minimising environmental impact

All interviewees identified environmental protection as a key consideration in local and national planning processes and ensuring a sustainable future. For example, *"We in Bhutan think that environment is a critical thing that we always take care of. Through mandate we must always ensure at least 60% of the country's forest cover of the total area for all time"*. And, *"If we say about the environment, if we have watershed we have to think not only for ourselves, but for our children and our children's children. So we have to protect the watershed and the forest for the future"*. In prioritising and protecting environmental health for the benefit of future generations, specific local considerations were also discussed. For example, *"...in my geog we have few water-source here. So for future generations what we are doing here is protecting water sources"*.

Many believe that in their district, environmental health is perceived as more important than economic gain. For example, *“Number one is we have to see the social and the economic development of the area, and that should encompass whether there is any damage to the environment, it shouldn’t be affecting the environment”*.

Community leaders are described as important in ensuring that the community understands the importance of environmental health. *“Through the cycles of nature we are all a part of the environment. For the public that has no awareness of this, it is our responsibility to make them understand. After that they will...come to us for suggestions. This channel of communication should be there. Most people think that it is very important though”*. Government policy also plays a key role in providing community education regarding the importance of environmental health. *“...the policy of the government has created systematic knowledge regarding advantages and disadvantages of destroying nature”*. One interviewee further described the importance of local environmental knowledge in ensuring environmental health as then, *“The local people understand their environment and they will suggest for planning according to that”*.

Strategies for achieving environmental protection through community involvement in local governance and projects were also discussed. *“...these practices are going to the community level with community forestry, where the public is given responsibility for a certain demarcated area, and the public can see and make their own decisions, and they have started to see how to maintain themselves...They realise whether the natural resources or the money will benefit them more, now they are realising what this compromise involves and they do not want the mining here. They believe nature should not be disturbed...”*. Another explained, *“...So we encourage this...when this is given to the community, the community can take care of (the forest) themselves better than they otherwise do”*.

As previously mentioned one interviewee commented on the compatibility of traditional rural, agricultural lifestyles as opposed to contemporary modern urban lifestyles, with preserving environmental (and social) health. This interviewee believes that continuation of an agricultural lifestyle as opposed to urban development is compatible with preserving the local culture, and as a result achieves environmental protection.

#### 9.3.1.4 Promoting local governance (democracy)

All interviewees discuss local governance participation and planning as an essential aspect of sustainability. For example *“Governance is important because we are a democratic country and the plans and decisions should be discussed with the public...This is very important...So the plans should be given from the ground up”*. All interviewees contributed to explaining different aspects of why and how a local governance focus occurs.

The perception that localisation involves a modern and more recently inclusive grassroots governance and planning process compared to earlier, more authoritarian, top-down planning was described by one. *"In the formulation I used to say you do this here and you do this there, and the people used to say thank you sir and they would do this. But now they are saying we understand our needs ourselves, so now we have to discuss and reach consensus"*. This interviewee clarified his belief that, *"...we have to understand that the real need of the people will be understood by themselves only...it will advantage the government to involve them in the planning process to do a right intervention. So that is how we are doing localisation as a modern planning approach"*.

It was further observed that grassroots planning, while effectively meeting the needs of the community also needs to comply with national guidelines. *"Of course we cannot do everything they ask, we have to see that it is done in accordance with the government policies. Bhutan generally follows this way because we have all seen the benefits. And we should also see that they have engaged themselves or otherwise later they will say that they have not planned and it is not good for us. It is good to start at the local level so we will have a common understanding"*. Community participation in national government planning processes is believed to ensure that local communities determine their own development according to their specific needs, ensuring satisfaction.

Local elites are described as sometimes attempting to influence planning and dominate meetings, which the government is trying to combat through community education and awareness raising so that people will not be easily influenced. One interviewee explained *"The communities in Sarpang and in Bhutan...vary over time with the individuals there. Sometimes one individual can disturb the whole community"*. However the interviewees that mentioned this problem also believe that it does not dominate local planning.

One interviewee related the issue of government policies over-riding district needs. *"Here in Dagana I have only seen oranges and bananas, but I would also like to see other fruits to supplement our nutrition...But this potential is not being looked after and we cannot diversify because the government is concentrating on the problematic priority areas to lessen imports"*. Due to government policies implemented to achieve national priorities, it is perceived that districts may not receive the specific assistance they need to develop their unique potential.

Another described governance in relation to large-scale development projects such as hydropower. *"...Sometimes if it is of national importance then the government might have the right to implement the project even if it is going to have a social or environmental or cultural impact...this happens sometimes but very rarely...This is governed by the overall policy of the government for long-term benefit, which we have to always respect"*. National policy is then perceived as sometimes over-riding local sustainability needs, however most described that the two need to be balanced and that sometimes the community must compromise for the good of the nation.

Some interviewees described the local governance strategy as a process that has been occurring in Bhutan for decades. *“Right now we have a decentralisation process going on which started in the 1980’s. First administration was given to the Dzonkhag development committee. Then in the 1990s it was further decentralised to the geog level so that there could be participation at the local level”*. Another interviewee explained the success of this. *“After democracy we have overcome many challenges and we know the planning system...This will be most beneficial for the public for long-run sustainability, for the future benefit of our youth. It is the best policy so far”*. Local governance is described as an important part of a national process that ensures the inclusion of rural community needs.

Interviewees described four key principles in managing the governance process in Bhutan:

1. Transparency in local governance: *“So according to the democracy policy we are going to the public with everything, including the budget. We have to be completely transparent so they know how much there is to spend on the approved plans, and they can manage this budget themselves...They will take ownership and maintain checks and balances”*. This interviewee explained that through a process of transparency, the public is able to take charge of their planning budget, allowing them to plan effectively and to take ownership of this planning.
2. Local knowledge: *“...at the local level they are the best informers, they have the best ideas, they have been living there for centuries and they know the situation there”*. And as stated by another, *“The whole idea of sustainability is that people know their locality and limits, so that people can try to use their knowledge for development”*.
3. Education: *“...we may need to make people aware of gender, social and environmental issues. That is the challenge for us, then they will be able to plan for themselves”*. And from another, *“We try to give awareness to the people on environment, disaster management, gender and climate change issues so that they can plan their own activities sustainably”*.
4. Collaborative decision-making: One described their role in ensuring sustainable local governance, *“I consider the local elected officials as the link between the people and the government”*. Another interviewee described the importance of local planning committees, *“We have ditti or local government development committee. That is the highest decision making body at the district level...Us public servants have no influence or authority over this committee”*. This local government officer described the locally elected development committees are the most influential decision-making body at the district level, and that in their district, *“We are just observers and we can guide them and share the policies and pros and cons, but they make the decisions”*. Strategies for engaging the community in local governance were also described. *“...we try to engage the more influential people, and we try to make sure that at least 25% of the participation is women”*.

### 9.3.1.5 Promoting local resource and capital ownership

Interviewees described various government initiatives aimed at promoting local ownership of resources. These are aimed at encouraging community involvement and initiative, and ensuring that local communities take care of their own resource management and preservation. They are also claimed to stimulate local economies and capital accumulation.

Community forestry programs are described as creating local ownership. “...we have been taking special initiatives to have community, private forests where people are trained in this and they manage this...Because when it is under the forest cover and it is the responsibility of the government or the Dzongkha, then everybody's business is nobody's business. So they hardly take care. But when it is given, mine is mine. They take ownership”. Community forestry is described as resulting in sustainability benefits derived from the feeling of local ownership that this initiative fosters.

Another interviewee described that they promote the local benefits of Bhutanese purchasing loyalty. “They think they are getting everything cheaply when they buy outside from India, but then the local money is going out. We say that you pay here 5 rupees extra, but you should be proud you are buying our own local product and the money is staying in Bhutan. To a certain extent they understand but still it will take time”. This interviewee also described there is a lot of awareness regarding the benefits of buying locally. “Because of the rupee crunch, and the media and our education that we provide, people are aware of the local economic benefits of buying locally, keeping the local money in the local economy”. The interviewee describes an awareness of the local economic benefits of buying locally and also that there is the need for more education regarding this.

Government policies aim to encourage local money circulation within the local area. “The directive is also there from government, policy is there to contract locally”. Government policy encouraging the use of local contractors though this policy is not enforced, rather it is encouraged and complemented through local contracting policy initiatives aimed at supporting the formation of groups comprising local contractors. “We have formed community groups for different products, livestock, agriculture, forestry. So when we do the planning and implement, our priority is to give it to community contractors”. In this way local employment is generated with community contracting providing local employment for small-scale project contractors. The use of local as opposed to imported resources was also described as a beneficial outcome of community contracting. “When we give it to community contractors they always try to use the local products...I think that Sarpang maybe does this more than other districts”. Local contracting is described as promoting local resource use and further stimulation of the local economy, in addition to the creation of local employment.

### 9.3.2 Additional expert and literature identified localisation qualities

One interviewee explained that in Bhutan, the prioritisation of social and environmental concerns is religious. *“...even if there is economic benefit...they prioritise social, for the future. It has to do with religion, because people believe that there are deities in these mountains, and even all these trees, around those mountains, they are not cutting them because they believe they might be cursed by that Deity”*. Another explained, *“They believe that when you help people, in the next generation you will be born as a very wealthy person or a very handsome person...I think that this helps the sustainability of this region...The belief is strong there and they respect these customs”*. Many other Bhutanese interviewees similarly described local spiritual practices and beliefs, and also that people need to stay near their local village entities in order to preserve and care for this spiritual connection. One explained, *“The people think that when they leave their ancestral land they are leaving their god behind, and this might literally affect the physical health of the community”*.

Common Bhutanese spiritual beliefs were described by one interviewee as being traditionally Bhutanese, rather than necessarily Buddhist. *“Even before Buddhism was here it was a Bon, Benche culture whereby sacrifices were made. Bonnism...the protection of the trees and rocks, the lakes and the mermaids, tschomin...Mass destruction should not be done, only small-scale. We get permission from the evil spirits, the protectors of the village. We believe that if they are happy we will be happy. So we make them some offerings...The majority do this, this kind of culture is still there, and this in a way is protecting our environment”*. Spirituality as inclusive of Buddhism might then best describe Bhutanese spiritual beliefs.

Interviewees commonly believe that social decline is accompanying urbanisation in Bhutan. *“...we used to say in USA or other developed countries you will not know your neighbours. But now it is becoming a trend even in Thimphu, where you don't even talk to your neighbours”*. Another interviewee explained, *“Unlike in urban area where community vitality is going down and we live in the same building and we don't know who is staying next door. We have someone die there and next door they are dancing, celebrating a birthday party. This kind of tradition is not tolerable when it comes to community settings”*. Many interviewees used the example of the capital Thimphu to highlight their belief that social decline accompanies urbanisation as a result of people not knowing their neighbours.

One interviewee claimed that the higher status of owning and wearing locally made as opposed to imported clothing, fosters local production and stimulates the local economy. *“...people with purchasing power, many middle class people, try to buy our local product. It's for status also. Especially when it comes to Sechu, festivals, at that time you wear this kind of dress so that people will think oh he is wearing that kind of clothing so in social status he is ok”*. The higher status accorded to locally produced clothing is believed to facilitate local production, potentially decreasing environmental impact and strengthening local economies.

### 9.3.3 Lessons for best practice

#### 9.3.3.1 Why Dagana and Sarpang are scoring well on the BSI

Interviewees stated a number of reasons regarding their districts' high score on the BSI including:

**Good leadership and effective community participation:** At a grassroots level their community makes decisions and works well together in order to decide what is most important for the community. They also believe that the other geogs in their district work well together. *"I think the other geogs are the same. We work very well together"*.

**Ongoing education:** Local government provision of help and advice has assisted the community to effectively plan sustainability. This learning was related to planning according to public expectation and technical and policy guidance. Guidance was described as transparent suggestions to the public, in terms of the consequences of these suggestions.

**People are content with sufficiency:** One explained, *"They are happy because they are self-sufficient, even though they are not rich"*. Another stated, *"One thing is because Dagana is a rural community – there is not much development, people are much more self-sufficient. They are happy people with what they have"*. And from another, *"Even though you are poor that does not mean you are unhappy. In fact the poorer sections are more content than the rich ones are"*.

**Low levels of inequality:** People described that in Thimphu development pressure results in relative poverty, and that people experience discontent as a result. *"As development increases peoples' desires and demands are increasing. That's why they feel they are not happy....and they have no time...In Dagana there are not so many differences between the people and among the communities. The inequality creates the want. There is more inequality in other areas"*. This interviewee believes that with development people experience *"relative poverty"*, in contrast to people in the villages being relatively equal and experiencing a daily meal, shelter and clothing as enough for them without close reminders of people who have a lot more. Another believes that development, inequality and relative poverty results in people attempting to obtain money through criminal means stating, *"This doesn't happen much in Dagana because there is not this influence here, in Thimphu there is many influences"*.

**Strong sense of community:** One of the interviewees described that in their district the people gather for social events, in contrast to those that are well off no longer being dependant on each other, and as a result not needing to know each other. This interviewee perceives a new urban trend toward independence as unsustainable, describing that in their district they are trying to adapt to this new pressure by encouraging social networking to preserve an interdependent culture. The interviewee described this culture as traditional, linking interdependence to a saying that, *"...the key is in the hands of the woman, or the*

*mother*”, and that what mothers do should not be decided by the father. This interviewee believes that women are more likely than men to make decisions that preserve interdependence, both needing to be involved in decision making.

Environmental health: A focus on environmental protection and community forestry was described as important to sustainability success. *“In terms of environment our constitution says we should have 60% forest cover, but our district has 80%”*. This interviewee described that due to the tendency of flooding in their district, the people are aware of the risks associated with forest removal, and as a result they preserve the forest and concentrate on community forestry for income. *“All the people know about the environment...to stop the floods we have to protect the forests, so we do that. So we have been taking special initiatives to have community, private forests”*. The environmental conditions in their district have then led to an emphasis on environmental protection, and because the community owns and manages the forest, *“they take ownership”*, and this further protects the environment and increases sustainability.

Effective poverty reduction: *“...in the 10<sup>th</sup> 5 year plan, they have a poverty index about 25% or something, and by end of plan we have reduced to 4%. So we have achieved this goal...In Bhutan overall was 15%, reduced to 7% in 10th plan”*. This interviewee explained that previously their district had a higher than Bhutanese district average level of poverty, and that poverty reduction had resulted in a lower than average level of poverty, resulting in a high degree of contentment.

Income earning opportunities: One related contentment in their district and resultant sustainability success, to *“a lot of income earning opportunities compared to other districts”*. They described that this is due to the easy access of markets in Thimphu and neighbouring India for selling their cash crops to supplement subsistence agriculture.

Interviewee beliefs regarding their district success on the BSI then include: good leadership from local government and effective community participation regarding working well together in order to decide what is most important for the community; local government education in the form of help and advice in effectively planning sustainability in the form of planning according to public expectation and technical and policy guidance; contentment with self-sufficiency as opposed to the discontent that is perceived as being created by wealth, and a resultant low level of inequality and relative poverty, described as being prevalent in Thimphu and urban areas; a culture of social networking and interdependence; a focus on environmental protection and community forestry; effective poverty reduction; and the easy access of markets in Thimphu and neighbouring India in order to sell their cash crops.

### 9.3.3.2 Sustainability and localisation challenges

Interviewees describe threats to sustainability in their district and Bhutan, and the challenges that these present. These include:

Contemporary development and the resultant need to plan accordingly: *“So if we try to westernise everything...then it is not going to bring the sustainable part into it. In the future we will not be able to see what remains of Bhutan. We say that local cultures is not just all Bhutan, the South, the North, the West they are all different so we try to bring these things into development”*. Another interviewee similarly described, *“in Bhutanese villages there are different ways of practicing, and the local community wants to preserve their practices because they are aware that these are in danger. So particularly the old people want to preserve these and keep them strong”*. Another related the threat presented by technology: *“In the Sarpang district we have some unique cultures. So in order to preserve these although we try to take modern facilities like telecommunications, electricity...very cautiously, one by one. Not together, if you try to take all these together there will be cultural shock”*. These interviewees perceive threats posed to local cultures by modern development in terms of technology and identity; and

Prioritisation of money over socio-ecological health: *“We need it to pay for things and we should earn a certain amount, but more important is sustaining life for the long-term for our children’s future and not destroying our environment or religion. We do not need to earn more than that”*. Another described this challenge in terms of short as opposed to long-term gains. *“We also try to see the resource availability at the local level. Today if we think that we want to open a mine or a mine factory or cement factory, it doesn’t mean that it is good for 1 day or 10 or 20 years. If we don’t study carefully it will have a long-term negative impact”*. Short-term economic gain is believed to threaten long-term sustainability.

#### 9.3.3.4 Advice for others wanting to achieve localisation

The final interview question asked interviewees their advice for other communities wanting to achieve localisation. The purpose of this question was to identify key strategies and challenges recommend by highly localised, relatively sustainable communities. This might provide useful and practical localisation and sustainability guidance from experienced communities.

The importance to sustainability planning of local community issues, tradition, beliefs, social system arrangements and needs, was described. One explained, *“...if you try to develop things...without understanding the community, they are not going to buy it and then it will be a waste because it will not work well because people will not like it”*. Another stated, *“If they plan themselves they know what they need, so we will be in a position to give the best intervention that they have been waiting for. Otherwise it will be just opposite”*. These interviewees described that effective localisation requires appropriate development for and by the people, according to local needs, beliefs, social arrangements and culture.

Others explained that self-sufficiency should accord with local attributes, strengths and abilities, and that localities can assist each other in this process if there is the potential for case study learning due to common attributes or

opportunities. *“As a good practice we need to tell people in areas where there is potential. We all need to help each other...other Dzongkhags that have the potential should come and see and learn and also teach us. We should assist each other to fulfil our potential”*. Cooperation, training and case studies provided with government assistance and vocational training institutes that accord to the needs of a particular area for appropriate skill sharing, were recommended.

One interviewee described that their grandparents had provided them with a cooperative community, and that it is important to provide the same for future generations by focusing on the future in present decision-making. *“We have to look for the future not only for the present...to be long lasting we have to think about the future generations”*. This interviewee emphasised the importance of community cooperation and the ability of localisation to facilitate this.

## 9.4 Bhutanese sustainability interview discussion

### 9.4.1 Expert-identified localisation qualities

The sustainability planning and implementation carried out in the two top sustainability scoring Bhutanese districts (Dagana and Sarpang) had many similarities with the expert identified localisation qualities. These results suggest support for interviewee suggestions and the localisation effects of these actions in top localisation-scoring districts. Correlation analysis was carried out to determine the relationship between the individual metrics relating to the reported localisation actions, and the BLI ranks. This methodology is similar to an item-correlation test that is used to check the consistency of a metric with the behaviour of other metrics or the total index (Churchill, 1979). The results indicate strong localisation effects of the reported sustainability actions. For example it might be assumed that when there is a strong correlation between a metric such as social health (SH) and the BLI, there would be a high reported level of social health protection initiatives in districts scoring high on the BLI.

#### 9.4.1.1 Resource self-reliance and dependence

Interviewees report that resource self-reliance (RSR) and decreased resource dependence (RD) is promoted in their district. This is being achieved with national government policies and initiatives through tax incentives and strategy provision, which is encouraged rather than enforced. Strategies include community production groups and community forestry projects.

There was a weak positive relationship ( $r = 0.2782$ ,  $N=20$ ,  $P<0.05126$ ) between localisation and RSR, and a weak negative correlation ( $r = -0.23$ ,  $N=20$ ,  $P<0.05254$ ) between localisation and RD in Bhutan. This indicates that as RSR increases and RD decreases, localisation increases. The positive localisation

effects of a focus on RSR and RD actions in these districts, is confirmed by these interview and correlation results.

#### 9.4.1.2 Social and environmental protection

Social and environmental protection was described as a key consideration in planning processes. Interviewees said their communities prioritise social and environmental health ahead of short-term economic gain, and that this aligns with a specifically Bhutanese identity and traditional subsistence, agrarian culture, as opposed to contemporary modern urban lifestyles. Protecting social health consists of preserving traditional culture, community support and vitality, through: i) the funding of shared community projects and resources; ii) the engagement of influential and female community members to gain community support and planning participation; and iii) through slow, appropriate development. It is further reported that environmental health is maintained through a national government policy that maintains 60% of the country's forest cover for all time, and local knowledge and community ownership in the planning process to ensure appropriate planning and protection strategies such as local governance and community forestry.

The localisation effects of these actions are indicated by a strong positive relationship between localisation and SH ( $r = 0.59$ ,  $N=20$ ,  $P<0.04$ ) in Bhutan, and a very strong negative relationship ( $r = -0.862$ ,  $N=20$ ,  $P<0.014$ ) between localisation and a high EF. These results mean that as localisation increases in Bhutan, social health increases and EF decreases. The positive localisation effects of a focus on social health and environmental protection actions in these districts, is confirmed by the interview and correlation results.

#### 9.4.1.3 Local governance participation (LT) and planning

Local governance participation (LT) and planning was described as a grassroots process that is overarched by central government plans and policies. This effectively meets community needs in compliance with national guidelines. These policies ensure governance transparency, local planning ownership, participation and control, and local knowledge inclusion. Further education regarding the holistic sustainability knowledge required for successful planning was reported to be important, for effective and sustainable local governance.

There is a very strong positive relationship ( $r = 0.73$ ,  $N=20$ ,  $P<0.026$ ) between localisation and LT in Bhutan. This means that as localisation increases in Bhutan, local governance participation increases. The positive localisation effects of a focus on governance participation actions in these districts, is confirmed by the interview and correlation results.

#### 9.4.1.4 Local ownership (LO) of resources and capital

The government promotes local ownership (LO) of resources and capital by encouraging community involvement, initiative, and ownership. This encouragement comprises community forestry programs, local contracting and the formation of local groups to fulfill these contracts. It is claimed that local contracting leads to the use of local as opposed to imported resources, and that this further stimulates the local economy and employment.

A moderate positive relationship ( $r = 0.347$ ,  $N=20$ ,  $P<0.049$ ) was determined between localisation and LO. This means that as localisation increases in Bhutan, local ownership (LO) of resources and capital increases. The positive localisation effects of a focus on local ownership actions in these districts, is confirmed by the interview and correlation results.

Finally one interviewee described that some communities in their district perceive localisation as a way to promote their unique local production. *“There are villages where localisation is very important for them. They want to promote their village as a brand where they produce particular products”*. This perception is consistent with previously described localisation expert opinion identifying that localisation might include the trade of unique local products.

Interviewee perceptions regarding the reasons for their district success on the BSI demonstrated a high degree of localisation strategising and implementation. Reasons for success include: good local government leadership and effective community participation regarding working well together in order to decide what is most important for the community; local government assistance in the form of education, advice and technical and policy guidance so that the community can effectively and independently plan sustainability in accordance with both public expectations and national guidelines; contentment with self-sufficiency and subsistence living supplemented by cash-crop income for what cannot be produced, and a resultant low level of inequality and relative poverty as opposed to urban areas where it is perceived that wealth causes inequality and discontentment; a culture of social networking, vitality and interdependence; a focus on environmental protection and community forestry; effective poverty reduction; and easy access to Thimphu and neighbouring Indian markets to sell cash crops.

#### **9.4.2 Effects of urbanisation on localisation metrics and sustainability**

Interviewees consistently reported their belief that in urban areas such as Thimphu, important localisation and sustainability considerations such as social health and culture are deteriorating. The literature review also determined that increasing urbanisation has negative localisation and sustainability effects such as increased resource dependence, and decreased social and cultural health, democracy and resource self-reliance (Cuthill, 2010; Haque, 1999; Norberg-Hodge, 2000; Scholte, 2008). It then seemed useful to further examine the

relationship between urbanisation and localisation in Bhutan using the interview results, relevant literature, and correlation analysis.

Correlation analysis of the relationship between urbanisation and BSI in Bhutan indicates a negligible relationship ( $r=0.112$ ,  $N=20$ ,  $P<0.05485$ ). This is likely due to the negligible relationship between urbanisation and EF in Bhutan, and the strongly negative relationship between EF and the BSI ( $R = -0.562$ ,  $N=20$ ,  $P<0.038$ ). Due to the high income earning capacity of some of the most remote areas in Bhutan as a result of the harvesting and sale of the sought after and valuable cordycep fungus, these areas achieve high income, consumption and resulting EF scores.

There was negligible relationship determined between the BLI and urbanisation ( $r = -0.15489$ ,  $N=20$ ,  $P<0.054$ ), however there were moderate to strong correlations between four of the six individual localisation metrics and urbanisation. These were resource self-reliance, resource dependence, social health and localisation type. These correlations support the interview and literature results regarding negative effects of urbanisation on localisation and sustainability. The lack of correlation between localisation and urbanisation in Bhutan must then be due to the lack of correlation between urbanisation, and EF and local ownership in Bhutan.

#### 9.4.2.1 Resource self-reliance and dependence

A strong negative relationship exists between urbanisation and resource self-reliance ( $r = -0.38$ ,  $N = 20$ ,  $P< 0.05$ ). Conversely there was a moderate positive correlation of ( $r = 0.38$ ,  $N=20$ ,  $p<0.05$ ) between resource dependence and urbanisation in Bhutan. This is consistent with localisation literature and interview results indicating that as urbanisation increases, resource self-reliance decreases and resource dependence increases (De Young, 2012; Norberg-Hodge, 2000).

#### 9.4.2.2 Social health

A moderate negative relationship ( $R = -0.34135$ ,  $N=20$ ,  $P<0.05$ ) exists between urbanisation and social health in Bhutan. This relationship accords with the common interviewee perception that in urban areas important community connections and care is decreasing, due to neighbours and people generally not knowing or being dependent upon each other. This was described in over 25% of the interviews across Bhutan.

These results are consistent with literature describing degraded social capital to be characteristic of contemporary, urban development (Colclough & Sitaraman, 2005; Cuthill, 2010; Fields, 1998; Uzzell et al., 2002). Australian research has also reported people in Australian rural areas experiencing a higher level of wellbeing than those living in cities (Cummins, Eckersley, Pallant, Van-Vugt, & Misajon, 2003). Degraded social capital in urban areas may be due to these areas being more likely than traditional rural areas, to comprise 'communities in place'

that have formed for individualistic, economic reasons where people tend to not know, care for or trust each other. This contrasts with rural communities of or within place, where people are socially cohesive and tied to each other by long-term bonds and trust created through shared experiences and intimacy (Colclough & Sitaraman, 2005).

The interviewees clearly describe their perception that when people move to urban areas such as Thimphu for work and do not know their neighbours, the tradition of care whereby the community looks after people and functions in a socially cohesive way, disappears. Further to this and according with relevant literature describing Westernisation and increasing income inequality and social impacts (Cadigan, 2011; Eckersley, 2006; Norberg-Hodge, 2000), social violence is described as newly emerging in Bhutan as urbanisation and inequality have increased in Thimphu.

Luck (2011) reports research findings that indicate human wellbeing is positively associated with species richness and abundance, and vegetation cover and density, and is negatively associated with urban development. This might contribute to the lowered social health in more urban areas, in contrast with rural areas that occur in more environmentally intact settings.

Consistent with the interview reports, correlation results and literature, it seems that in Bhutan as urbanisation increases, social health decreases. The interviewee descriptions indicate that in Bhutan urban areas are characterised by degraded social cohesion characteristic of contemporary development and globalisation, as opposed to rural communities where more localised, traditional culture is described as ensuring cohesion. Bhutanese interview results indicate that preserving socially cohesive local communities as opposed to urbanising is an effective social health strategy.

According with literature claiming that localisation fosters social health (DuPuis & Goodman, 2005; Norberg-Hodge, 2012; Psarikidou & Szerszynski, 2012), there is a common perception amongst Bhutanese interviewees that due to the breakdown of social networks and interconnection that occurs as people move away from their villages, social decline is accompanying urbanisation. For example some interviewees believe that a key reason for their district sustainability success is equality, and resulting lack of comparative poverty and sense of contentment. This aligns with literature describing the effects of globalisation and accompanying excessive consumption on equality and social cohesion (Knight & Rosa, 2011; Trainer, 1996; Wilkinson et al., 2010).

A moderate negative relationship ( $r = 0.29023$ ,  $N=20$ ,  $P<0.051$ ) between income and social health in Bhutan supports the literature regarding the effects of globalisation on social health. However a strongly positive relationship was determined between income and individual wellbeing ( $r = 0.46$ ,  $N=20$ ,  $P<0.04638$ ). This indicates that while individuals experience increased wellbeing as their income increases, there are simultaneous negative social impacts. As incomes begin to increase in a low-income country, there is an initial increase in

wellbeing that then diminishes as the social costs to the individual outweigh the economic benefits (Easterlin, 1995; Lane, 2000b; Wilkinson & Pickett, 2009).

#### 9.4.2.3 Governance

Cuthill (2010) notes that large, fast-changing communities may be un conducive to representative democracy. A strong negative relationship found to exist between urbanisation and governance participation (localisation type) in Bhutan ( $r = -0.51008$ ,  $N=20$ ,  $P < 0.0411$ ), is consistent with this. The relationship indicates that in Bhutan, as urbanisation increases democracy decreases.

#### 9.4.2.4 Local ownership

A negligible relationship was determined between Local ownership and urbanisation in Bhutan ( $r = -0.19549$ ,  $N = 20$ ,  $P < 0.05343$ ).

#### 9.4.2.5 The effect of urbanisation on localisation and sustainability

It is of interest to note that Thimphu, by far the most urbanised district in Bhutan at 87%, scores lowest on the BLI and 11<sup>th</sup> on the BSI. The middling BSI score doesn't conform to literature indicating that lowered governance participation, resource self-reliance and social cohesion, and increased resource dependence levels decrease sustainability. This may indicate that the BSI is not identifying these issues sufficiently, or else that the effects of these on sustainability in Thimphu have not fully occurred as contemporary development in Thimphu has really only been significantly occurring in the last two decades. However it is likely that the middle ranking of Thimphu on the BSI despite governance participation, resource self-reliance and social cohesion effects is due to the heavy weighting of EF on the BSI (50%), and the lack of correlation between urbanisation and EF. The results indicate that in Bhutan, as urbanisation increases social health, democracy and resource self-reliance decrease, and resource dependence increases.

#### 9.4.2.6 Effect of status on consumption

As previously described Hicks et al. (2005) discuss the environmental benefits that status involves in relation to Tiwi Island communities, whereby increased status is associated with good environmental stewardship. Conversely it is reported that Bhutanese people associate eating some traditional foods such as buckwheat and maize with poverty, whereas eating rice indicates higher social status. As a result of this perception, rice consumption and the resultant import of Indian rice has increased. This high level of rice consumption is reported to be causing dietary problems due to the increased sugar intake involved with increased rice consumption.

It might then be observed that when status is associated with good environmental and social practices, this may foster sustainability. However the converse may also be true: when status is associated with negative environmental or social behaviors (such as excessive consumption), sustainability may be negatively affected. Additionally it may be inferred from interviewee perceptions and literature regarding status that when local produce is believed superior to that which is imported, this may increase the status associated with purchasing that product, and foster localised production and consumption.

#### **9.4.3 Bhutanese cultural contexts that contribute to localisation**

In Bhutan, 'rango rangdrong' is a traditional concept that promotes 'standing firmly on your own two feet'. There is no English literature regarding this concept, however conversations with Bhutanese people contributed to this understanding. Similar to many conceptions of localisation, rango rangdrong relates particularly to self-sufficiency and self-reliance, and is firmly embedded in the Bhutanese psyche. The Bhutanese concept of rango rangdrong might then be related to localisation in Bhutan. It might also be observed that a process of decentralisation that is consistent with this concept of rango rangdrong and also promoting of localisation began in Bhutan in the 1980's (Brooks, 2011; Gross National Happiness Commission, 2009; Ura, 1995).

One interviewee described that with the relatively recent commencement of road construction in Bhutan during the 1960's, outside resource access has increased along with resource dependence. This interviewee claims that localisation is now returning in Bhutan due to the increasing prioritisation of self-reliance and resource independence.

Though interviewees from Dagana and Sarpang commonly describe self-reliance and subsistence farming as important sustainability strategies, the need for cash cropping to supplement this was also explained. People need some level of income to purchase what cannot be produced, and that the government is also promoting cash cropping due to the rupee crisis. Additionally money is needed to pay for education beyond what is provided for free by the national government. This acknowledgement of the need for some trade is consistent with the interviewed expert opinion and localisation literature describing communities as embedded regionally, nationally and globally, as opposed to these being isolationist (Frankova & Johannisova, 2012; Norberg-Hodge, 2000).

Lamberton (2005) and Daniels (2010) describe Buddhism as fostering sustainability and localisation due to the tradition of being content with what you have, and also the karmic concerns involved with harming other (past, present or future) beings that tend to discourage environmentally and socially harmful behaviour. Many Bhutanese interviewees also describe such beliefs, and a spiritual emphasis in Bhutan may be associated with Bhutan's sustainability

and localisation achievements regarding physical and spiritual connection to specific place and people, as described by Norberg-Hodge (2000).

#### **9.4.4 Challenges for best practice**

Consistent with claims regarding the potential for unreflexive localisation whereby local elites dominate (DuPuis & Goodman, 2005; Hinrichs, 2003; North, 2010; M. Winter, 2003), some interviewees described this occurrence. This literature describes the “dark side” of social capital, which may reinforce the ‘status quo’ whereby monopolies consisting of political power and influence, utilise social capital networks (Pretty & Smith, 2004). The need for the government to provide education so that people are not easily influenced in this way was described as important to effective, participative, democratic local governance.

Bhutanese interviewees report that in urban areas such as Thimphu, participative community planning that characterises rural areas does not occur. Rather in these places the GNH officers take over the role and place of community participation in sustainability planning. This is consistent with Dempsey’s (2011) description of communities ‘in place’, whereby areas (such as Thimphu) where many people have moved to for employment and do not know each other, lack this infrastructure making community based sustainability planning in these urban areas challenging. Colclough and Sitaraman (2005) describes that in contrast to this, in ‘place-based community’, social capital and cohesion strengthens civic participation and localised empowerment through social interaction and a sense of community. Rural Bhutanese communities are place-based communities, and consistent with Dempsey’s (2011) description it seems that these ‘place-based communities’ provide the essential social infrastructure, to facilitate a community to work together to effectively plan sustainability.

Urban communities such as those in Bhutan then no longer participate together for sustainability planning; rather this process is replaced by government decision-making. This reduces the means to ensure social, environmental and economic health by participation in and safeguarding of accountability in decision-making as described by the UN (2011). This is confirmed by the strong negative relationship between urban percentage and local governance participation, and Thimphu scoring markedly lowest on the BLI for governance participation (localisation type) (Appendix 8). Bhutan seems to demonstrate that socially degraded, urban areas lose the required social cohesion and sustainability-planning infrastructure to provide and ensure accountability in decision-making and participative governance processes.

The risk that national priorities may dominate local needs was raised in the context of development in accordance to the unique potential of a district, and aligns with expert opinion and literature explaining the need for governance at the lowest possible level (De Young, 2012). However most interviewees believe

the two must be balanced, and that sometimes communities must compromise in the national interest. This accords with expert opinion and literature describing localisation to comprise communities embedded regionally and nationally, and the need for national social and environmental protection standards and policies to be developed and adhered to at all levels (De Young, 2012).

Regarding their rank at 8 on the BLI and rank 2 on the BSI, it is useful to note that as Sarpang sits on the Indian border, many residents buy imported product from India in very close proximity. However generic EF methods for calculating the consumption of buying imported product may exaggerate this impact by automatically assuming that the product is from much further afield (McManus & Haughton, 2006). The EF for each Sarpang resident may then be disproportionately increased due to 'imported goods consumption'. The resource self-reliance score may also be decreased for the same reasons, misleadingly decreasing the ranking of Sarpang on the BLI.

EF methodology limitations highlight the difficulty in accurately measuring localisation, and the resulting challenges for sustainability planning based on quantitative measurement alone. These quantitative limitations result in the need for qualitative information regarding appropriate sustainability implementation, such as that captured in the interviews.

## Conclusions

Examining the causality of the relationship between localisation and sustainability in Bhutan was achieved by identifying regions of top scoring, or what might be considered best practice sustainability, using the modified GNHI to form a BSI. Interviewing sustainability practitioners in these regions is an attempt to gain insight into whether localisation is important to sustainability planning and implementation in Bhutan. Those interviewed described many localisation strategies in the sustainability planning and implementation in their district and in Bhutan generally, partly achieving *Research objective 6*.

As described by Deyoung and Princen (2012, p. p.xiii) "...we believe no single approach will fix things, everywhere, forever, or for all people. Thus, just as many experiments are already occurring, some hidden in plain sight, many more must be started. Indeed, a culture of small experiments must be fostered". Due to its specific and deliberate focus on GNH rather than economic growth, Bhutan is one such experiment that provides an approach comprising an alternative to the globalisation trajectory. Due to the dominance of globalisation and the intrinsic and far reaching changes that have occurred in places and cultures almost without exception, Bhutan remains one of the few countries able to provide examples of such experiments across its regions.

Zurick (2006, p.679) notes, "Fundamentally, Bhutan is a lesson in practice...the country has embarked on a strategy of development that is unique in the world and for that reason worthy of examination. The notion of happiness as a

benchmark of development has great inherent appeal. Although...evidence suggests that Bhutan itself falls short in accomplishing its happiness goals, it still may provide inspiration to other places in the world by way of example". Seeking detail regarding sustainability planning and implementation in top-scoring sustainability regions in Bhutan has then been a way to explore the success of places that might be regarded as exemplary in their sustainability achievements, and whether this is related to localisation. As reported in localisation literature and by localisation experts, these successes cannot be duplicated, as every place and culture has its own specific ways and needs. As stated by one Bhutanese interviewee, any place seeking guidance from Bhutan's experience should "*Cut their cloth according to their coat*".

Brooks (2013) believes that the emphasis on wellbeing as a development approach in Bhutan might be applied anywhere, as the principles underlying Bhutan's approach include a holistic, ecological worldview that values compassion and interconnectedness, and an emphasis on spiritual rather than material growth (Brooks, 2011). Such principles may be used to support alternative visions of progress, and "As such, the guiding principles of GNH can be adopted elsewhere with appropriate adjustments to how it is measured in a given socio-cultural and economic context" (Brooks, 2011, p. 3658).

Further to this, universal, generalisable requirements for living in a way that does not harm others or the natural environment might be identified in any top-scoring sustainability area (not just Bhutan), providing guidance in terms of universally relevant and applicable sustainability planning processes, methods, strategies and ingredients (Bulkeley, 2006). As determined from the Bhutanese interviews, sustainability planning and implementation in the top sustainability-scoring districts and indeed across Bhutan has many localisation qualities. Bhutanese sustainability interviews then indicate that localisation might then successfully guide sustainability strategies and planning.

## Chapter 10 Discussion and conclusions

### Introduction

This research has been inspired by a strong interest in the potential for localisation to reliably guide sustainability planning and implementation. It has also been motivated by claims that it is not possible to have a clear guiding sustainability vision, because no one can know exactly what sustainability is or how it might then be enacted. As noted by Rees (2010), this makes working in the field of sustainability very challenging because what sustainability is believed to entail is so unclear and open to (mis) interpretation, that this invariably results in a working environment that entails a high degree of contention.

Some believe that what sustainability entails and looks like is quite clear, and are guided in their clarity of vision by rich cultures and traditions that place sustainability and the social, cultural, spiritual and environmental health that it entails, firmly at the centre and ahead of economic concerns (Cadigan, 2011; Guri, 2007; Hung, 2013; Loomis, 2000; Norberg-Hodge, 2000; Shiva, 2005; Ura et al., 2012). These beliefs align with the vision and actual past achievements of these cultures and traditions.

These traditions are at odds with the dominance of globalisation. It seems that as a result many traditions are effectively blocked from contributing to sustainability discourse (Guri, 2007; Loomis, 2000; Prasad & Elmes, 2005). This prevents many people and cultures from significant participation in, and the conceiving of what sustainability entails (Guri, 2007; Prasad & Elmes, 2005).

This research has attempted to place localisation within this wide context. It has done so using broad and multi-disciplinary literature review and expert guidance, to clarify a localisation definition and form a set of metrics conforming to this definition. Localisation measurement, correlation analysis with sustainability measurement, and interviewing was conceived as a way to determine whether localisation provides a sustainability vision. If sustainability is highly localised, determining localised places might then provide a concrete picture of the abstract vision of sustainability, offering a guiding light in a sustainability field that currently suffers a dim and obstructed view.

Employing a stepwise, exploratory, critical realist MMR approach to assess, measure and analyse sustainability and localisation, has enabled the attempted quantification and qualification of the relationship between the two. Using only one approach would have limited the capacity of the analysis to determine and analyse the relationship, and the resultant depth of the research findings. A sequential and cumulative process has then been used to draw together complex and cross-disciplinary opinion, expertise, information and data. These were employed to form theories about the relationship between localisation and sustainability, and the results may inform social change, provide an alternative trajectory to that of the currently dominant globalisation discourse, and assist emancipation for the many that are currently oppressed by this paradigm.

## 10.1 Localisation and sustainability research process and outcomes

The aim of this research was to critically examine the relationship between localisation and sustainability, the objective being to explore the potential for localisation to inform sustainability planning and implementation. In order to achieve this aim and objective, the employed research question was: *What is the relationship between sustainability and localisation, and how localised is best practice sustainability?* The research question was broken down into three parts:

1. *What is localisation and is it important to sustainability?;*
2. *What is sustainability and why is it required?; and*
3. *What is the relationship between sustainability and localisation?*

With the assistance of localisation expertise and using extensive literature review, in answer to *Research question 1* Localisation was defined as: *a sustainable, socially-just process that facilitates healthy local communities, economies and environments through local governance, ownership, trade, and resource utilisation to meet essential needs within a radius of political, economic and resource dependence that is as small as practicable for any particular purpose, and that diminishes with distance.*

Literature review was also employed to answer *Research question 2*, enabling determination of how sustainability is conceived and why it is required. This necessitated a critical analysis of globalisation and the resultant socio-ecological crisis, as the context in which the requirement for transformational sustainability with which to adequately address sustainability is taking place. Localisation was identified as a transformational sustainability approach that provides an alternative trajectory to the destructive process of globalisation, though globalisation presents many barriers to this possibility. Answering *Research question 2* also enabled the identification of SIs, in order to address *Research question 3*.

*Research question 3* was firstly addressed with the formation of a set of metrics with which to determine localised places and analyse what localisation is. These metrics are: Resource self-reliance; Resource dependence; Social health; Environmental damage/impact; Localisation type; and Control and ownership of resources, assets and business. Determining these localisation metrics enabled the formation of LIs, with which to correlate SIs.

At the regional level correlation analysis determined that localisation is strongly related to sustainability in Bhutan when people and the environment are accorded equal importance. This regional analysis enabled the partial answering of *Research question 3* regarding the relationship between localisation and sustainability. At the global level it was difficult using correlation analysis to draw conclusions about whether localisation and sustainability are related. This is due to the dominance of the globalisation discourse, and the resulting sustainability assessment research and assessment being predominantly focused on economic prioritisation to the neglect of crucial social, cultural, spiritual and governance aspects. These dimensions are then not well developed, and as a

result sustainability assessment at this level is not yet reliable (Dahl, 2012).

At the global level, a holistic assessment for sustainability tool with which to rank the sustainability of countries is then not yet available (Dahl, 2012; Gasparatos & Scolobig, 2012; Pope et al., 2004). As a result though global correlation analysis was carried out using the developed GLI and GSIs that attempt assessment for sustainability so that a method to do this might be developed, the results are limited. It was then not possible to fully answer *Research questions 1 or 3*, however localisation and sustainability researchers do however claim that localisation is important to sustainability globally (Cavanagh & Mander, 2004; De Young, 2012; Douthwaite, 2004; Frankova & Johannisova, 2012; Hines, 2003; Norberg-Hodge, 2012; Ramos, 2010; Shiva, 2005; Trainer, 2010b).

Dahl (2012) notes that Bhutan with its GNH prioritisation is an exception to the usual focus on economic priorities, stating that the GNHI is exemplary as a rare national effort to complement the pillars of sustainability with less tangible dimensions. These dimensions include institutional, cultural and ethical considerations such as governance, efficiency, motivation, values and other factors that may be important to sustainability, and make the GNHI a potentially sophisticated and robust sustainability assessment tool with the addition of environmental impact metrics (Dahl, 2012). In answering *Research question 3*, adding environmental impact data in the form of EF to the GNHI enabled sustainability determination at a regional level in Bhutan.

The newly formed BSI was then correlated with the BLI, or regional level localisation in Bhutan. When correlated with a BSI comprising 50% weighting each for human-related and environmental factors as with the WBNI (Prescott-Allen, 2001) and the SHDI (Jain & Jain, 2013), the relationship between localisation was determined to be strongly positive ( $r=0.423$ ,  $N=20$ ,  $P<0.0456$ ). The most localised Bhutanese regions tend to be the most sustainable, and the least localised the least sustainable. So as localisation in Bhutan increases so then does sustainability, and vice-versa. Interviews with Bhutanese sustainability practitioners confirmed this relationship, the results indicating that localisation is indeed important to sustainability strategising and implementation in Bhutan. This partially answered *Research questions 1 and 3*.

It is hoped in the future that as sustainability assessment at the national level improves, it will be possible to carry out these correlations and complete the answer to *Research questions 1 and 3*. This would enable full determination of whether localisation is it important to sustainability, and the relationship between them. However some researchers believe that the regional level is the most appropriate for sustainability assessment (Devuyt, 2000; Duraiappah, 2011; Graymore et al., 2010). Regional level results might then need to be nationally collated to reliably determine national level sustainability.

## 10.2 Localisation and sustainability research conclusions

In reviewing localisation literature and critically analysing globalisation and sustainability literature, I have placed localisation research within the broad context of the current socio-ecological crisis. Due to the incompatibility of globalisation and sustainability objectives, it is widely believed that this crisis results in large part from the effects of globalisation and the inability of sustainability to be addressed when framed within this dominant paradigm (Burger et al., 2012; Cavanagh & Mander, 2004; Daly, 2013; De Young, 2012; Norberg-Hodge, 2000; Shiva, 2005; Victor & Jackson, 2012). The need for alternative paradigms and discourses with which to address the current crisis and frame sustainability planning supports the need for research into transformation paradigms and discourses such as that of localisation (Curtis, 2003; Frankova & Johanisova, 2012; Hopkins, 2010; Hopwood, 2005; Ramos, 2010).

Researchers have identified that localisation is an important strategy to investigate in order to more effectively address sustainability concerns (Curtis, 2003; Frankova & Johanisova, 2012; Norberg-Hodge, 2000). Fortunately there is much localisation expertise from which to draw upon, and this project has determined that Bhutan might provide localisation experience and practical examples that may help to guide localisation research. This determination was achieved with the guidance of localisation experts to holistically and concisely define localisation, and to form a set of localisation metrics that adheres to this definition. These metrics were employed to form both a regional and a global LI, in order to identify the places that are most localised, and to determine whether these places are also the most sustainable.

It was determined that in Bhutan, there is a strong positive correlation between localisation and sustainability. Interviews in Bhutan supported these findings, with top sustainability ranked regions reporting that localisation is important to sustainability planning in their region and in Bhutan in general. The interviewees described that in planning sustainability, the preservation of the environment and local community, culture, religious and spiritual traditions are commonly prioritised at the expense of economic gain. These priorities then act to preserve both the natural environment and human concerns.

Because many of the Bhutanese interviewee suggestions regarding the important ways to achieve localisation are similar to qualities suggested by localisation experts as important to measuring localisation, these are presented below in Table 19. Despite most of the Bhutanese interviewees believing that they do not know much about localisation, as is indicated by their collective suggestions as a group Bhutanese sustainability practitioners seem to practice sustainability in a similar way to that described as important by localisation experts. It seems that Bhutanese sustainability practitioners have a wealth of localisation knowledge due to their cultural sustainability practices, as opposed to any formal knowledge about the academic concept of localisation.

**Table 19: Comparison of Localisation experts and Bhutanese interviewees**

Localisation expert suggestions for measuring localisation	Top sustainability ranked Bhutanese interviewee suggestions for achieving localisation
High resource self-reliance and low resource dependence	Resource self-sufficiency in accordance with local attributes, strengths and abilities.
Social health	Importance of recognising and preserving local community traditions, beliefs, social system arrangements and needs, and the prioritisation of social health for future generations.
Environmental health/impact	Developing in a way that is suited to local environmental attributes.
Localisation type (democratic participation)	Localisation requires appropriate development for and by the people, according to local needs, beliefs, social arrangements and culture.
Control and ownership of resources, assets and business	Commonly mentioned as important in achieving a feeling of community ownership during interviews, but not mentioned as advice.

Global localisation and sustainability correlations using five GSIs did not determine the same strength of relationship between localisation and sustainability. The global correlations ranged from a moderately positive to no relationship. As outlined in a critical review of sustainability assessment literature and studies, as yet there is not an adequately developed method or tool with which to carry out reliable national sustainability assessment (Dahl, 2012; Dietz et al., 2009; Graymore et al., 2010; Pope et al., 2004; Singh et al., 2012; Todorov & Marinova, 2011). As a result the national level correlation results are not adequate. Nonetheless in order to begin the process of determining the relationship between localisation and sustainability at a national level, global correlation analysis was carried out using the developed LI and SIs that were determined to best meet the requirements for sustainability.

Despite the lack of correlation, it was determined that Bhutan, which seems to prioritise localisation, scored second on the GLI. It was also determined that as with the GLI, Latin America dominates the top 10 rankings of four of the five GSIs that have been employed for this research, in tandem with Scandinavia on one of these. Latin American Costa Rica also topped the GLI and the HPI, and ranked in the top three on three of the four SIs that were employed for the correlations. The two indexes in which Latin America did not dominate both include HDI data such as education and income that may be invalid sustainability measures that better measure unsustainability (Akomolafe & Dike, 2011; Easterlin, 1995; Guri, 2007; Lane, 2000b), making these results unreliable.

The authors of the HPI (2009) suggest that Latin American countries may achieve high levels of sustainability because of their non-materialistic values and high levels of public participation or civil engagement, and also their proactive environmental stance. They claim that these values are due to the prioritisation of friends and family over material aspirations and, "In Latin America, they combine to create a society that is able to rise above economic hardships, whilst drawing great benefit from its social links" (Abdallah et al., 2009, p. 30). It is of

interest to note that in Bhutan, interviewees in the top sustainability scoring regions also emphasise the importance placed by the community and as a result sustainability planning, on the preservation of community, culture and the natural environment, even at the expense of economic priorities. Further to this the HPI provided an unofficial Bhutanese ranking of 16 for the 2012 HPI for this research, a high score for the 151 assessed countries.

To summarise the research results, the research objectives were achieved as follows:

***Research objective 1: Succinctly and holistically define localisation.***

Localisation may be defined as *a sustainable, socially-just process that facilitates healthy local communities, economies and environments through local governance, ownership, trade, and resource utilisation to meet essential needs within a radius of political, economic and resource dependence that is as small as practicable for any particular purpose, and that diminishes with distance.*

***Research objective 2. Determine and locate best practice sustainability in order to determine how localised this is.***

Extensive literature review regarding sustainability assessment enabled determination of five GSIs and one regional SI that best meet assessment for sustainability requirements and include the desirable features largely shared by sustainability academics and practitioners as described by Pope (2004). Such assessment is described as focusing directly on sustainability objectives such as wellbeing, equity and environmental health as described by Podger (2010), and includes the ability to capture/acknowledge: integration of economic, environmental, social and institutional issues and their interdependencies; future consequences of present actions; precautionary bias; public engagement; and intra and intergenerational equity considerations (Gasparatos & Scolobig, 2012). As with the findings of Dahl (2012), no SI able to meet all of these requirements was determined.

The SIs determined to best meet assessment for sustainability requirements were employed for correlation analysis. It is however acknowledged that the GSI results are limited due to their inability to comprehensively assess for sustainability. Due to the comprehensive coverage of human sustainability issues achieved by the GNHI, a BSI was formed comprising a modified version of the GNHI by incorporating EF data. This enabled location of the most sustainable Bhutanese districts.

***Research objective 3. Determine suitable metrics with which to measure localisation, in order to correlate localisation and sustainability.***

Positive localisation may be measured using the following metrics: resource self-reliance; resource dependence; social health; environmental damage/impact; localisation type; and control and ownership of resources, assets and business. These metrics may be tailored in consultation with local decision-makers and experts input to include unique socio-ecological considerations.

***Research objective 4. Develop a LI for 1 country and correlate this with a SI for the same country.***

A BLI was formed comprising the 20 Bhutanese regions or districts. This was correlated with a BSI (EF 50%). The results indicate a strong positive relationship ( $r=0.423$ ,  $N=20$ ,  $P<0.0456$ ) between localisation and sustainability in Bhutan, when people and the environment are weighted equally.

***Research objective 5: Develop a global LI with which to correlate a global SI for the same countries.***

A GLI was developed comprising the 103 countries for which the required data is available. This was correlated with 5 GSIs, yielding moderate to negligible correlations. Due to the inability of currently available GSIs to comprehensively assess sustainability, these correlation results are limited.

***Research objective 6: Examine the causality of relationship between sustainability and localisation.***

Interviews were carried out with sustainability practitioners across Bhutan. It was determined that in the top sustainability-scoring regions and in Bhutan in general, localisation is intentionally planned. However use of the term localisation to describe this planning is not common in Bhutan. Such planning is more often referred to as GNH planning, and is associated with a process of decentralisation that has been officially occurring in Bhutan since 1981, set in motion much earlier that century by the Third King (Brooks, 2011; Gross National Happiness Commission, 2009; Ura, 1995).

Localisation ingredients reported as important to Bhutanese sustainability in top sustainability-scoring districts include: the prioritisation of social and environmental concerns over economic gain; locally appropriate resource self-sufficiency; recognising and preserving local community traditions, beliefs, social system arrangements and needs, and the prioritisation of social health for future generations; development to local environmental strengths and attributes; appropriate development for and by the people; and strong feelings of community ownership.

### 10.3 Recommendations for future research and practical applications

The LIs that have been developed for this research are a first attempt at such measurement. Further research aimed at improving these indexes may assist to progress research into localisation as a sustainability strategy, by enabling more accurate determination of the relationship between localisation and sustainability. As was attempted on a small scale in this project, such indexes may also further enable determination of the most localised places, so that they can be investigated as case-studies to provide examples of how transformative sustainability might be planned and implemented using localisation strategies.

As noted by Dietz et al. (2009, p.114), “The question of how to measure sustainability is of great policy importance because answering it will allow us to assess the efficacy of alternative strategies for achieving sustainability”. As sustainability is so complex to measure, the achievements in sustainability assessment to date are impressive. However there is a great challenge ahead in meeting the requirements of assessment for sustainability, and best including the desirable features largely shared by sustainability academics and practitioners (Gasparatos & Scolobig, 2012).

Dahl (2012) notes that sustainability assessment will require the development of a new set of values-based indicators that are capable of motivating the implementation of the ethical principles necessary to guide the transition towards sustainability. Dahl (2012, p.14-18) believes that sustainability is “fundamentally an ethical challenge”, and that because economic and social dimensions relate to human society, in sustainability assessment they must refer to an ultimate purpose that may be defined differently by “particular cultures, societies or spiritual traditions”. After compiling and reviewing for the UN 1700 national reports on the state of the environment and sustainability, Dahl (2012, p.15) believes that, “...we are still far from what most would consider adequate indicators of sustainability”.

Until an adequate sustainability assessment method and tool is developed, it is difficult to locate the most sustainable nations in order to determine exactly what sustainability looks like at a national level, and whether this is indeed highly localised. At that time it may become possible using such an index to complete the answers to research questions 1 and 3 regarding the quantitative relationship between localisation and sustainability at a national level, and to more fully determine the relationship between localisation and sustainability.

In the meantime adaptation of the remarkable GNHI to incorporate environmental impact and/or health data and form a comprehensive sustainability assessment tool, might serve to assist in the development of future sustainability assessment techniques. Few other sustainability assessment measures so comprehensively capture the elusive social, spiritual and governance dimensions that are believed essential to adequately addressing sustainability (Gasparatos & Scolobig, 2012; Guri, 2007; Hung, 2013; Pope et al., 2004; Ura et al., 2012), and that are the unique and defining strength and characteristic of the GNHI (Dahl, 2012).

## Conclusion

Though globalisation may assist production efficiency and afford increased environmental protection, material living standards and income, at present this dominant discourse and paradigm is greatly at odds with the requirements for sustainability and localisation (Cavanagh & Mander, 2004; Norberg-Hodge, 1992; Shiva, 1999). The shift from local to global that has occurred in recent decades, has involved local knowledge being replaced by the Western system of knowledge that though now viewed as universal, is actually the globalised version of a local and parochial tradition, or the Western scientific tradition of capitalist patriarchy, based on tangible, scientifically verifiable claims, as opposed to socially constructed, traditional and local 'unscientific beliefs' (Shiva, 1993).

In contrast to this, localisation is a way to approach sustainability that is inclusive of all worldviews and cultures, and that provides an alternative to the current dominant sustainability paradigm that is predicated on the exclusive and resultantly destructive approach of globalisation. Globalisation is resulting in worsening global socio-ecological crisis, and only a transformation can change the trajectory of globalisation in order to avoid to the greatest possible extent, a deepening of this crisis. Localisation is a transformative strategy that may be employed to achieve this, and the results of this research suggest that it may be an effective way to do so. Such a strategy encourages many alternate visions of sustainability, and ensures that these may be available for adoption by cultures that seek to change their current trajectory and reorient themselves toward a more sustainable vision than that imposed by globalisation.

If we do not preserve and pursue alternative knowledge systems, and ways of living and conceiving of a sustainable future, globalisation may result in successful and time-proven alternatives no longer being available for sustainability guidance should the current system fail (Guri, 2007). The warnings from scientists across wide-ranging disciplines regarding the catastrophic consequences of global warming and socio-ecological destruction indicate that this failure is inevitable and looming ever more closely should we not immediately change our current trajectory, if it is not already too late to do so (Dunlop, 2011c; Hansen, 2011; Hopkins, 2010; Max-Neef, 2010; MEA, 2005b; O'Riordan, 2012; Rogers et al., 2012; Stern, 2007; Stiglitz, 2009).

The ability of society to have positive rather than negative long-term effects on the environment by according status to the ability to protect local environmental and community concerns, is described by Hicks et al. (2012) in relation to the Tiwi Islanders. Such possibilities require a transformation that prioritises both local and global socio-ecological rather than economic concerns. Localisation provides an alternative and transformative trajectory that prioritises socio-ecological concerns in this way, and these research results suggest that at a regional level positive localisation is highly sustainable. It may then be effective for all regions to become localised as a way to achieve sustainability (Hines, 2003). Further to this, measuring localisation provides a way to identify places

that are highly localised, in order that they may provide case-study guidance for other places seeking to adopt localisation as a sustainability strategy.

The critical realist, step-wise approach of this research has led to Bhutan as an exemplar of sustainability and localisation planning, assessment and practice. Before embarking upon this research project I knew little about Bhutan, however I would now agree that the alternative trajectory of the sustainability approach there is unlikely to succeed if it is, "...alone in a sea of nations pursuing economic growth and if it swamped by competing interests emerging from a global socio-economic system that itself does not change" (Brooks, 2011, p. 3658). Brooks (2011, p.3658) believes the current business-as-usual approach is carrying us toward the limits to growth, and that in order to avoid these limits, "...it is vitally important for the rest of the world to recognise the value of Bhutan's development model". Bhutan is a country that is strategising localisation to pursue sustainability, and provides valuable guidance.

This research has provided a first attempt at localisation measurement. There is then great scope for further development in order to enable more accurate measurement of how localised communities, regions and countries are. This would ensure that localised places may be accurately identified as localisation examples, enabling others to "cut their cloth according to their coat" (Bhutanese interviewee), embark on an alternative trajectory to globalisation, and potentially more effectively plan and implement sustainability.

## Appendix 1 Localisation research summary

<b>Research aim:</b>	<i>Critically examine the relationship between localisation and sustainability</i>			
<b>Research question:</b>	<i>'What is the relationship between localisation and sustainability, and how localised is best practice sustainability?</i>			
<b>Research objective:</b>	<i>Explore the potential for localisation to inform sustainability planning and implementation</i>			
	<b>Research Question</b>	<b>Method</b>	<b>Chaptr</b>	<b>Research analysis</b>
<b>Research objective 1:</b> <i>Succinctly and holistically define localisation.</i>	<b>Research question 1: What is localisation and is it important to sustainability?</b>			
	<i>Research question 1a: How is localisation described in existing literature?</i>	Lit review	Ch.2	<ul style="list-style-type: none"> <li>Literature review to explore historical and current conceptions and descriptions of localisation.</li> </ul>
	<i>Research question 1b: Is localisation important to sustainability?</i>	Lit review and correlation analysis	Ch.2, 8, &10	<ul style="list-style-type: none"> <li>Literature review to investigate perceptions of the relevance of localisation to sustainability.</li> <li>Correlation analysis and interviewing of localisation and sustainability practitioners to explore the relevance of localisation to sustainability.</li> </ul>
	<i>Research question 1c: How can localisation be defined?</i>	Lit review and interview	Ch.2 & Ch.4	<ul style="list-style-type: none"> <li>Nvivo for Thematic content analysis of Skype interviews with 6 localisation experts to form a holistic and concise localisation definition.</li> </ul>
<b>Research objective 2:</b> <i>Determine and locate best practice sustainability in order to determine how localised this is.</i>	<b>Research question 2: What is sustainability and why is it required?</b>			
	<i>Research question 2a: What is sustainability?</i>	Lit review	Ch.2	<ul style="list-style-type: none"> <li>Literature review to investigate perceptions of sustainability.</li> </ul>
	<i>Research question 2b: Why is sustainability required?</i>	Lit review	Ch.2 & Ch.7	<ul style="list-style-type: none"> <li>Literature review to examine the need and set the context for why sustainability is required.</li> </ul>
	<i>Research question 2c: How are sustainability and best practice sustainability defined, interpreted and implemented?</i>	Lit review & Quantitative analysis of primary data	Ch.2 & Ch.7	<ul style="list-style-type: none"> <li>Literature review to determine how sustainability and best practice sustainability are defined and operationalised</li> </ul>
	<i>Research question 2d: How can best practice sustainability be located?</i>	Lit review & Quant anal of primary data	Ch.2 & Ch.7	<ul style="list-style-type: none"> <li>SIs identified in the literature to locate and rank sustainability, and determine and locate best practice sustainability.</li> </ul>

<b>Research question 3: What is the relationship between sustainability and localisation?</b>				
<b>Research objective 3:</b> <b>Determine metrics with which to measure localisation.</b>	<i>Research question 3a:</i> <i>What metrics can be identified and used to measure localisation?</i>	Qual analysis of primary interview data	Ch.2, 5 & 6	<ul style="list-style-type: none"> <li>Nvivo thematic content analysis of Skype interviews with 6 localisation experts to determine localisation metrics.</li> </ul>
<b>Research objective 4:</b> <b>Develop a LI for 1 country and correlate this with a SI for the same country.</b>	<i>Research question 3b:</i> <i>What is the strength of relationship between sustainability and localisation?</i>	Quantitative analysis of secondary data	Ch.7-8	Correlation of localisation data: <ul style="list-style-type: none"> <li>Localisation data will be gathered for the 20 Bhutanese regions and all possible countries. This will be sourced via travel, internet and phone research.</li> <li>Data will be used to form localisation indexes for correlation with Sustainability indexes. These results will indicate the relationship between sustainability and localisation at regional and national scales.</li> </ul>
<b>Research objective 5:</b> <b>Develop a global LI with which to correlate a global SI for the same countries.</b>				
<b>Research objective 6:</b> <b>Examine causality of relationship between sustainability and localisation.</b>	<i>Research question 3c:</i> <i>How localised is best practice sustainability planning and implementation?</i>	Qualitative analysis of primary data	Ch.9	<ul style="list-style-type: none"> <li>Interviewing across Bhutanese regions to obtain information about the relevance of localisation to sustainability planning and implementation.</li> </ul>

## **Appendix 2      Interviewed localisation experts**

### **The interviewed localisation experts are:**

Localisation pioneer Helena Norberg-Hodge, widely recognised for long promoting localisation as a means of countering the impacts of globalisation, and for her films 'Ancient Futures' and 'The Economics of Happiness'.

Sustainability pioneer Ted Trainer, lecturer at the University of New South Wales and writer and sustainability and development activist since the 1970's.

Thomas Princen, Associate Professor in the School of Natural Resources and Environment at the University of Michigan (USA), where he is a co-founder of the Alternative Consumption Research Community.

Rob Hopkins, founder and figurehead of the rapidly spreading Transition Towns movement.

Michael Shuman, Director of Research for Cutting Edge Capital, Director of Research and Economic Development at the Business Alliance for Local Living Economies (BALLE), and a Fellow of the Post Carbon Institute.

Judy Wicks, Co-founder and Board Chair Emeritus for Building Alliances for Local Living Economies (BALLE) and former owner of the White Dog Café, internationally acclaimed for its socially and environmentally responsible business practices.

## Appendix 3 Localisation expert interview guide

SCHOOL OF ENVIRONMENTAL SCIENCES

INSTITUTE FOR LAND, WATER AND SOCIETY, CHARLES STURT UNIVERSITY, AUSTRALIA

### LOCALISATION EXPERT INTERVIEW GUIDE

#### Background Information

Name of Interviewer.....Time.....Date.....

Name of Respondent.....

#### Introduction

*Hello my name is Michelle Olivier. I am a research student from Charles Sturt University, Australia.*

*I am researching sustainability and localisation.*

*Please remember that participation in this interview is voluntary and you are free to withdraw at any time. The information that will be collected from you will be treated with confidentiality if you would like, and the results of the project can be made available to you if interested. Is it OK with you if the interview is recorded?*

*Thank you for consenting to participate in this research.*

*Now I'll like us to proceed to the interview, which will take about one hour.*

#### 1. How do you believe that localisation might be recognised?

- What sort of spatial boundaries?
- Resource use
- Social aspects
- Political aspects
- Governance aspects

#### 2. What does localisation mean or constitute to you?

- Centralised government involvement
- Trade with other regions
- International trade

#### 3. What do you believe is the relationship of localisation to sustainability?

- Its role
- As a sustainability strategy
- In the future

#### 4. What are your thoughts on localisation as a sustainability strategy?

#### 5. What metrics do you believe might best represent localisation for measurement purposes?

- Resources
- Social
- Community
- Governance

#### 6. How would you succinctly define localisation?

- Physical description
- Logistical arrangements
- Life requirements
- Political structures

## Appendix 4 Localisation expert Interview Q.6 word count

### Localisation definition word count

Word	Length	Count	Weighted Percentage	Similar Words
think	5	19	3.51%	think, thinking
local	5	13	2.40%	local, locality, locally
localisation	12	12	2.21%	localisation, localised
distance	8	8	1.48%	distance, distances
needs	5	6	1.11%	needs
place	5	6	1.11%	place, places
process	7	5	0.92%	process
social	6	5	0.92%	social
business	8	4	0.74%	business, businesses
consistent	10	4	0.74%	consistent
economies	9	4	0.74%	economies, economy
global	6	4	0.74%	global, globalized
movement	8	4	0.74%	movement
sense	5	4	0.74%	sense
concern	7	3	0.55%	concern, concerned
definition	10	3	0.55%	definition
deregulate	10	3	0.55%	deregulate, deregulated
different	9	3	0.55%	different
economic	8	3	0.55%	economic
guess	5	3	0.55%	guess
alternative	11	2	0.37%	alternative
brought	7	2	0.37%	brought
characteristics	15	2	0.37%	characteristics
combination	11	2	0.37%	combination
culture	7	2	0.37%	culture
define	6	2	0.37%	define
development	11	2	0.37%	development
diminishing	11	2	0.37%	diminishing
earlier	7	2	0.37%	earlier
finance	7	2	0.37%	finance

## Appendix 5 Localisation Interview Q.5 metrics word count

### Localisation metrics word count

Word	Length	Count	Weighted Percentage	Similar Words
local	5	32	2.74%	local, localism, locally
think	5	22	1.88%	think, thinking
localisation	12	21	1.80%	localisation, localised, localising
measures	8	19	1.63%	measure, measurement, measures, measuring
metric	6	14	1.20%	metric, metrics
energy	6	11	0.94%	Energy
people	6	10	0.86%	People
economy	7	8	0.68%	Economy
extent	6	8	0.68%	Extent
might	5	7	0.60%	Might
guess	5	6	0.51%	Guess
dependency	10	5	0.43%	Dependency
miles	5	5	0.43%	Miles
another	7	4	0.34%	Another
blueprint	9	4	0.34%	Blueprint
degree	6	4	0.34%	Degree
fossil	6	4	0.34%	Fossil
internet	8	4	0.34%	Internet
little	6	4	0.34%	Little
million	7	4	0.34%	Million
central	7	4	0.34%	central, centralised
adapt	5	3	0.26%	adapt, adapting
basic	5	3	0.26%	Basic
behavior	8	3	0.26%	Behavior
already	7	2	0.17%	Already
although	8	2	0.17%	Although
answer	6	2	0.17%	Answer
anything	8	2	0.17%	Anything
benefit	7	2	0.17%	Benefit
built	5	2	0.17%	built

## Appendix 6 Map of Bhutan showing GNHI scores

### iii. Dzongkhag (district)



## Appendix 7 Bhutanese Ecological Footprint results

**Table 12: Bhutanese EFs in Bhutanese hectares (Bha)**

	Food	Transport	Consumer Goods	Housing	Service	Total/person
Bhutan	0.8981	0.1636	0.0894	0.1844	0.4840	1.8196
Bumthang	1.0616	0.0767	0.1432	0.1756	0.2283	1.6855
Chhukha	0.7755	0.4261	0.0824	0.1801	0.2026	1.6667
Dagana	0.7725	0.0462	0.0746	0.1759	0.1763	1.2456
Gasa	1.4322	0.0393	1.1939	0.1753	0.3099	3.1505
Haa	0.8917	0.0865	0.2168	0.1764	0.4953	1.8667
Lhutense	1.0724	0.0981	0.1385	0.1739	0.4953	1.9782
Monggar	0.7705	0.0217	0.0977	0.1736	0.1342	1.1978
Paro	1.1164	0.2579	0.1746	0.1776	0.1752	1.9017
Pema Gatshel	0.8912	0.0244	0.0800	0.1737	0.7668	1.9361
Punakha	0.9354	0.0669	0.1050	0.1747	0.5472	1.8293
Samdrup Jongkhar	0.8032	0.0207	0.1038	0.1890	0.4839	1.6006
Samste	0.7841	0.0954	0.0592	0.1792	0.1295	1.2474
Sarpang	0.9048	0.0876	0.1014	0.1754	0.3348	1.6041
Thimphu	1.0981	0.4685	0.1705	0.1798	0.1340	2.0510
Trashigang	0.8811	0.0620	0.0940	0.1763	0.2046	1.4180
Trashiyante	0.8653	0.0677	0.1182	0.1744	0.3024	1.5280
Trongsa	0.9383	0.1355	0.1104	0.1748	0.4860	1.8450
Tsirang	0.8109	0.0827	0.0784	0.1742	0.4839	1.6300
Wangdue Phodrang	0.9159	0.0515	0.0931	0.1780	0.4839	1.7225
Zhemgang	0.7386	0.0081	0.0517	0.1730	0.4839	1.4553

## Appendix 8 Bhutanese localisation index (BLI)

Table 9: Bhutan localisation Index (BLI)

	Submetric	Resource self-reliance (RSR) %				RSR / 100	Resource dependence	Social Health (SH) %			SH	EF Bha	EF /100	Ownership (O)	Localism type (LT)	
		Water	Food	Energy	House			WB	Trust	Belong						
	<b>submetric weight</b>	0.25	0.25	0.25	0.25			0.33	0.33	0.33						
	<b>Expert suggestions</b>					6	6				5	4		4	3	28
	<b>decimal weight</b>					0.215	0.215				0.18	0.14		0.14	0.11	100
Rank						/100	/100				/100	/100	/100	/100	/100	Score
1	Dagana	100	57.6	100	81.6	84.8	15.2	59.3	58.1	70.1	61.9	1.25	74.9	98.3	81.2	69.14
2	Monggar	100	52.5	100	95.9	87.1	12.9	58	52.1	78.4	62.2	1.2	75.9	98.3	72.3	68.61
3	Trashigang	100	52.7	100	93.3	86.5	13.5	61.6	57.5	82.0	66.4	1.42	97.4	98.9	79.1	68.56
4	Samtse	100	60.4	100	82.6	85.7	14.2	60.4	56.2	85.4	66.7	1.25	0.0	95	66.9	67.98
5	Tsirang	100	56.8	100	92.9	87.4	12.6	62.1	59.1	87.3	68.8	1.63	65.6	98.9	82.1	67.78
6	Trashi Yangste	100	67	100	97.4	91.1	8.9	60.8	52.8	83.2	64.9	1.53	60.0	99	77.2	67.31
7	Sarpang	100	41	100	83.2	81.0	18.9	64.1	58.3	83.2	67.9	1.6	100.0	99.1	76.2	67.21
8	Zhemgang	100	57.3	100	95	88.1	11.9	59.1	58.4	76.1	63.9	1.45	64.1	98	70.8	66.87
9	Wangdue Pho	100	54	100	92.7	86.6	13.3	63	46.0	69.8	59.0	1.72	62.1	98.4	71.58	64.16
10	Pema Gatshel	100	39.6	100	98	84.4	15.6	56.1	50.5	78.1	60.9	1.94	67.7	98.3	81.0	63.90
11	Bumthang	100	46.9	100	97	85.9	14	62.6	39.1	69.1	56.3	1.69	79.5	98.3	71.6	63.89
12	Sandrup Jong	100	48.1	100	85.7	83.4	16.5	57.1	44.8	68.9	56.3	1.6	97.4	98.6	64.6	63.84
13	Punakha	100	52.5	100	98.2	87.7	12.3	61.6	40.0	75.7	58.5	1.83	79.5	98.6	66.8	62.78
14	Lhuentse	100	58.7	100	91.6	87.5	12.4	58.1	47.0	82.4	61.9	1.98	56.4	98.4	69.6	62.56
15	Haa	100	40.8	100	98.2	84.7	15.2	64.9	45.8	70.3	59.7	1.87	88.7	97.9	63.4	62.24
16	Tronsga	100	51.1	100	90.5	85.4	14.6	60.1	47.1	66	57.1	1.85	83.1	97.6	59.4	61.46
17	Chhuka	100	35.8	100	96.8	83.1	16.8	60.8	39.9	65.0	54.7	1.67	66.7	98.5	39.2	60.29
18	Paro	100	47.7	100	82.6	82.5	17.4	60.7	31.4	72.5	54.3	1.9	77.9	99.1	54.2	60.24
19	Gasa	100	59	100	97.6	89.1	10.8	64.4	57.5	85.8	68.5	3.15	73.3	96.5	74.5	55.43
20	Thimpu	100	39.6	100	83.9	80.8	19.1	61.7	21.4	48.5	43.4	2.05	87.2	97.6	14	52.67

Sustainability colour coding: green = good, amber = needs improvement, red = unsustainable. EF fair share is 4.7 Bha p/p green = good, amber = needs improvement, red = unsustainable  
 Social health: >60 good, amber = >50 needs improvement, red = <50 unsustainable. Localisation type: green >70% = good, amber 60-70% = needs improvement, red <60% = unsustainable

**Table 10: Regional localisation metrics and submetrics weighting**

	<b>Regional metrics and submetrics</b>	<b>Expert count</b>	<b>Weighting</b>
1	Resource self-reliance:	6	0.215%
	• Water;		• 0.25
	• Food;		• 0.25
	• Energy; and		• 0.25
	• Housing.		• 0.25
2	Resource dependence:	6	0.215%
	• Imported goods; and		•
	• Imported services.		•
3	Social health:	5	0.18%
	• Individual wellbeing;		• 0.33
	• High level trust in neighbours; and		• 0.33
	• Strong sense belonging to local community.		• 0.33
4	Environmental depletion/impact: Ecological Footprint Bhutanese hectares.	4	0.14%
5	Local ownership:	4	0.14%
	• Land ownership; and		• 0.50
	• Foreign control & ownership resources, assets and business.		• 0.50
6	Localisation type: Governance participation.	3	0.11%
	<b>Total</b>	28	100%

**Table 11: BLI data**

<b>Metric</b>	<b>Data used</b>	<b>Data source</b>
1. Resource self-reliance	Water self-reliance %	NSB
	Food self reliance %	NSB
	Energy self-reliance %	NSB
	Housing self-reliance %	BLSS
2. Resource dependence	% consumption not locally produced	NSB
3. Social health	Individual wellbeing	CBS
	High level trust in neighbours	CBS
	Strong sense belonging to community	CBS
4. Enviro damage/impact	Ecological Footprint in Bhutanese ha	Calculated by Otago Polytechnic
5. Control and ownership resources, assets, business	% local land ownership	(NSB) raw data
	% local business ownership	(NSB) raw data
6. Localisation type	Governance Participation local meetings	CBS

Bhutan Living Standards Survey (BLSS)  
National Statistics Bureau Bhutan (NSB)  
Centre for Bhutan Studies (CBS)

## Appendix 9 Global localisation index (GLI)

Table 15: Global localisation Index (GLI)

Rank	Metric	Resource self-reliance (RSR)				Resource dependence (RD)			Social health (SH)				Enviro Impact (EF)		Ownership (O)		Localisation type (LT)%		Score
	Sub-metric	Water %	Import K/Cal pp/d	Energy import pp \$US	RSR	Goods import pp \$US	Service import pp \$US	RD	Well Being /10	Infant Mort No.	Trust Score	SH	EF (ha)	EF	Foreign Invest \$US	O	Participation -0.25 - 0.25	LT	
	Expert suggestions				6			6				5		4		4		3	28
	decimal weight				0.21			0.21				0.18		0.14		0.14		0.11	
	Country	High best	High worst	High worst	/ 100	High worst	High worst	/ 100	High best	High worst	High best	/ 100	High worst	/ 100	High worst	/ 100	High best	/ 100	
1	Costa Rica	94.9	1197	-497.3	34	3933	419	41	7.3	8.6	48.9	29	2.5	35	18713	36	1.06	16	33.28
2	Bhutan	99.6	1000	-204.1	25	351	236	34	6.1	36	78.1	44	1.7	17	23	35	0.10	53	35.13
3	Argentina	96	128	-98.2	20	1606	457	37	6.4	12.7	40.6	42	2.7	39	110704	44	0.25	46	36.43
4	Norway	99.2	2671	0.0	45	464	264	35	7.6	2.2	148	7	4.8	77	191103	51	1.75	4	37.10
5	El Salvador	92.7	1984	-297.0	44	1604	206	36	6.7	13.6	60.4	31	2	27	8635	35	0.08	54	37.47
6	Ecuador	97.7	1131	0.0	24	1594	225	36	5.8	19.8	72.7	39	2.4	34	13079	36	-0.33	71	37.86
7	Bangladesh	97.1	508	-10.4	20	112	42	34	5	33.1	47.7	67	0.7	10	7156	35	-0.42	74	38.13
8	Mozambique	99.6	586	-21.4	19	261	126	34	4.7	63.1	56	74	0.8	11	12632	36	-0.18	65	38.89
9	Zambia	98.5	270	-32.8	18	478	83	34	5.3	56.4	28.1	79	0.8	11	11994	36	-0.16	64	38.98
10	Colombia	99.4	1643	0.0	31	1217	235	36	6.4	15.1	30.9	47	1.8	24	111924	44	-0.11	62	39.16
11	New Zealand	98.5	1608	-1097.2	48	8409	272	49	7.2	4.7	102.2	11	4.3	69	81429	41	1.64	5	39.37
12	Nicaragua	99.3	1289	-225.1	29	975	154	35	5.7	20.6	46.1	52	1.6	21	6476	35	-0.53	78	39.49
13	Namibia	98.4	1344	-384.7	33	3375	361	40	4.9	28.3	57.8	61	2	27	3419	35	0.39	40	39.78
14	Guatemala	96.9	1694	-181.9	35	1074	163	35	6.3	26.5	51.9	47	1.8	24	8914	35	-0.39	73	40.05
15	Benin	95.5	1129	-30.9	26	150	58	34	3.7	58.5	56.2	78	1.4	18	912	35	0.07	54	40.16
16	Thailand	86.9	411	-511.0	32	3841	858	42	6.2	11.4	83.1	26	2.4	34	159125	48	-0.43	75	40.22

17	Malawi	92.1	212	-12.6	21	144	14	34	5.1	46	14.9	83	0.8	11	1167	35	-0.23	67	40.28
18	Serbia	97.5	626	-411.0	26	2660	579	39	4.5	5.7	38.2	58	2.6	37	28678	37	0.17	50	40.4
19	Paraguay	99.9	539	0.0	18	1703	158	36	5.8	18.8	22.7	59	3	45	3936	35	-0.15	64	40.44
20	Honduras	97.8	1705	-232.7	36	1011	192	35	5.9	19.4	47	49	1.7	22	9024	35	-0.51	77	40.48
21	Panama	99.4	2043	-70.1	38	6401	1384	48	7.3	15.9	45.9	35	3	45	28903	37	0.45	38	40.51
22	Ghana	98.2	1064	0.0	23	518	181	35	4.6	48.6	17.4	87	1.7	22	16662	36	0.41	39	40.66
23	Dominican Rep	73.9	1275	-422.7	45	1850	218	37	4.7	22.8	74.7	52	1.4	18	24728	37	0.05	55	41.27
24	Bolivia	99.6	1582	0.0	30	826	230	35	5.8	32.8	48.8	58	2.6	37	8809	35	-0.13	63	41.33
25	Peru	99	2146	-23.5	39	1372	249	36	5.6	14.1	30.5	55	2	27	63448	40	0.07	54	41.49
26	India	66.1	373	-105.2	36	392	101	34	5	43.8	52.5	70	0.9	12	226345	54	0.35	42	41.89
27	Albania	96.9	2649	-154.7	48	1685	756	38	5.3	15	51.2	51	1.8	24	4885	35	0.01	57	41.89
28	Uruguay	97.4	1176	-926.6	40	3546	981	42	6.1	6.2	54.2	35	5.1	81	17900	36	1.02	17	42.22
29	Ethiopia	95.4	730	-28.2	22	135	39	34	4.4	46.5	55.2	74	1.1	14	5803	35	-1.28	95	42.31
30	Vietnam	90.7	2615	-1.7	49	1268	147	36	5.8	18.4	104.1	32	1.4	18	72530	41	-1.38	96	42.38
31	Romania	96.8	1568	-267.1	35	3523	537	41	4.9	10.7	43.6	56	2.8	41	74171	41	0.3	44	42.45
32	Uganda	99.5	554	-34.2	19	171	75	34	4.2	45.4	33.8	84	1.6	21	8191	35	-0.49	77	42.53
33	Madagascar	95.1	1805	-25.1	36	125	64	34	4.6	40.9	65.6	66	1.2	16	5809	35	-0.85	87	43.28
34	Cambodia	99.5	488	-64.8	19	465	117	34	4.2	33.9	15.6	85	1.2	16	8413	35	-0.98	90	43.52
35	Phillipines	83	1887	-130.2	45	653	146	35	4.9	23.5	20.1	73	1	13	31027	37	-0.04	59	43.62
36	Chile	97.1	2102	-869.3	53	4471	883	43	6.6	7.8	34.4	39	3.2	49	206594	52	1.04	16	43.82
37	Ukraine	86.2	850	-526.7	36	1977	376	37	5.1	9.2	60	45	3.2	49	72804	41	-0.29	69	43.9
38	Senegal	94.3	2023	-115.4	41	500	111	34	3.8	45.2	54.2	77	1.5	19	2346	35	-0.05	59	43.93
39	Burkina Faso	93.3	1651	-33.2	34	139	70	34	4	65.8	33.6	88	1.5	19	431	35	-0.04	59	44.24
40	Brazil	99.3	1185	-137.3	26	1099	425	36	6.8	12.9	17.6	46	2.9	43	702208	88	0.43	38	44.31
41	Pakistan	25.6	613	-83.1	44	233	42	34	5.3	69.3	65	64	0.8	11	25395	37	-0.87	87	44.34
42	Indonesia	94.4	2333	47.1	43	760	138	35	5.5	25.8	16.9	68	1.1	14	205606	52	0.03	56	44.43
43	Georgia	97.1	2583	-286.3	49	1746	347	37	4.1	17.8	38.2	68	1.4	18	10615	35	-0.02	58	44.52
44	Venezuela	98.2	2629	0.0	45	1205	603	37	7.5	13.1	48.5	32	3	45	49079	39	-0.92	89	44.56
45	Croatia	99.4	1381	-730.6	38	4856	838	44	5.6	4	38.7	46	4.2	68	31609	37	0.48	36	44.7
46	Rwanda	98.4	1182	-1.3	25	154	58	34	4	38.8	10.2	89	0.7	10	743	35	-1.24	94	44.96
47	Mali	94.8	1324	-61.1	29	220	67	34	3.8	79.6	44.8	84	1.9	25	2786	35	-0.55	79	45.43
48	Australia	95.4	826	0.0	22	10624	2680	59	7.4	4.1	92.4	11	6.7	95	610517	83	1.5	7	45.67
49	Kenya	91.1	1867	-54.5	39	266	52	34	4.3	48.7	20	89	0.9	12	2876	35	-0.3	70	45.73
50	Turkey	81.5	896	-171.8	33	3085	311	39	5.5	12.2	10.2	60	2.6	37	181606	50	-0.24	67	45.97
51	Poland	80.6	1795	-446.5	50	4973	861	44	5.8	4.3	40.9	43	3.9	62	230604	55	1.06	16	46.21
52	Belarus	92.5	1457	-156.2	34	4901	471	43	5.5	3.9	85.2	29	4	64	14426	36	-1.54	97	46.24

53	South Africa	75.8	1507	-222.8	26	1882	304	84	4.7	33.3	38	7	2.6	99	138964	47	0.56	4	46.25
54	Denmark	89.2	891	0.0	44	16366	10600	37	7.8	3	131.9	74	8.3	37	147672	46	1.69	33	46.27
55	Finland	98.5	1185	-1599.3	47	13935	5402	71	7.4	2.4	117.5	8	6.2	92	89992	42	1.62	5	46.48
56	Hungary	94.6	1150	-799.9	39	9542	1693	55	4.7	5.3	44.8	54	3.6	56	103557	43	0.72	27	46.73
57	Bosn Herzegov	99.1	2806	-357.0	51	2642	122	38	4.7	5.8	32.4	59	2.7	39	7771	35	-0.14	63	47.07
58	Bulgaria	71.3	1141	-528.1	47	4519	672	43	4.2	10.5	50.9	57	3.6	56	49871	39	0.38	41	47.31
59	Nigeria	95.4	1875	0.0	36	201	125	34	4.8	77.8	29.8	84	1.4	18	76369	41	-0.73	84	47.53
60	Kyrgyzstan	67.4	1998	-169.8	56	923	226	35	5	23.6	33.7	67	1.3	17	2758	35	-0.64	81	47.59
61	Lithuania	90.4	1067	-1234.3	46	10967	1710	57	5.1	4.4	52.8	46	4.4	71	15796	36	0.91	20	47.78
62	Mexico	82.4	2425	0.0	51	3097	264	39	6.8	13.9	41.7	39	3.3	51	314968	62	0.09	53	48.04
63	Latvia	98.8	1705	-870.7	46	8064	1354	51	4.7	7.6	35.9	59	4	64	13254	36	0.74	26	48.31
64	Armenia	62.1	2629	-260.0	67	1414	397	37	4.4	14.7	51.8	58	1.7	22	5063	35	-0.57	79	49.25
65	Czech Republic	87.1	1188	-797.0	43	13285	1865	61	6.2	3.1	48.8	34	5.3	84	136442	46	0.93	20	49.27
66	Botswana	98.4	1961	-628.0	46	3963	338	41	3.6	41	12.3	91	2.8	41	1318	35	0.5	35	49.53
67	Zimbabwe	79	1713	-121.2	45	590	74	34	4.8	55.7	24.9	85	1.2	16	2601	35	-1.45	96	49.58
68	Austria	95.3	1167	-1923.7	50	19897	5243	77	7.3	3.3	70.2	17	5.3	84	158109	48	1.46	7	49.96
69	Greece	87.3	2596	-880.9	64	5605	1312	46	5.8	4.1	54.6	37	4.9	79	37801	38	0.65	29	50.06
70	Algeria	51.1	2988	0.0	69	1419	275	36	5.2	17.2	45.3	56	1.6	21	23264	37	-0.91	88	50.16
71	Iceland	99.9	1662	-1877.5	55	14591	8886	79	6.9	1.8	83	15	6.5	94	12378	36	1.46	7	50.52
72	Japan	79.1	2586	-2272.9	80	6968	1291	49	6	2.2	79.6	24	4.2	68	205361	52	1.09	15	50.54
73	Sweden	98.5	1871	-1066.0	52	16929	5946	76	7.5	2.3	134.5	8	5.7	88	376181	67	1.71	4	51.29
74	Slovakia	98.6	2536	-1024.6	60	14191	1337	62	6.1	6.3	33.4	44	4.7	76	55816	39	0.96	19	52.29
75	Malaysia	98.1	2416	0.0	43	6487	1495	48	5.6	7.3	17.7	55	3.9	62	132400	46	-0.34	71	52.41
76	Mongolia	98.4	1888	-136.0	37	722	690	36	4.6	23	21.4	75	5.5	86	13151	36	0.02	56	52.44
77	USA	84.4	860	-925.2	43	7325	1434	50	7.2	6	78.8	16	7.2	97	3931976	100	1.12	14	52.59
78	Azerbaijan	65.5	2460	0.0	60	1017	872	37	4.2	30.8	44.2	74	2	27	11118	36	-1.26	94	52.97
79	Jordan	0.6	2937	-1007.9	87	3125	691	40	5.7	16.4	62	42	2.1	28	24775	37	-0.73	84	53.08
80	Slovenia	97	2399	-1505.7	65	13753	21970	63	6.1	2.5	38.6	40	5.2	83	15526	36	0.98	18	53.32
81	Portugal	87.7	3061	-949.1	68	6900	1348	49	4.9	2.9	21.9	59	4.1	66	117161	45	0.99	18	53.38
82	Morocco	56.5	2914	-333.4	72	1343	233	36	4.4	26.8	27.4	77	1.3	17	48176	39	-0.61	81	53.4
83	Cyprus	82.4	2397	-2376.5	76	8520	3832	58	6.4	2.5	21.2	42	4.4	71	20962	36	1	18	53.49
84	Russia	98.5	1723	0.0	33	2165	860	39	5.5	8.9	55.4	43	4.4	71	508890	77	-0.96	89	53.58
85	Estonia	86	3099	-461.6	62	15110	3280	67	5.1	2.9	48.4	47	4.7	76	18826	36	1.09	15	53.64
86	Egypt	1.8	2675	-48.1	70	803	189	35	3.9	17.9	37.2	70	2.1	28	75410	41	-0.74	84	53.81
87	Trinidad Tobag	94	2781	0.0	48	4879	4145	52	6.7	18.4	7.9	52	7.6	98	21782	36	0.45	38	54.1
88	China	80.5	2440	-206.4	55	1331	242	36	4.7	12.1	120.9	38	2.1	28	832882	93	-1.58	97	54.17

89	Germany	79	1216	-1671.2	58	14524	3935	68	6.7	3.4	75.8	19	4.6	74	716344	88	1.38	9	54.58
90	Italy	76.4	3005	-1247.2	78	8050	1801	52	6.4	3.2	60.8	27	4.5	73	356887	65	0.89	21	54.74
91	Lebanon	81.4	2837	-1168.8	74	4258	2470	47	5.2	8	33.8	55	2.8	41	52885	39	-0.42	74	54.93
92	Iran	32.1	2401	0.0	66	880	167	35	4.8	15.1	21.8	67	2.7	39	37313	38	-1.57	97	55.08
93	Israel	20.3	3014	-1828.5	95	8909	2471	55	7.4	3.3	48.3	26	4	64	75944	41	0.61	31	55.25
94	Saudi Arabia	0	2813	0.0	70	5187	2553	49	6.7	7.4	104.8	15	4	64	199032	52	-1.8	99	55.31
95	France	85.2	989	-1364.9	50	10056	2865	58	6.8	3.4	37.9	34	4.9	79	1094961	98	1.22	12	55.75
96	Spain	71	1890	-1258.1	69	7006	1991	51	6.2	3.8	40.9	38	4.7	76	634539	84	1.04	16	57.08
97	Netherlands	88.3	1268	-2088.4	55	29715	7601	86	7.5	3.4	90.6	11	6.3	93	572986	81	1.63	5	57.71
98	Switzerland	95.1	2758	-1412.9	68	24236	6494	82	7.5	3.7	107.4	9	5	80	656596	85	1.67	5	58.11
99	Malta	28.7	3013	-2478.0	96	13777	7515	75	5.8	5.8	42.2	43	4.3	69	15811	36	1.15	14	60.89
100	Luxembourg	98.1	2624	-4533.8	70	43680	83372	100	7.1	1.7	53.9	24	10.7	100	121621	45	1.63	5	62.08
101	Kuwait	0	3363	0.0	73	16940	7016	78	6.6	9.5	48.5	34	9.7	100	12767	36	-0.62	81	66.47
102	Belgium	66	2122	-2251.8	80	39090	8728	89	6.9	3.4	63	22	7.1	97	1010967	97	1.35	9	68.89
103	Hong Kong	80.5	3186	-2265.7	83	76663	8265	88	5.6	2.8	82.4	28	5.8	89	1422375	100	0.62	31	71.86
	Min	0	128	-4533		112.4	13.64		3.6	1.7	7.9		0.7		23		-1.8		
	Max	99.9	3363	47.05		76663	83372		7.8	79.6	148		10.7		3931976		1.75		

Sustainability colour coding: green = good, amber = needs improvement, red = unsustainable

EF fair share is 1.8 gha p/p: green = <1.8 good, amber = 1.8 – 3.6 needs improvement, red = > 3.6 unsustainable

Wellbeing scored out of 10: green = >6.2 good, amber = 4.8-6.2 needs improvement, red = < 4.8 unsustainable

Localisation type: green = > 1.0 good, amber = 0 – 1.0 needs improvement, red = < 0 unsustainable

**Table 14: National localisation metric and sub-metric weightings**

	<b>National metrics and submetrics</b>	<b>Expert count</b>	<b>Weighting</b>
1	Resource self-reliance:	6	0.21%
	• Water		• 0.33
	• Imported K/Cal pp per day		• 0.33
	• Energy import p/p \$US		• 0.33
2	Resource dependence	6	0.21%
	• Total goods imported pp \$US		• 0.50
	• Total services imported pp \$US		• 0.50
3	Social health:	5	0.18%
	• Individ wellbeing		• 0.33
	• Infant mortality		• 0.33
	• Most people can be trusted		• 0.33
4	Environmental depletion/impact – EF	4	0.14%
5	Local ownership - Foreign investments \$US	4	0.14%
6	Localisation type - Participation governance	3	0.11%

## Appendix 10 Bhutanese sustainability index (BSI)

Table 20: Bhutanese sustainability index

BSI rank	Region	EF/Bha	GNHI score	ZSCORE EF 50%	ZSCORE GNHI 50%	Complem Zscorgnhi	EF+ GNHI	efp+comp gnhi = BSI	EF rank	GNHI rank
1	Dagana	1.25	0.783	0.123841	0.846111	0.153888	0.4849	0.1388646	2	3
2	Sarpang	1.60	0.795	0.383248	0.906499	0.093500	0.6448	0.2383743	8	2
3	Zhemgang	1.45	0.753	0.256737	0.606762	0.393237	0.4317	0.3249873	5	9
4	Tsirang	1.63	0.77	0.407197	0.756575	0.243424	0.5818	0.3253111	9	7
5	Samtse	1.25	0.736	0.124738	0.438983	0.561016	0.2818	0.3428774	3	12
6	Monggar	1.2	0.732	0.101958	0.399973	0.600026	0.2509	0.3509922	1	14
7	Paro	1.90	0.807	0.661362	0.947287	0.052712	0.8043	0.3570372	16	1
8	Haa	1.87	0.775	0.630191	0.793938	0.206061	0.7120	0.4181265	15	4
9	Punakha	1.83	0.77	0.595876	0.756575	0.243424	0.6762	0.4196506	13	8
10	Chhuka	1.67	0.752	0.441617	0.597129	0.402870	0.5193	0.4222440	10	10
11	Thimpu	2.05	0.773	0.780519	0.779418	0.220581	0.7799	0.5005505	19	5
12	Trashigang	1.49	0.708	0.228833	0.196934	0.803065	0.2128	0.5159494	4	16
13	Bumthang	1.69	0.734	0.459446	0.419379	0.580620	0.4394	0.5200333	11	13
14	Wangdue Pho	1.72	0.737	0.494702	0.448845	0.551154	0.4717	0.5229288	12	11
15	Trashhi Yangste	1.53	0.698	0.315907	0.135167	0.864832	0.2255	0.5903701	6	18
16	Gasa	3.15	0.771	0.999673	0.764328	0.235671	0.8820	0.6176723	20	6
17	Sandrup Jongk	1.60	0.655	0.380074	0.014782	0.985217	0.1974	0.6826459	7	20
18	Pema Gatshel	1.94	0.712	0.690980	0.225799	0.774200	0.4583	0.7325908	17	15
19	Tronsga	1.85	0.684	0.610419	0.073274	0.926725	0.3418	0.7685722	14	19
20	Lhuentse	1.98	0.698	0.725612	0.135167	0.864832	0.4303	0.7952222	18	17

## Appendix 11 Bhutanese LI correlations and BSI correlations

### BLI and BSI EF 50% correlation

Correlation Coefficients Matrix			
Sample size	20	Critical value (2%)	2.55238
		LI rank	BSI rank
<b>BLI rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	1.	
<b>BSI EF 50% rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	0.46015 0.04379 2.19888 0.0412 accepted	1.
<b>BSI rank vs. BLI rank</b>		<b>0.46015</b>	

### BLI and BSI EF 33% correlation

Correlation Coefficients Matrix			
Sample size	20	Critical value (2%)	2.55238
		BSI ef 33% rank	BLI rank
<b>BSI EF 33% rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	1.	
<b>BLI rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	0.04511 0.05544 0.19159 0.85021 accepted	1.
<b>BLI vs. BSI EF 33% rank</b>		<b>0.04511</b>	

### BLI and GNHI correlation

Correlation Coefficients Matrix			
Sample size	20	Critical value (2%)	2.55238
		BLI rank	GNHI rank
<b>BLI rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	1.	
<b>GNHI rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	-0.23158 0.05258 -1.00996 0.3259 accepted	1.
<b>GNHI vs. BLI rank</b>		<b>-0.23158</b>	

### Bhutan EF and GNHI correlation

#### Correlation Coefficients Matrix

Sample size		20	Critical value (2%)	2.55238
			GNHI rank	EF rank
GNHI rank	Pearson Correlation Coefficient R Standard Error t p-value H0 (2%)		1.	
EF rank	Pearson Correlation Coefficient R Standard Error t p-value H0 (2%)		-0.17444 0.05387 -0.75159 0.46201 accepted	1.
<b>EF vs GNHI rank</b>		<b>-0.17444</b>		

### Bhutan EF and BSI correlation

#### Correlation Coefficients Matrix

Sample size		20	Critical value (2%)	2.55238
			BSI rank	EF high
BSI (50%) rank	Pearson Correlation Coefficient R Standard Error t p-value H0 (2%)		1.	
EF	Pearson Correlation Coefficient R Standard Error t p-value H0 (2%)		-0.56241 0.03798 -2.88572 0.00984 rejected	1.
<b>EF vs. BSI (50%) rank</b>		<b>-0.56241</b>		

### Bhutan BSI (EF 50%) and GNHI correlation

#### Correlation Coefficients Matrix

Sample size		20	Critical value (2%)	2.55238
			BSI EF 50% rank	GNHI rank
BSI EF 50% rank	Pearson Correlation Coefficient R Standard Error t p-value H0 (2%)		1.	
GNHI rank	Pearson Correlation Coefficient R Standard Error t p-value H0 (2%)		-0.16391 0.05406 -0.70494 0.48987 accepted	1.
<b>GNHI vs. BSI EF 50% rank</b>		<b>-0.16391</b>		

### GNHI and BSI EF 33% correlation

Correlation Coefficients Matrix			
Sample size	20	Critical value (2%)	2.55238
<b>GNHI rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	<b>GNHI rank</b> 1.	<b>BSI ef 33% rank</b>
<b>BSI ef 33% rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	0.79549 0.0204 5.56955 0.00003 rejected	1.
<b>BSI ef 33% vs. GNHI rank</b>		<b>0.79549</b>	

### BLI and RSR correlation

Correlation Coefficients Matrix			
Sample size	20	Critical value (2%)	2.55238
<b>BLI rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	<b>BLI rank</b> 1.	<b>Rsr rank</b>
<b>RSR rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	0.2782 0.05126 1.22879 0.23497 accepted	1.
<b>RSR vs. BLI rank</b>		<b>0.2782</b>	

### BLI (EF 50%) and RD correlation

Correlation Coefficients Matrix			
Sample size	20	Critical value (2%)	2.55238
<b>BLI rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	<b>BLI rank</b> 1.	<b>RD</b>
<b>RD</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	-0.23308 0.05254 -1.01689 0.32268 accepted	1.
<b>RD vs. BLI rank</b>		<b>-0.23308</b>	

## Correlation between localisation and EF in Bhutan

### Correlation Coefficients Matrix

Sample size		20	Critical value (2%)	2.55238
			LI rank	EF high
<b>BLI (EF 50%) rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>		1.	
<b>EF</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>		-0.86165 0.01431 -7.20339 0. rejected	1.
<b>EF vs BLI (50%) rank</b>		<b>-0.86165</b>		

## BLI and LT correlation

### Correlation Coefficients Matrix

Sample size		20	Critical value (2%)	2.55238
			BLI rank	LT rank
<b>BLI rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>		1.	
<b>LT rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>		0.72932 0.026 4.52265 0.00026 rejected	1.
<b>LT vs BLI rank</b>		<b>0.72932</b>		

## BLI and LO correlation

### Correlation Coefficients Matrix

Sample size		20	Critical value (2%)	2.55238
			BLI rank	LO rank
<b>BLI rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>		1.	
<b>LO rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>		0.34737 0.04885 1.57163 0.13345 accepted	1.
<b>LO rank vs. BLI rank</b>		<b>0.34737</b>		

## Appendix 12 Global correlations

### HPI and GLI correlation

Correlation Coefficients Matrix				
Sample size		103	Critical value (2%)	2.36384
		HPI rank	LI rank	
HPI rank	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	1.		
GLI rank	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	0.35001 0.00869 3.75507 0.00029 rejected	1.	
<b>GLI vs. HPI rank</b>		<b>0.35001</b>		

### WBNI and GLI correlation

Correlation Coefficients Matrix				
Sample size		102	Critical value (2%)	2.36422
		LI rank	WBNI rank	
GLI rank	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	1.		
WBNI rank	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	-0.17313 0.0097 -1.7579 0.08183 accepted	1.	
<b>WBNI rank vs. LI rank</b>		<b>-0.17313</b>		

R

### ERHNI and GLI correlation

Correlation Coefficients Matrix				
<i>Sample size</i>		97	<i>Critical value (2%)</i>	2.36624
		<i>LI</i>	<i>ENRHI</i>	
<b>GLI</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	1.		
<b>ENRHI</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	0.06518 0.01048 0.63668 0.52586 accepted	1.	
<b>ENRHI vs. GLI</b>		<b>0.06518</b>		

### EEWB and LI correlation

Correlation Coefficients Matrix				
<i>Sample size</i>		80	<i>Critical value (2%)</i>	2.37511
		<i>LI rank</i>	<i>EEWB rank</i>	
<b>GLI rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>T</i> <i>p-value</i> <i>H0 (2%)</i>	1.		
<b>EEWB rank</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>T</i> <i>p-value</i> <i>H0 (2%)</i>	0.10874 0.01267 0.96609 0.33699 accepted	1.	
<b>EEWB vs. GLI rank</b>		<b>0.10874</b>		

## SHDI and LI correlation

Correlation Coefficients Matrix				
<i>Sample size</i>		95	<i>Critical value (2%)</i>	2.36712
		<i>GLI rank</i>	<i>SHDI rank</i>	
<b>GLI rank</b>	<b>Pearson Correlation Coefficient</b>	1.		
	<i>R Standard Error</i>			
	<i>t</i>			
	<i>p-value</i>			
	<i>H0 (2%)</i>			
<b>SHDI rank</b>	<b>Pearson Correlation Coefficient</b>	0.24117	1.	
	<i>R Standard Error</i>	0.01013		
	<i>t</i>	2.39651		
	<i>p-value</i>	0.01855		
	<i>H0 (2%)</i>	rejected		
<b>SHDI vs. GLI rank</b>	<b>0.24117</b>			

# Appendix 13 Bhutanese sustainability interview guide

SCHOOL OF ENVIRONMENTAL SCIENCES

INSTITUTE FOR LAND, WATER AND SOCIETY, CHARLES STURT UNIVERSITY, AUSTRALIA

## INTERVIEW GUIDE FOR BHUTAN

### Background Information

Name of Respondent..... Name of Institution.....Region.....  
Time.....Date.....

### Introduction

*Hello my name is Michelle Olivier. I am a research student from Charles Sturt University, Australia. I am researching the relationship between sustainability and localisation.*

*Please remember that participation in this interview is voluntary and you are free to withdraw at any time. The information that will be collected from you will be treated with, and the results of the project can be made available to you if interested. Is it OK with you if the interview is recorded?*

*Thank you for consenting to participate in this research. Now I would to proceed to the interview, which will take up to an hour.*

### 1. What do you understand the term sustainability to mean?

- People
- Community
- Governance
- Future generations
- Environment
- Resource use

### 2. Does your community intentionally prioritise sustainability?

- How do people know or learn about it?
- Are people expected to understand it/do it/help plan for it?

### 3. Is the health of the community ever/sometimes prioritised at the expense of other priorities?

- How are decisions made when it comes to deciding what is best for the community?
- Are financial benefits a high priority to the community?
- Are financial benefits sacrificed if the wellbeing gains are high enough?
- Are wellbeing benefits sacrificed if the financial gains are high enough?

### 4. Is the health of the environment prioritised at the expense of other priorities?

- How are decisions made when it comes to deciding what is best for the environment?
- How are decisions made when it comes to conflicts between the community and environment?
- Is environmental health sacrificed if the financial gains are high enough?

### 5. Where are your essential needs sourced from?

- Water;
- Food
- Energy;

- Clothing; and
- Housing materials.

**6. Are these materials intentionally sought locally? (If not go to Q12)**

- What is the preferred source?
- Are these preferences changing over time?

**7. If so how does the community seek to do this?**

- Are there formal arrangements?
- Do people have old agreements that they maintain?
- Do individual people just choose for themselves?
- Do people trade or barter rather than pay for some local goods/services?

**8. Does the community prioritise the local sourcing of goods and materials above other priorities?**

- For example over financial priorities?

**9. Why is the local sourcing of goods and materials important to the community?**

- Financial benefits?
- Social benefits?

**10. What do you understand by the term localisation?**

- Is it important?
- Is it a part of community planning?
- Centralised government involvement
- Trade with other regions
- International trade

**11. What might be the difficulties and opportunities for other countries or communities wanting to adopt strategies to achieve localisation?**

- For the community as a whole
- Socially
- Environmentally
- Resource use
- Economically
- Logistically

**12. If not sourced locally how does the community decide where they will source essential goods and materials**

## Appendix 14 Bhutanese urbanisation and correlations

### Correlation between localisation and urbanisation in Bhutan

Correlation Coefficients Matrix			
Sample size	20	Critical value (2%)	2.55238
		urban rank	LI rank
urban rank	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	1.	
LI rank	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	-0.15489 0.05422 -0.66516 0.51438 accepted	1.
<b>LI vs urban rank</b>		<b>-0.15489</b>	

### Correlation between urbanisation and BSI in Bhutan

Correlation Coefficients Matrix			
Sample size	20	Critical value (2%)	2.55238
		Urban	BSI rank
Urban	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	1.	
BSI (EF 50%) rank	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	0.11278 0.05485 0.48157 0.63592 accepted	1.
<b>BSI (EF 50%) rank vs. Urban</b>		<b>0.11278</b>	

### Correlation between urbanisation and resource self-reliance in Bhutan

Correlation Coefficients Matrix			
Sample size	20	Critical value (2%)	2.55238
		urban rank	Rsr rank
urban rank	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	1.	
RSR rank	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	-0.37872 0.04759 -1.73607 0.09964 accepted	1.
<b>RSR vs urban rank</b>		<b>-0.37872</b>	

### Correlation between urbanisation and resource dependence in Bhutan

Correlation Coefficients Matrix			
Sample size	20	Critical value (2%)	2.55238
		urban rank	Resource dependence
urban rank	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	1.	
RD rank	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	0.38797 0.04719 1.7859 0.09097 accepted	1.
<b>RD vs. urban rank</b>		<b>0.38797</b>	

### Correlation between urbanisation and social health in Bhutan

Correlation Coefficients Matrix			
Sample size	20	Critical value (2%)	2.55238
		urban rank	sh rank
Urban rank	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	1.	
Social health rank	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	-0.45697 0.04395 -2.17967 0.0428 accepted	1.
<b>SH vs. urban rank</b>		<b>-0.45697</b>	

### Correlation between urbanisation and EF in Bhutan

Correlation Coefficients Matrix			
Sample size	20	Critical value (2%)	2.55238
		EF high	urban rank
EF	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	1.	
Urbanisation	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	-0.13985 0.05447 -0.59922 0.55649 accepted	1.
<b>Urbanisation vs. EF</b>		<b>-0.13985</b>	

### Correlation between urbanisation and localisation type in Bhutan

Correlation Coefficients Matrix			
Sample size	20	Critical value (2%)	2.55238
		urban rank	LT rank
<b>Urbanisation</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	1.	
<b>Localisation type</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	-0.51008 0.0411 -2.516 0.02158 accepted	1.
<b>LT vs. urbanisation</b>	<b>-0.51008</b>		

### Correlation between urbanisation and local ownership in Bhutan

Correlation Coefficients Matrix			
Sample size	20	Critical value (2%)	2.55238
		LO rank	Urban
<b>LO</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	1.	
<b>Urbanisation</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	-0.19549 0.05343 -0.84571 0.40882 accepted	1.
<b>Urbanisation vs. LO</b>	<b>-0.19549</b>		

### Correlation between urbanisation and income in Bhutan

Correlation Coefficients Matrix			
Sample size	20	Critical value (2%)	2.55238
		Y rank	urban rank
<b>Income</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	1.	
<b>Urbanisation</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	0.4015 0.0466 1.85994 0.07932 accepted	1.
<b>Income vs urbanisation</b>	<b>0.4015</b>		

### Correlation between urbanisation and wellbeing in Bhutan

Correlation Coefficients Matrix			
<i>Sample size</i>	20	<i>Critical value (2%)</i>	2.55238
<b>WB</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	<i>WB rank</i> 1.	<i>Y rank</i>
<b>Income (Y)</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	0.48571 0.04245 2.35748 0.02992 accepted	1.
<b>Y vs. WB</b>	<b>0.48571</b>		

### Correlation between social health and income in Bhutan

Correlation Coefficients Matrix			
<i>Sample size</i>	20	<i>Critical value (2%)</i>	2.55238
<b>Income (Y)</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	<i>Y rank</i> 1.	<i>sh rank</i>
<b>Social health</b>	<b>Pearson Correlation Coefficient</b> <i>R Standard Error</i> <i>t</i> <i>p-value</i> <i>H0 (2%)</i>	-0.45113 0.04425 -2.14461 0.04588 accepted	1.
<b>SH vs. Income</b>	<b>-0.45113</b>		

## **Appendix 15 GNHC Protocol for Policy Formulation**

### **Royal Government of Bhutan - Protocol for Policy Formulation**

(From the GNHC website - <http://www.gnhc.gov.bt/wp-content/uploads/2011/05/GNH-Policy-Protocol-revised-Feb-20121.pdf>)

All public policies in Bhutan, irrespective of their origin but with the exception of a Royal Command or national exigencies, shall be formulated/ revised, approved and adopted in line with the following Protocol for Policy Formulation.

1. Proposals to formulate/ revise public policies in Bhutan can originate from the Lhengye Zhungtshog (Cabinet), sectors and the GNH Commission.
2. For purposes of proper planning the conception and formulation/ revision of policies will be undertaken periodically.
3. All policies/ concept notes originating from the Sectors must be routed through their respective Policy & Planning Divisions (PPDs), who shall be the focal points for policy coordination.
4. All policy concept notes will be submitted to the Gross National Happiness Commission Secretariat (GNHCS) by the last week of October for review.
5. The GNHCS will submit the concept notes and recommendations to the Cabinet for approval by the last week of December.
6. The Cabinet will approve/ reject the concept notes by the last week of January.
7. The formulation/ revision of any policy will be undertaken in two stages.  
Stage one: Policy conception stage; and  
Stage two: Policy formulation and approval stage.
8. Proponents desiring to formulate or revise a policy may do so only after the approval of the policy concept note by the Cabinet.
9. Only policies endorsed by the GNH Commission will be submitted to the Cabinet for approval.

#### **Stage One: Policy Conception Stage**

1. The proposal to formulate/ revise any policy will begin with the preparation of a concept note of maximum 5 pages as per the format prescribed in Annex A, by the proponent.
2. The concept note will be submitted to the GNHCS for review and comments by the last week of October.

3. The GNHCS will submit the concept note to the Cabinet for approval upon completing the review by the last week of December. The submission will include recommendations/views/comments on the concept note.
4. The Cabinet may either approve/reject the concept note or seek further clarifications from the proponents or GNHCS based on which approval/rejection can be made. The approval of rejection will be conveyed by the last week of January.
5. Approval/rejection of the concept note will conveyed to the GNHCS and the proponents by the Cabinet Secretariat.
6. Upon approval of the concept note (with changes as directed by the Cabinet) proponents may commence formulation/revision of the policy.

### **Stage Two: Policy Formulation and Approval Stage**

1. The proponents shall commence formulation/revision of the policy after receiving approval on the concept note (with changes as directed by the Cabinet) from the Cabinet.
2. While formulating/revisioning the policy, proponents should ensure that as a minimum:
  - i) all policy alternatives have been considered;
  - ii) all cross cutting issues such as Gender, Environment, Climate Change, Disaster, Poverty, Population and others are integrated within the policy;
  - iii) all relevant stakeholders who may be affected by the policy are consulted; and
  - iv) there is no conflict between the proposed policy and other existing policies, laws, and regulations.
3. After formulation/revision, the concerned proponents shall submit all proposed policies to the GNHCS along with the Policy Protocol Report as per the Format specified in Annexure B.
4. With the formal submission of the above documents to the GNHCS, the Research and Evaluation Division (RED) of the GNHCS shall review the draft Policy and provide feedback/comments to the proponent. If required the proponent will be required to make a presentation of the draft policy to the GNHCS.
5. The proponent can either incorporate the comments/feedback or seek further clarifications from the GNHCS. If required bilateral discussions can be held between the proponent and GNHCS.
6. Upon incorporation of the comments agreed on between the sector and GNHCS, the revised Draft Policy shall be subjected to the Gross National

Happiness (GNH) Policy Screening Tool by the Proponent Sector and the GNHCS (as two separate exercises):

- i. Prior to screening of a policy, a bilateral session shall be held between the proponent sector and the GNHC Secretariat on the relevance of certain GNH indicators against the policy in question.
  - ii. The screening shall be undertaken individually by those participating in the screening exercise (The Draft Policy and Screening Tool to be shared a few days prior to the meeting).
  - iii. A diverse mix of stakeholders shall participate, numbering to at least 15 participants.
  - iv. The Gender Focal Point of the proponent sector, environment representatives and other external key stakeholders shall be involved in the screening exercise.
7. The proponents will submit their individual and consolidated GNH Screening results to the GNHCS. All rationales and mitigation measures need to be duly completed.
8. The revised draft policy document and the screening results shall be submitted to the GNHC through the GNHCS. The presentation of the draft policy to the GNHC will be done by the proponent, the GNHCS will present both the GNH screening results and additional comments if any.
9. The GNH Commission can decide to either go straight to Step 11, or consider instituting a task force to review the draft policy further. The task force will be purpose-based, work to a defined timeline and ensure all major stakeholders affected by the Policy are consulted.
10. The task force shall present its recommendations to the GNHC for review.
11. The GNH Commission will endorse the draft Policy as submitted, recommend further review, accord endorsement subject to revisions, or provide additional directives.
12. If endorsed, the sector shall revise the policy according to the directives received from the GNH Commission and submit a copy of the revised draft Policy to the GNHCS to ensure all directives of the GNH Commission have been considered.
13. The GNHCS will convey endorsement of the revised draft Policy to the proponent and Cabinet Secretariat.
14. The revised draft Policy endorsed by the GNHCS shall be submitted to the Cabinet by the proponent for approval.

15. The Cabinet shall convey approval of the Policy or issue further directives to the proponent with a copy to the GNHCS.
16. If approved, a copy of the approved Policy (after incorporation of Cabinet's comments) will be shared with the GNHCS by the proponent.
17. If there are major revisions to the policy the Cabinet can subject the draft policy to the following before according approval:
  - i. The re-application of the entire Policy Protocol;
  - ii. An additional review by the GNHC/S or other agencies and institutions; and
  - iii. A re-application of the GNH Policy Screening Tool.
18. The approved Policy shall be implemented by the proponent/agency identified within the policy.
19. The proponent/agency shall submit an action plan for implementation of the policy to the GNHCS.
20. The action plan should clearly spell out the responsible agency, indicative budget and timeframe, activities, outputs, outcomes and associated indicators.
21. The GNHCS will endorse the action plan and seek clarifications if necessary.
22. Based on the endorsed action plan, the GNHCS and the implementing agency will agree on a monitoring framework for the policy.
23. The GNH Commission shall carry out post-adoption evaluation of policies. The findings of the evaluations shall be used to refine the policies.

The formulation of any policy will begin with the preparation of a Concept Note of maximum 3 pages by the proponent Sector, which is submitted to the GNHC Secretariat for endorsement. The primary purpose of the concept note is to provide convincing arguments on the existence of pertinent issues that need to be resolved and to justify the need for a new policy/revision of an existing policy. The note should be succinct and understandable. As a minimum the Concept Note should clearly state the following:

- i. Context and Background - The reason/rationale for proposing a new policy or revising an existing policy
  - Is the proposed policy an outcome of government directives, if so which directive?
  - What are the major issues the proposed new policy/policy revision intends to address? What are the root causes of the issues in question?
  - What are the implications if the issues are not addressed?

- ii. Critique of current policy options and approaches:
  - Briefly explain the shortcomings/failing of the current approaches (policy/act/regulation/others) or the limitations posed by the absence of the policy in addressing the issue(s).
- iii. Policy Recommendations
  - Briefly explain how the proposed new policy/policy revision will address the shortcomings of the current approaches/regulations/policy or the limitations posed by the absence of the policy.
  - Briefly explain the major costs and benefits that may arise out of the policy in terms of resources (physical, financial, human, and others) and processes that will result with the proposed new policy/policy revision.
- iv. Integration of GNH and cross cutting issues
  - What are the opportunities and challenges pertaining to GNH, Disaster, Environment, Poverty, Climate Change, Gender, Population, Health, ICT, and other cross-cutting issues that may arise from the proposed new policy/policy revision?
  - Briefly describe how the policy will make use of the opportunities or mitigate the challenges that may arise with respect to GNH, Disaster, Environment, Poverty, Climate Change, Gender, Population and other cross-cutting issues by adopting this policy.
- v. Process and indicative timeline
  - Provide details on the process and indicative timeline that will be followed developing the policy including likely need/use of TA. (If TA is to be used, the ToR must be shared with RED, GNHCS for comments);
  - Briefly provide details on policies/acts/regulations that may conflict with the proposed new policy/policy revision and explain how the conflict will be resolved; and
  - List of stakeholders who will be consulted.
- vi. Major impediments or risks foreseen in the development of the policy.

1. Title Page
  - a. Title of the Policy
  - b. Name and contact details of the organization submitting the issue
  - c. Name and Contact details of the focal point
  - d. Date of submission
2. Background and Context
  - e. Current situation: Provide a brief overview of major issues, their root causes, and implications if not addressed.

- f. Current approaches and options: Provide a brief overview of the existing approaches (rules/regulations/acts/ policy) that currently exist.
  - g. Critique of the current approaches/options: Provide a brief overview of the shortcoming or limitations of the current options or approaches in addressing the issue.
  - h. Provide brief information on Prior Government Decisions/ Orders. Kindly mention References, etc.
3. Policy Recommendations
    - a. Provide a brief overview on how the proposed policy will address the issues in question.
    - b. Briefly explain the major costs and benefits that may arise out of the policy in terms of resources (physical, financial, human, and others) and processes that will result with the proposed new policy/policy revision.
  4. Research and Findings
    - a. Mention any studies, appraisals, etc. carried out on issues related to the PP along with key findings and recommendations
    - b. Attach copies of the studies and reports referred to under a.
  5. Integration of GNH and Other Cross Cutting Issues
    - a. What are the opportunities and challenges pertaining to GNH, Disaster, Environment, Poverty, Climate Change, Gender, Population, Health, ICT, and other cross-cutting issues that may arise from the proposed new policy/policy revision?
    - b. Briefly describe how the policy will make use of the opportunities or mitigate the challenges that may arise with respect to GNH, Disaster, Environment, Poverty, Climate Change, Gender, Population and other cross-cutting issues by adopting this policy.
  6. Other Implications
    - a. State any other implications (legislative, financial, social, administrative, political, institutional, etc.)
  7. Consultations
    - a. Consultation Process with other Stakeholders/Organizations – Provide a list of the stakeholders and organizations consulted.
    - b. State controversial issues, key findings and recommendations from the consultation process.
  8. Attach a copy of the proposed policy.

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