

Dissertation

By

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BSc in Construction 3rd year study

Could low impact development be the answer to the current housing crisis whilst making positive social, economic and environmental differences in the UK.

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Abstract:

In the last 6 years the UK has witnessed the lowest figures of new housing developments since the 1920s. The UK government have stated they are now on a crusade to bring the country back from the brink, they are planning to build a minimum of 1 million new homes by 2020, this will help stabilize not only the housing crisis but also the economy.

The housing crisis has been entangled in the complicated economic web as people look upon their property as assets as well as homes, this and a number of other issues mentioned has driven up prices leaving many people struggling to reach the property ladder.

The housing crisis is however more complicated than simply a shortage of housing. Other issues include e.g. a shortage of brownfield sites resulting in many parts of greenfield being encroached, this issue is creating high impact suburban sprawl largely blamed for recent flooding. There is also a shortage of global resources including labour and materials.

The government have been accused by some for not doing enough to tackle the ever growing housing problem whilst others say they are moving too fast. The governments code for sustainable homes was scrapped in 2015 leaving the environment vulnerable. The construction industry is one of the biggest contributors of CO² emissions.

This study will focus on how low impact development (LID) could help contribute to key aspects mentioned of economic, environmental and social issues and provide positive solutions.

By allowing LID to build where high impact development HID is not allowed, will open up the open countryside, distributing people evenly across the country systematically reducing pressure on towns and cities.

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Chapter 1- Introduction:

During the Industrial Revolution of the 17th Century, a number of the early industrialized pioneers realized the importance of retaining a fit and healthy workforce and for whatever their intentions, whether personal consciousness or pro-business production tactics, the bottom line would ensure, healthier staff would produce healthier profits. Many factory owners took it upon themselves to build houses with better sanitary facilities for their workers and families. By doing so would produce and sustain clean healthier living standards and also create loyal and close knit communities. Many industries at the time followed suite and took on the new concept due to the obvious social and economic benefits. This was the beginning of the modern capitalist system.

Since the dark days of the past many parts of the world have evolved governments within developed countries have taken a leading role in protecting their citizens. After the Second World War the UK government provided free health care and education for all. Current society has become accustomed to living within the security of a nanny state. Since the 1950s, people have* become healthier and are living longer, but many basic living skills of days gone by have been lost through technological advancements and government dependences.

According to (Adam Smith institute. 1982), the 1947, 'Town and Country Planning Act' laid the foundations for the urban planning laws we know today. People are expected to live within given boundaries. The current norm is to have a career, own a home and drive a car, all the captures of a reliable consumer. Living within a nanny state has got certain securities whilst the economy is stable, but can work equally against the system when economic instability occurs.

In 2007, the world witnessed one of the worst global economic recessions ever to occur. Many people lost their jobs, had their homes repossessed and many struggled to feed their families. It became apparent that many people during this difficult time had forgotten how to function without the security of a stable economic system, not to mention the loss of community collaboration and spirit.

It is now 2016, and the world is only now emerging from the depths of recession, but things are far from perfect. The aftermath has left a generation of young people struggling to find jobs and make it onto the property ladder, it is likely some never will. To make matters worse The UK is

also in the grip of a complex housing crisis, property prices continue to rise whilst wages remain stagnant. There is at present a shortfall of more than 250.000 new houses per year to meet demand.

At the time of the Industrial Revolution and only until recent years, environmental awareness was never an issue. Fossil fuels were in abundance allowing industries to thrive and evolve. However, cracks in the traditional neo classical economic system have become apparent.

Climate change is a fundamental issue on the global agenda due to global warming created by excessive burning of fossil fuels, mass global deforestation, and an increase in global inhabitants. The issues of global economic drive and an overpopulated world is putting pressure on global resources due to inefficient use and over indulgence. The strain on vital resources are becoming even more evident due to industrialization of developing countries, for example, China and India who are becoming economic giants in their own right due to the recent shift in economic powers.

The government have been accused by some for not doing enough to reverse the housing crisis whilst others have questioned whether the government are moving too fast. The issues regarding economic, environmental and social constraints has become increasingly difficult for the government to balance, especially with the issues of mass immigration, a need for more housing, a shortage of resources and a global call for a reduction of CO₂ emissions.

Low impact development (LID) could make a positive impact on a number of key fundamental issues mentioned. This study will show how LID can be an important asset for the government and the people of the UK.

Since 2009 Lammas eco village in Pembrokeshire have been pioneering the way forward whilst creating sustainable and environmental benefits. The Lidders have shown with the correct mix of technological innovation, traditional skills and creative vision, people can comfortably live a low carbon and self-sufficiently lifestyle.

1.1 Aims and objectives:

The primary aim of this research, is to identify whether low impact development could be a realistic option in helping stem the current UK housing crisis. This study will try and establish whether all three fundamental elements of social economics and environmental constraints can be effectively integrated into LID. The study will aim to establish whether the ‘Welsh One Planet Development Policy’ could be successfully put out to the rest of the UK. A similar policy could help low income rural people e.g. LID communities, individuals with small holding or small farmers that want to live this modest and sustainable life.

In order to meet the aims of this research a number of objectives will need to be addressed as follows:

- Analyse land ownership and how it is controlled in the UK.
- Investigate how the UK government is responding to the current housing crisis.
- Investigate how the UK government are addressing sustainability issues since scraping the code for sustainable homes.
- Analyse existing data with regards to planning and policy.
- Investigate how LID adopt the fundamental elements of social, economic and environmental constraints. (Case study: Lammas in Pembrokeshire, south Wales).

Chapter 2: Literature review/ survey:

This Literature review will develop a framework of existing literature that will help to evaluate what Low Impact Development (LID) is and whether it could be the answer to providing genuine affordable housing that has less detrimental impact on the environment whilst at the same time providing, food, water, energy and income.

Due to the low impact nature of LID, there is careful consideration to sustaining resource use whilst reducing carbon output. LID is a beneficial asset to the environment. However, social and economic issues are also important factors and in some areas can be much more complex. These questionable areas must be given serious consideration if LID is to play a key role in current society. The three main fundamental constraints that will form the main focal point of this chapter. are social, economic and environmental.

To be able to achieve self-sufficiency and overcome economic and social challenges land is paramount for LID to succeed. Land is an issue in the UK with large areas unfairly distributed amongst a minority of rich people, many being aristocrats, large business corporations and land banking foreign investors. Control and ownership of land in the UK will be evaluated.

2.1 Sobering facts regarding climate change and the impact on the UK

According to (Pelsmakers, S. 2014) temperatures are expected to rise a further 2-5c by the end of the century, there will an increase in sea levels from 130mm up to 760mm. Scientist have predicted there will be a 30% increase in rainfall leading to far more frequent flooding.

The UK is already in the grip of climate change and things are expected to get much worse, since 1900 sea levels have risen by 100mm due to melting icecaps. Since 1970 global temperatures have increased 1°C. The hottest year in 350 years was in 2006 and in 2003 a constant heatwave witnessed the deaths of more than 2000 people. Global warming is having a disastrous impact on the planet.

2.2 Alternative methods of low impact development and a brief history:

Some of the elements of modern LID came from the environmental movements of the 1960s. According to (Daniels, G. 2003) young people began to recognize the environmental damage mankind was doing to the planets eco systems, leading to a loss of wild life habitat and biodiversity. The movement successfully led to the clean air and water acts being passed in America in the 1970s.

Since the 1960s many alternative LIDs have come into existence around the world, they are all unique in their own right and constantly evolve through use of technologies and innovational methods. A number of exemplary examples of LID in the UK are Hockerton housing project in Nottinghamshire, BedZED in south London, Tinker's Bubble in Somerset, Findhorn in Scotland and many other amazing examples (Thorpe, D. 2015). LID all have a similar goal and selfless agenda of reducing carbon output, being sustainable and creating environmental benefits. Due to limitations regarding time, this study will focus on Lammas eco village in Pembrokeshire as the main case study.

Lammas was the first LID to successfully pioneer and gain planning permission on open countryside, this was in 2009 (Maxey, L. 2008). It is a community of nine dwellings, functions totally off grid, is self-energizing and is currently working towards a goal of 70% self-sufficiency. As an example of their current success in 2014 Lammas met between 75% to 96% of all land based needs (Lammas, Annual Monitoring Report, 2015).

LID is not a new concept, it is simply a forgotten way of natural living and this new grass route generation are trying to rekindle some of the traditional skills once used. Low impact living was typically a normal way of life for all people before the discovery of fossil fuels. This led to the birth of the industrial revolution in the 17th century. At this time, people started to move out of the country and into towns and cities for prospects of work and better living (History and Policy. 2004).

The plotlanders around the time of the First World War were the first movement of people trying to reconnect back into the heart of the open countryside. They invested in small pockets of land and built modest holiday retreats with whatever local material they could lay their hands on.

The self-built dwellings were small, modest and very basic but people were content with living this Arcadian lifestyle and did so until the Second World War. However, things changed dramatically after the war, largely down to the gentry and vast landowners taking a dislike to the working class moving in and invading their territories. (History and Policy. 2004) identifies that the introduction of, the Town and Country Planning Act of 1947, put an end to many of these settlements as local councils began a campaign of compulsory purchase to remove the dwellings and people from the countryside.

Many of the dwellings were replaced with conventional housing eventually resettling the majority of people back into towns and cities. Holtsfield in south Wales is one of the only plotland settlements left in existence, but even this community and their unique way of life was under fire and nearly wiped from the face of the earth in the 1990s. This was due to a dispute with a developer who bought the land and wanted to replace the eco community with new luxury housing (Sagar, R. 1996).

The researcher would like to note that most planners tend to get a hard time with delicate and complicated cases such as Holtsfield, usually due to their negativity and lack of knowledge regarding LID and the unique communities that live this Arcadian life. Planners are directly involved with people's lives and can be a real influence on what their futures hold. (Sager, R.1996) points out, that thanks to the open mindedness and understanding of these local planners, on this occasion, the settlement did eventually survive the bulldozers and Holtsfield now carries on to be a glowing example of low impact living.

2.3 True nature of the housing crisis and how the government is responding:

According to Henry Overman (director of the spatial economics research Centre) due to a reduction in demand the UK is facing two housing crises, the first is a temporary fall in house prices and construction that will fuel the recession and the second is the lack of affordable housing. This fall in house prices was short lived. From 2001 to 2011 the population grew by 4 million. Even during the height of the UKs booming economy new house developments were still below the number of homes required. From 1998 and 2007 there was an average of 150,000 homes built per year. Once the economy began to recover, demand for housing took off and so did the prices. The only problem with this was the fact that wages stayed dormant (Overman, H.

2012). According to (Shelter. 2014) owning a home is slipping away for so many, house prices are now almost 7 times people's incomes, young people are finding it harder and harder to get on to the property ladder and as a result, the last decade shows home ownership fell for the first time since Census records began in 1951.

According to the now obsolete National Housing and Planning Advice Unit, the only way to slow down and stabilize house prices is for housing developers to build at least 270,000 houses per year. This will eventually meet with consumer demand and cap the rising prices (Overman, H. 2012).

The government have attempted to kill 2 birds with one stone by creating the Help to Buy scheme. The scheme was developed to help kick start the building industry during the recession whilst helping young people onto the property ladder. A report by the National Audit Office quoted *"Our vision is to help the nation spend wisely. Our public audit perspective helps Parliament hold government to account and improve public services"* (Auditor General. 2014).

(Lythe, Daily Mail. 2013) reported a number of housing developers are taking advantage of the situation by manipulating figures and advertising inaccurate information to make house prices appear much cheaper than they really are. Critics had warned that there were too many grey areas regarding the rules and there was also a chance this would create a housing bubble. Since the scheme started the major developer's shares have increased by a third due to buyer demand.

The research opinion is, this could be another typical example of corporate greed, not to mention 'the biting of the hand that feeds them'. The question is whether the government are really concerned, whether, this does in fact entrap young people into lengthy and over expensive mortgages, creating yet more long term working micro tax paying consumers.

2.4 How LID could make an impact on the housing crisis:

Simon Fairlie's definition of LID is *"LID is development which, by virtue of its low or benign environmental impact, may be allowed in locations where conventional development is not permitted"*. The countryside does not need protecting against LID, as with conventional high impact development, because these dwelling are considered temporary, unobtrusive and mainly built from locally sourced natural materials. (Fairlie, S. 2009) argues LID would be considered

as low cost development as the land where LID would be situated would not be artificially inflated as is with high impact and permanent development. (Chapter-7. 2003) talk about a report drafted in 2001 (Sustainable Homes and Livelihoods in the Countryside) this report highlights the need for affordable housing for rural workers, many of these whom only receive modest wages. This is getting increasingly harder as land prices rocket and the countryside is becoming a playground for the rich.

A growing number of people just want to live healthier and sustainable lives and escape the pressures of capitalist consumption and economic expansion. The researcher thinks, it is about time the government took a hard look at their own aims and objectives set out in their own National Planning Policy framework with regards to reducing carbon and promoting sustainability. It is the government's duty to create policies that meet everybody's needs and not just the wealthy.

(Tao Wimbush, Interview Q4. 2016) explains that LID is a way of life that would not suit everybody due to the daunting thought of the commitment to building your own home, growing your own food and creating your own infrastructure. The thought of having to do all this and stay sustainable is a scary prospect for many.

The researcher would like to note, if the UK government give people throughout the UK the freedom to live a LID lifestyle, creating a similar policy to the Welsh's own One Planet Development Policy, there would not be a suddenly influx of people heading for the hill. This is because it takes a certain type of unique individual or community to successfully live this way of life. It would help gradually distribute people back into the open countryside and help sustain rural economies as well as releasing pressure on towns and cities.

According to Lord Krebs, the government adviser on climate change and the effects on global warming, building homes and businesses on and around flood plains should carry on even despite the risks involved (The Guardian, Harvey, F. 2016).

Building conventional constructions on floodplains has taken its toll on the country in recent years. LID has better flood resistance than conventional build due to its natural permeability of the land and the way the land is managed. It would also recover quicker in the event of a flood.

Trees, shrubs and vegetation play a large part with absorbing Wet land (Welsh Government. 2012).

2.5 Integration of LID into general society

Due to the elusive nature of LID, their communities that live in them are often stereotyped, local people tend to get nervous of the prospect of eco-warriors moving in next door. (Christopher, D. 2003) explains that this notion originally stemmed from the New Age Travellers movement in the Thatcherism days of the 1980s and early 1990s. At that time, these travellers were viewed as the folk devils roaming around and causing anarchy. There may have been a few, but the majority just wanted to live free spirited lives. Once the government finally drove the travellers off the road, some went abroad and others decided to try and settle in the UK. According to (History and Policy. 2004) one such community, that descended from the traveller movement, was Tinker's Bubble in Somerset. This group attempted to gain planning permission for 7 bendovers and tents on a piece of woodland they purchased. They failed due to planning issues and local resistance, but in 1998, Somerset District Council had a change of heart and gave them a 5-year planning order. People were up in arms at the beginning but gradually the protest went quiet and the local people warmed to their new eco community. They now all live in harmony.

During the researcher's time at Lammas, discussions were held with local people. The researcher discovered many of the locals had experienced similar feeling and anxieties as those of Tinker's Bubble 18 years earlier. However once the eco project at Lammas got underway gradually the two communities successfully integrated.

The researcher carried out a voluntary day working for a family at Lammas. This remarkable family received an award from Shwmae Sir Benfro, an event organized by Pembrokeshire County Council. The award was given to the family for making the greatest effort with learning the Welsh language and immersing themselves deep into the Welsh culture. This can also be found in the (Lammas Annual Monitoring Report, 2015, P7).

2.6 The impact LID has upon the economy:

(Salsman, R. M2000) explains that in a capitalist society, people are taught to compete. Although this can be healthy for innovation, it can be quite detrimental to society when it goes horribly wrong. According to (Lammas Annual Monitoring Report. 2015) LID prefer to share and complement rather than compete, especially with local businesses.

Small rural businesses have it hard enough to survive without more pressure from competition. Since the 1990s, fragmentation of farmland into small holdings has become more popular with many growing organic produce. However, the Curry report (Farming and Food, a Sustainable Future. 2002) only briefly mentioned small farmers and never mentioned the small holding even though the small holdings and farmers make a positive contribution to the micro economy (chapter-7. 2003).

According to (Friends of the Earth. 2013) they campaign for an economy that not only helps people but also the planet. This is called a green economy. At this moment in time, many humans have well and truly got their snout in the trough when it comes to consuming precious resources.

The planet's resources of e.g. metals, minerals, timber, fuel, land and water are being consumed more now than ever before. Some question whether it is more important to the government to ensure the big economic wheel keeps turning than the welfare of its citizens. LID is about distributing resources fairly and sustainably to ensure future generations have a chance. Many would argue political pursuit of economic growth is both unsustainable and not very desirable and others would ask what is the measure of wealth and happiness.

2.7 The future for sustainability in construction:

One of the government's better conscious decisions regarding environmental policy was the introduction of the code for sustainable homes, implemented by the Labour Government in 2006. The code was introduced to help the UK meet certain environmental targets, the Kyoto protocol that expected CO2 reduction of 20% by 2010 and the white paper for energy target of 60% CO2 reduction by 2050 (Eagles-Davies, M. 2008). The code was unfortunately scrapped in April 2015 as it fell victim to the new Conservative Government's cut back strategies. The code was blamed for slowing down housing developments due to too much red tape. (Clark, T. 2015) argues the

government have stated that by scrapping the code for sustainable homes, building regulations have now reduced by about 90%. Ironically the researcher was talking to a joiner who mentioned the building inspectors in the Ribble Valley had recently had their working hours reduced down to 2 days a week, these two events seem to tie-in together and justify what the government stated.

The one saving grace is many of the original elements of the code for sustainable homes have been built into the new regulations framework now known as “the new national technical standards” and has been set at around level 4 of the original code. The code was not perfect because nobody could really justify what zero carbon was, but it was beneficial in many ways.

Simon McWhirter, the marketing director of Kevin McCloud’s HAB homes, said the code was still beneficial because renewable energy technology prices fell and the negative environmental impact of homes has greatly been reduced (Clark, T. 2015).

The researcher would like to add that history tends to repeat itself. Whenever there are economic downturns, environmental policy tends to get discarded long before other public sectors. (the Guardian, Vidal, J. 2016) points out, Around Christmas 2015, the UK witnessed the worst floods ever recorded on census along with other extreme weather events going on around the world. If the recent unprecedented extreme weather hasn’t finally set the alarm bells ringing in the government’s ear regarding these environmental issues, what real hope has anyone really got?

The Welsh Assembly’s One Planet Development Policy, that was specially developed for LID, implemented many of the important elements the code for sustainable homes had to offer. LID has utilized these elements to their full potential, reaching level one zero carbon more than any other construction sector, yet LID is hardly mentioned in any other UK policy. The range of benefits LID provide for themselves, the local community and the environment where they live are as follows:

- Positive land rejuvenation by creating wildlife corridors and habit biodiversity.
- Meet their own needs regarding water, food and use and development of renewable energy.
- Manage waste.
- Ensure all buildings are zero carbon.

- Support localism.
- Live and work within an ecological footprint.
- Limit carbon rich transport.
- Support the economy through self-initiatives.

(Welsh Government. 2012).

2.8 How land is distributed and controlled within the UK:

(Cohen. T. 2010) explains that land distribution is a problematic issue in the UK especially in England. One of the issues is that a third of land still belongs to aristocracy, there are 36,000 people who control 50% of rural land throughout the UK this is 0.6% of the entire population of 65,111,143.

Much of rural Britain is now passing into the hands of the large corporate businesses e.g. supermarkets, foreign investors and the National Trust. According to RICS 20% of land ownership is unknown as it has not been registered and registration only takes place when land changes hands (RICS. 2016).

Thanks to the devolution acts of 1998, Scotland, Wales and Northern Ireland received greater powers over the way they run their own country's affairs including land planning and reform. LID is now prospering in Scotland and Wales due to their own new policies. Wales has now put in place their One Planet Development Policy that has been specially formulated for sustainable rural communities. Scotland has opened up rural land for sustainable development through new land reform. The 'Shucksmith Report 2008' highlighted the importance of crofting communities, and led to the Crofting Reform (Scotland) Act 2010 being passed and the formation of the crofting commission 2012 (Crofting Commission. 2016).

2.9 Summary:

In the opinion of the researcher 'The Town and Country Planning Act' (HM Government. 2015) could be out of touch with rural Britain in the 21st century. Thanks to devolution, Scotland and Wales are ahead of the game regarding sustainable and environmental issues and the way in which their rural land is managed. This can be clearly seen with the positive and conscious decisions they have recently made for the crofting and LID communities. In England, the unfair class system and the gap between rich and poor will need addressing with new realistic land reforms before any positive change can happen for rural communities.

It appears the government put a great deal of emphasis on economic growth and not enough on social or environmental issues. If the government did encourage a greener economy and established fairer land distribution, this could eventually allow healthier economic systems to naturally evolve as there would be far more emphasis on reducing, recycling and reusing precious resources and allow those willing, to live in a sustainable low carbon lifestyle.

Chapter 3- Methodology Introduction:

Primarily this research will try and determine whether Low Impact Development could help ease the pressure on the current housing crisis in the UK, there are a number of key elements of this research that will need addressing first. The UK without question is in the grip of a housing crisis, however, this is only one small element of a larger problem (de Castella, T. 2015). According to (Larry Elliott of the Guardian. 2011) Due to the recent, long and drawn out economic recession that started in 2007, there was a dramatic fall in many sectors, construction being one of the largest. This led to high unemployment, social unrest, and economic gloom for many. Not only is the UK now in the grip of a housing crisis, it is also in the grip of a people's crisis.

A process of research and analysis into the social, economic, and environmental issues that are currently driving the housing crisis will be carried out. This will ensure relevant data used for this study will help determine the concluding answer to the research question and ensure the final result is transparent, honest and reliable.

The researcher has used a variety of specific methodologies and methods when carrying out the data collection. Both quantitative and qualitative methods of research have been used in this study. The data is a mix of both primary and secondary. Primary data has been collected from surveys and interviews, there has also been a number of observational field trips carried out at two different low impact development locations (Lammas eco village and Middlewood trust). These case studies are fundamentally important to the researcher and the research because it gives a realistic feel and understanding regarding certain elements of the question and will be central to this study. Secondary data has been collected from libraries and the internet, the data collected is a mix of books, PDF study journals, news articles and magazines. All relevant data used will be analysed and carefully utilized to ensure an honest and good ethical delivery is achieved. The What's, whys, and how's will be justified throughout the research document.

3.1 Research Philosophy:

Before starting any research, it is important for the researcher to understand the philosophical nature and different theories available. This research has been conducted using a pragmatic

approach this has been the influential factor that has determined what methodologies and methods have been applied. A justification on how the researcher came about and constructed the information used for the study is imperative. It is important to ensure any future use of this information can be understood. This will also help future users of this data understand the direction and thought process of the author (Naoum, S.G. 2007).

The two key elements of research philosophy are, epistemology and ontology. Every individual have a particular way of looking at the world and trying to determine, what are real and what are truths or presumption regarding knowledge. An analysis of the fundamental ontological and epistemological assumptions of the researcher and how this ties in to the chosen methodologies of the research will be addressed in this chapter (Scotland, J. 2012).

In a nutshell ontology asks the questions of, what are things? What really exists? What is the natural reality of existence? Epistemology concerns itself with the nature of knowledge and asks the questions of, how do we know what is true or what is false? How do we determine that real truth has been found? What is good or what is bad (Grey, D.E. 2009). Due to the researcher's paradigm of pragmatism and further towards Interpretivism, it is obvious to see how this has influenced the researchers design with regard to this study. It has been important for the researcher to have one to one contact and personal observations. To recognize what is true or what is false, and experience a natural feel towards what is good or what is bad. There are two paradigms that influence the outcome of any research, Positivism, or at the opposite end of the spectrum, Interpretivism. Pragmatism fall somewhere between these two paradigms of Positivism and Interpretivism. As already mentioned pragmatism is the key influential theory adopted for this study. The researcher has concluded on a relativist nature, this also justifies a proportion of the research methodology with the use of surveys and case studies, that have a mix of both quantitative and qualitative data. This will help achieve a suitable balance between, filling in the research knowledge gap and solving the research problem (Badewl, A. 2013).

3.2 Research Approach:

The two main research methods adopted in this research are quantitative and qualitative, this has formed the triangulation method of finding figures, measures and communicative results. Due to the relativist nature of the researcher, the main body of this study will predominantly be

dominated in a qualitative manner. Qualitative research focuses on direct observation and reveals more about how individuals or communities think about why they choose to do what they do, and how they feel about doing it. The beneficial factor of direct observation is more suited to this form of study, because the study is heavily involved in people and their personal experiences and feeling related to the subject matter (Flick, U and Flick, P.U. 2014). This has been achieved by Visiting Lammas, Middlewood trust and the unidentified public sector official working in London.

Quantitative research has been used in certain areas within the related study questionnaires, this is to try and identify factual statistical figures and patterns. Like for example how many people would choose LID as an alternative to what they already know or what concerns people would have with LID developments in the Ribble Valley. The quantitative data in this study will examine the relationship of these key variables that include independent, dependent and extraneous elements. This data will include figures of sex, age and targeted thoughts of people from all walks of life. Collecting and examining quantitative data is normally much easier to gather and control than qualitative and can include much more data, however it is not always as accurate and reliable (Flipp. 2014).

3.3 Research methods:

There have been three clear methods used for gathering the primary data. **The first method adopted:** was to construct a questionnaire of 7 questions for the public community in the Ribble Valley. To ensure the researcher was heading down the correct route along with the correct questions the questionnaire went through two pilot sessions. This was carried out by asking a class of students to fill in the questionnaire and return with scrutinizing judgment. Once the researcher was content regarding the structure and contents of the questionnaire, and was happy each question was relevant to the research question, 60 copies of the questionnaire were sent out to a wide variety of people from different areas and class. This would ensure a fair and final conclusion. Some of the questions were left open ended for a qualitative approach, this would ensure people could give their personal opinions and views regarding the study topic. Other questions have been structured in a quantitative approach. A modest number of 24 copies out of 60 questionnaires have been returned and have proven valuable for this research.

The second method adopted: Was to carry out a case study, the researcher took a trip to Lammas eco village in Pembrokeshire. Over a three-day period, the researcher had the opportunity to directly observe and personally experience a hint of what true low impact living was about. On arriving at Lammas the researcher was warmly invited in by Tao Wimbush, Tao is one of three founding members of Lammas, who was finally granted planning permission in 2009. This was after a long and drawn out battle with endless application and appeals with the local planning department.

The following day Tao Invited the researcher into his self-built low impact home and calmly answered 11 questions relating to the research question. During the recorded interview of about one hour, the researcher got a true and natural feel for the first time with regards to low impact living and what it was about. (The recording of this interview has been transcribed by the researcher (**See Appendix: 1**). Tao also organized some voluntary work for the researcher with one of the Lammas family's, this experience gave the researcher an insight into family life and the pros and cons of living LID.

The third method adopted: was a personal meeting and interview with a London based public sector official who works in the planning field. This interview covered a number of details relating to the current housing crisis and how it is affecting and creating social and economic issues around the London borough. The key topic relating to low impact development was also discussed. However due to the wishes of the public official, his identity will remain anonymous and the interview was not recorded. However, relevant notes were taken during the interview and the public sector official offered to send a copy of the interview questions along with relevant answers back to the researcher, this information will be used as a contributing argument for the research.

The norm of using secondary data has come from existing research papers, government policy's documents, books, journals, internet and libraries. This information used is mainly set out in the literature review but is also relevant throughout the research document.

3.4 Limitations:

Due to resource limitations of time and funding, the researcher could only concentrate on certain boundaries, these boundaries consisted of limited collection of primary information and reduced scope of areas researched. The areas researched included the following: The Ribble Valley, Lammas and Middlewood Trust.

There was a limited amount of primary data from government sources regarding local planning and planners and it quickly became apparent there was a lack of knowledge in regards to LID within the Ribble Valley planning department. This also appeared to make the planners reluctant to talk about LID. All questionnaires and interviews were rejected.

3.5 Ethics:

During this research careful consideration has been taken toward ensuring good ethics is maintained at all times. This will ensure all involved with this study are protected and their wishes and rights respected. Fundamental ethical elements that have been considered, are as follows:

- Legislation of data protection and human rights has been applied.
- All data used has come from honest and reliable sources and has been implemented into the research study with diligence.
- All necessary consents and wishes of any participant involved have been respected.
- This study does not take advantage or involve any vulnerable persons like for-example children under the age of 18, persons with mental issues or prisoners.

Much of the contents of this dissertation, is generally construction related and does not involve delicate ethical elements, however there are a number of primary data sources that do involve direct contact with individuals and communities. The data collected and used in this study, that may involve ethical judgment is as follows:

- Questionnaires handed out to the general public in the Ribble Valley area and the Lammas community.
- Two case studies carried out at Lammas and Middlewood Trust.
- Two interviews carried out with two individual people, one of the interviewees did not want their personal details disclosing.

Each individual involved with this study has been asked to fill-in and sign a consent form to ensure confidentiality and security is maintained and all involved are aware of their legal rights.

Chapter 4- Primary Research Findings Data Analysis:

This chapter will analyse key findings made during two unstructured interviews. The first interview was conducted with Tao Wimbush at his home in Lammas. Tao is one of the founding members of Lammas eco village in Pembrokeshire. And the second interview was conducted with a London based public sector official working in the planning field. The public official would prefer to stay anonymous. Both interviewees were asked the same 11 questions relating to the original hypothesis (now changed to a question). **See Appendix:1 & 3 For Tao's full transcribed interview and the public sector official's answers.** The two interviewees Questions and answers are as follows:

Alternative low impact development could be the answer to the current housing crisis, whilst making a positive environmental differences within the UK.

Researcher: *"Do you think it could be beneficial to the housing crisis?"*

Tao: *"Totally! Of course".*

Researcher: *"Do you think it could work on a much bigger scale?"*

Tao: *"It would create a different type of housing, it would create our type of housing that would be very varied in it aesthetics and in its construction, it would create a type of housing that would support a much more resilient land based life style and be much less dependent on national infrastructure".*

Researcher: *"Do you think due to the governments big economic drive they will ever allow LID?"*

Tao: *"Well they are in Wales!"*

Q1) Since Lammas successfully receiving planning permission in 2009, what has been the most challenging element regarding sticking to the 'One Planet Policy' rules?

Tao: *"I think for most people the most challenging part is generating income from land based activity, now without getting caught up in specifics of the policy. How it works is each household has to generate approximately £5000 each year from land based activity, and that's quite*

difficult because we are operating in the middle of a very heavily skewed and subsidised conventional economy, so for example you know, we are growing food here on land and small holdings and if we take our produce to the shops we are competing against farmers who are receiving massive European subsidies, just for existing”.

Q2) What do you think the chances are, for the Welsh Assembles One Planet Policy to be put out to the rest of the UK? please give your reason for why or why not this would happen.

Tao: *“Ok I think that it is unlikely that England is going to adopt a one planet policy in the foreseeable future because I think it’s worth understanding that, planning is very political, because planning dictates where the people live, and to a large degree, how the people live on the land and across the country, and England social demographic is firmly rooted in a class system in which by in large the aristocracy own most of the land and therefore you get a status quo in England which is interested in keeping things as they are”* (see 2.8 in lit review regarding land distribution and control).

Public official: *“I am doubtful about the possibility of this being rolled out to the rest of the U.K. There are two reasons for this. First, prevailing policy in England and Wales focuses on meeting the massive demand that exists rather than this sort of proposal. Secondly, the size of the problem. There is such a big shortage of housing it is likely that only mostly high density development will meet the demand. This said, sustainability of development is built into the development control system through the planning system and Building Regulations”.* (see 2.3 and 2.7 in the lit review regarding the housing crisis and the scrapping of the code for sustainable homes).

Q3) Do you believe alternative low impact development can have a realistic balance between the important elements of social, economic and environment issues?

Tao: *“A good indicator of successful low impact development is a social, economic and environmental benefit, that can clearly demonstrate social benefit, employment, good places to live, and a sense of empowerment. I think. Low impact development should bring education and training and engage with schools, that should be opening up to the land base. Economic*

traditional meat farming, which covers certainly most of the upland areas where low impact developments is most suited, is about the most inefficient way of growing food, economically its rubbish. So prior to Lammis coming here the farmer who farmed this land 76 acres was bringing in an income of approximately £3000 a year"

Researcher: *"That's not a lot, to say that you've got nine plots now all having to find £5000 worth of economic benefit. Is that per house hold?"*

Tao: *"Yes and we are also producing a whole load of stuff for ourselves as well, so when you start to quantify it"*

Researcher: *"So you're doing it now aren't you!"*

Tao: *"Yes! that same area of land is producing something like £80,000 worth of produce".*

Public official: *"In appropriate locations, yes. With this I have in mind rural areas where a relatively small number of dwellings are needed for the local population. It's less appropriate in places such as London and the south east, where a huge numbers of dwellings are needed for people from the area but also for people moving there for work".*

Q4) Could alternative Low impact development play a part in helping resolve the housing crisis within the UK?

Tao: *"Education would help, only a few people would choose low impact development because the prospect of building your own house, growing your own food, installing your own infrastructure, is quite scary. I think in order to scale it up successfully education would really help, and other things like permaculture which is a design tool for creating sensible systems. At the moment Simon and Jasmine have just started this week doing an internship. They've got a dozen people up there doing a permaculture design course, and through the summer here we will be running a whole range of courses".*

Public official: *"Again, yes it does have a part to play but it can't be the solution on its own. See my answer to Q3".*

Q5) What are your thoughts regarding the government scrapping the code for sustainable homes, and what could be the long term implications for doing so?

Tao: *"I think the code for sustainable homes scheme had really good intentions but like so many kind of initiatives in the UK they suffer from corporate lobbying and just bureaucracy and end up being a pretty ineffective tool. In essence its good initiative but the problem is, these are like sticking plasters that try and remedy what is at its root core of an inappropriate system".*

Public official: *"This could lead over time to the development of dwellings that do not take sufficient account of sustainability, which should be at the heart of housing development".*

Q6) For what reason do you think the sustainable policy was scrapped?

Tao: *"The Tories! There's a basic underlying problem to the capitalist system that we've got at the moment in that it is based on infinite growth of a finite resource; there's only so much planet, rock, aluminium, trees, available and you've got a system based on more growth and consumption and so in order to get us out of this economic recession they are mistakenly choosing to remove any perceived obstacles to economic growth".*

"It's going to have to change either the soft option, but the soft option is that we reform and change the system, which I think was really a possibility ten years ago, maybe even still is, radical transformation reform could still save what is known in society, but the more likely outcome now is some kind of crash".

Public official: *"I'm not sure, but it may have been to remove duplication of regulation because the Building Regulations cover this field"*

Q7) In your opinion are environmental issues like for instance, attitudes towards climate change: staying the same, improving or getting worse?

Tao: *"I think there's a polarization, so I think on the one hand you see people who are committed to the system and entrenched in the system burying their heads ever deeper into the sand and you know it's a case of denial".*

Researcher: *“Like an ostrich that puts its head in the sand because it just wants to pretend it’s not happening”*

Tao: *“exactly, so that’s one side of it then the other side of it is people who actually do take the time to look up, look around and think for themselves, the penny’s dropping, things like the flooding helps. There is going to be a point where these people with their heads in the sand will not be able to carry on sustaining the system. Those people with their heads up will demand change or just start creating an alternative”.*

Public official: *“I think they are more or less staying the same in government circles”*

Q8) What are your thoughts regarding the global push on climate change?

Researcher: *“Is it tongue in cheek?”*

Tao: *“No its well-intentioned, but until the foundations and the roots of the issue are addressed, which is this corporate capitalism that actually drives our social economic system, until those issues are addressed there’s not going to be any real change. What I mean by that is, no amount of tweaking corporate capitalism is going to create a solution”.*

Public official: *“Climate change is a huge challenge for the entire world. Unless everyone grapples wholeheartedly with that challenge the peoples of the world will pay the price in the future”.*

Q9) What factors do you think need addressing to ensure any sustainable policy will be taken seriously?

Tao: *“I think time itself will take care of that because as time goes on Britain the UK can only hold back this migration of people for so long, it’s just going to grow and grow, for example Syria! the roots of the Syrian conflict are actually due to climate change, Syria experienced a drought, that’s what sparked the war and the civil unrest, you get these large movements of people, it’s just time will play itself out. Mother nature, she doesn’t discriminate, she doesn’t care whether your Chinese, Greek or Ethiopian”.*

Tao: *“What factors do you think need addressing? Well I think the political system needs addressing, I think the international law needs addressing I think, and what’s missing is real vision”.*

Public official: *“In developing homes in particular, there needs to be a focus on the essentials, i.e. in getting the location of the development right, together with the size of the development. And in ensuring the design and construction is appropriate to keep emissions low”*

Q10) What are your thoughts regarding the future of low carbon sustainable housing?

Tao: *“I think it is the future!”*

Researcher: *“It has to be!”*

Tao: *“In a high carbon unsustainable house, you are entirely dependent on fossil fuels, national infrastructure and someone else to provide you with clean water, food, and in a world that is in increasing crisis that’s not a very attractive position, it’s really not “.*

Public official: *“All housing should be low carbon and sustainable”*

Q11) Regarding this study, is there anything else you could add that could help resolve the problem and help fill the knowledge gap.

Tao: *“I would just say that; we are doing it!”.*

Researcher: *“Yes!”*

Tao: *“Yes, and to a degree your dissertation will help because hopefully it will be published on the website and it will be another bit of evidence”.*

Tao: *“What I mean by that is, you know, Lammas has been successful because we’ve got the grass roots movement, and we’ve had support from academics, media, and photographers and we’ve had support from politicians and that’s what’s enabled us to get this far”.*

Researcher: *“Yes”.*

Tao: *“So I think there’s always stuff that people can do and there’s a role that everyone can do, anyone and everyone can play a part and it is to a large degree about awareness and raising awareness, because like, you know, if you don’t know there are solutions, you know it can feel pretty bleak and despondent when you are caught in the rat race, and stuck in the main stream but there are ways out”.*

Public official: *“This is an area where we need a public debate so that we meet the housing demand of today without damaging the environment for future generations”.*

4.1 Research Key Findings:

Returning back to the research question, it is clear LID would not cure the housing crisis but in the right locations could be an effective clean and affordable alternative compared with high impact and expensive rural properties.

With regards as to whether LID could provide all three fundamental elements of social, economic and environmental constraints, in Q3 Tao explains a successful LID clearly demonstrates social benefits, employment, good places to live, and a sense of empowerment.

It is evident that the land where Lammas is situated now creates better economic benefits for many more people. Tao explains how the existing beef farmers only generated an income of £3000 per annum but to ensure the farmers stay in business the government provide heavy subsidies. Each Lammas Household is required to make £5000 per annum as well as producing a whole range of other things; this equates to over £80,000 per annum.

This study makes transparent people's awareness of sustainable and environmental issues. There are a number of recurring themes clearly evident. People do want to make a positive contribution and play their part for the environment, but do not have the right knowledge and encouragement to do so.

People are curious with regards to LID and have a fascination with the way Lidders live. Many people find the LID concept interesting and have shown this through QF). Most would build their own sustainable homes if given the opportunity and appropriate information, however people get nervous about the unknown and prospects of change.

It is clear most people don't have faith in the political system and change is required, but as Tao points out, most of those in charge of the system simply put their heads in the sand and carry on regardless hoping that any problematic issues will simply go away.

The most concerning aspects people have with LID in their area is, over development and losing their towns identity, a lack of infrastructure and services e.g. hospitals, schools and too much traffic. Cost and affordability issues was also a concern for many.

One of the main aims of this study was to determine whether or not the ‘Welsh one Planet Policy’ could be put out to the rest of the UK. As Tao points out in Q2) planning is heavily wrapped up in the politics system and it is unlikely this will happen in the foreseeable future.

“England’s social demographic is firmly rooted in a class system in which by and large the aristocracy own most of the land and therefore you get a status quo in England which is interested in keeping things as they are” Tao Wimbush, Lammas.

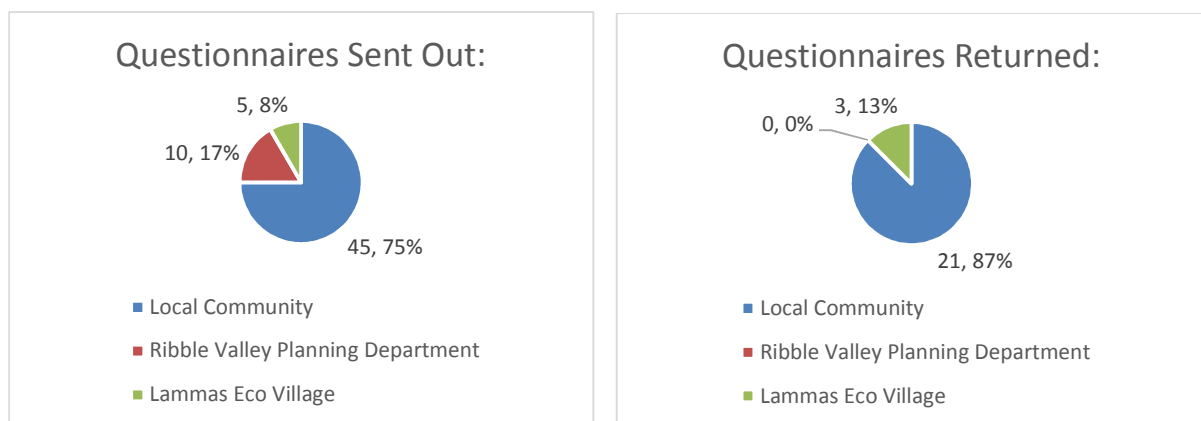
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4.2 Public Questionnaire Survey:

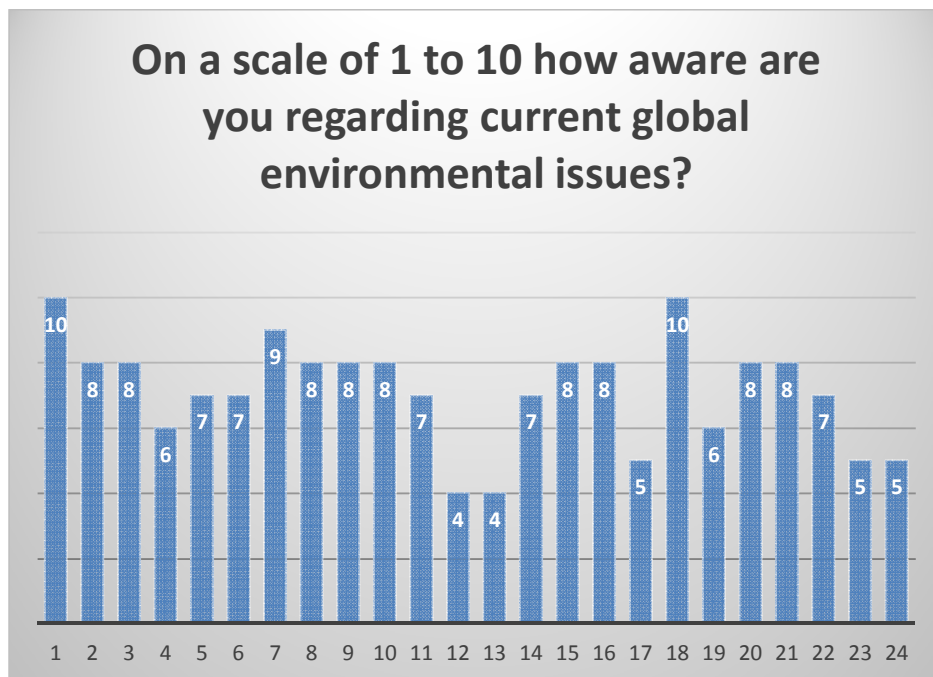
A questionnaire survey with 7 questions was developed and sent out to the general public. There was a total of 60 questionnaires handed out, 45 to the local community and 21 were returned, 10 to the Ribble Valley Planning Department and 0 were returned and 5 to the Lammas community and 3 were returned, out of the 60, a total of 24 were returned leaving a modest 40% return rate.

The questions for the survey have been put in alphabetical order to avoid confusion with the interview questions that have been numbered. The first 3 of the 24 participants are residence of Lammas.

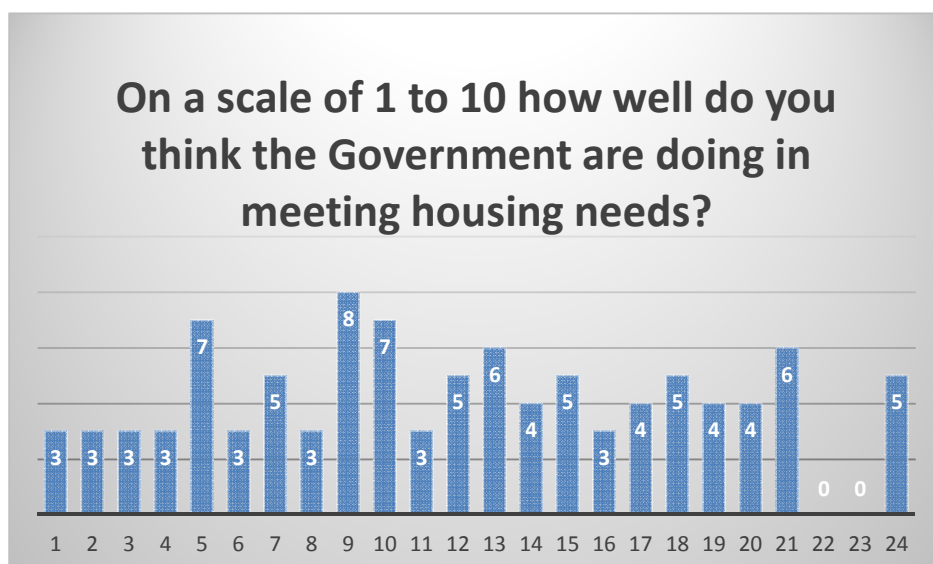
(See Appendix 5 For the Questionnaire template):



QA) On average people were 71% aware of global environmental issues.



QB) On average people are only 41% content with the government's efforts in resolve the housing crisis.



QC) Have you ever been involved with LID here or abroad:

Participant:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
No:				x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x
Yes:	x	x	x										x											

This clearly shows LID is a new concept to many even though with regards to other questions, people are very aware of the issues relating to sustainability and environmental pollution.

QD) What would be your main concerns regarding LID:

Participant:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Lack of infrastructure: i.e. schools and services.					x																			x
Over development and losing towns identity.																								
Travellers moving in.																		x						
Location issues.				x																				
Cost issues.				x							x		x											
Peoples skills, education and need for self-organization.	x																					x		
condition of developments													x							x				x
technology and sustainable issues																x	x							
Conflict and culture issues.	x																		x			x		
Transport links.		x																						
Economic issues.		x																						
A shift in the market towards LID making them trendy and expensive.				x																				
Creating more car use in the open countryside.			x																					
No concerns:						x	x	x	x	x		x		x	x						x		x	

QE) What is your opinion regarding local planners consenting approval for LID in your area:

Participant:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	18	20	21	22	23	24
the planning system needs changing.	x																							
Lack of knowledge	x																							
All planning consents should be carefully and fairly considered.		x																					x	x
Allow LID through legal framework's.		x																						
Planners must ensure national policy is adhered to.			x																					
Lack of trust in the planning system.			x																					
Lack of trust in the developments .																	x	x			x			
Concerns regarding infrestructure and services.									x	x									x			x		
Over development issues.					x					x			x					x	x					
should be allowed. Should be compulsory and subsidized.						x					x	x		x	x							x		
flood plain issues.							x																	
No planning in rural areas is easy to obtain.																x								
No concern.				x				x												x				

QF) Would you ever consider building your own sustainable home or get involved with a sustainable community:

Participant	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Yes.	X	X	X	X		X	X	X	X	X	X	X	X							X		X	X	
No.					X									X	X	X								X
maybe.																	X	X	X		X			
Positive points: In no particular order.																								
1	I would if there was adequate information.																							
2	Definitely, this is where we need to get to in the future.																							
3	If I was younger, but this sort of initiative needs subsidizing for young people, because they are the future.																							
4	In the right location and if it was affordable and beneficial to the environment, yes.																							
5	Yes, this will address long term impact on the environment.																							
6	If I built my own home, I would be keen to make it sustainable.																							
7	Yes, to enjoy the challenge.																							
8	If everyone did a bit, it would help.																							
9	Yes, I am doing so, I believe sustainable communities can start anywhere e.g. look at the 'Transition Networks'.																							
10	Yes, definitely! Get young people involved as they are the future, plant the seed for them now.																							
11	Yes, this would help future generations.																							
12	I would and I have both! I instinctively enjoy living this way. I feel calmer not over using finite resources.																							
Negative points:																								
1	Money time and effort is needed to start a project of this scale.																							
2	It would be complicated in my view.																							
3	No, I like my creature comforts.																							
4	At our age not a viable proposition.																							
5	No time! when working full time, sourcing materials etc.																							
6	Not got knowledge skills or finance.																							
7	No, time scale.																							

QG) If you had one question regarding LID, what would it be:

Questions:	
1	How can we respect and appreciate LID, diversity of energy and land?
2	How far can we take it? Just for the minority or could it be main stream? City LID?
3	What would be the impact of the UK economy? The NHS less money coming in through taxes?
4	What has brought about this idea? Is it a serious consideration? Where can I find more information?
5	
6	Why isn't there more advertising and teaching materials and money from government put into this very important environmental issue?
7	Some areas must be preserved and kept as is not changed or ruined.
8	
9	Support and funding for more LID.
10	I would have lots of questions if I had a development near my home!
11	
12	When will it become universal?
13	How are the government going to encourage sustainability and develop existing homes including those unoccupied in addressing the current housing crisis?
14	
15	Cost implications?
16	How affordable would it be compared with standard development?
17	Affordability? Not huge profit margins.
18	How far from the town do you build the low cost development?
19	People moving into an area and not expanding on the facilities.
20	How can it be modernized to our standards of living?
21	What are the advantages in full?
22	Why are we not doing more?
23	
24	Infrastructure and lack of services?

Chapter 5-Discussion:

This study clearly shows there is a fundamental role LID can play in the current housing crisis. In Wales and Scotland, the concept of LID has successfully become reality due to devolution and green shoot projects like for example, Lammas in Wales and the crofts in Scotland. It is apparent LID does not suit all people or locations. However, this study has highlighted people's awareness regarding sustainability, climate change and environmental damage the human race is inflicting on the planet.

Although LID has managed to get a foothold on Scottish and Welsh land, the prospect of this becoming a reality in England is relatively slim. There are several factors for this mentioned in paragraph 2.8 regarding land distribution and land control. In England there is still an unfair class system with too few with too much and far too many with too little. The gap between rich and poor is drifting further and further apart.

This research shows a growing number of people are willing to sacrifice their way of life and wean themselves off carbon rich accessories and homes and replacing them with LID. One would assume the government would be falling over themselves to allow people to live a low impact lifestyle, especially since the recent Paris summit on climate change and the call to lower carbon emissions. But unfortunately due to the way a capitalist system works, production, consumption and consumers are key elements of ensuring the economic wheel keeps turning.

The National Planning Policy Framework frequently uses the term sustainability, often followed by, creating a strong and competitive economy. In economic terms, 'Opportunity Cost' clearly emphasizes that sacrificing one element is a tradeoff for another. Since the economic crash of 2007, the balance has firmly been rooted in favor of economic growth, whilst sustainability and environmental issues have been put on the back burner.

It is clear LID will not create a dramatic impact on the large and increasingly complicated housing crisis, especially in densely populated areas like London and Manchester. If given the chance and left to evolve, LID could become an asset for rural communities throughout the UK.

Due to the availability of modern technologies, for example, renewable energy and the internet, it has become more viable to create self-made infrastructures. By combining traditional low carbon living skills with innovative technologies and creative vision, Lidders have shown it is possible to live completely and comfortably off the national grid system.

5.1: Conclusion:

To conclude on whether 'Low Impact Development' could be the answer to the current housing crisis whilst making positive social, economic and environmental differences in the UK is as follows:

The housing crisis is more complicated than the researcher had first envisaged. The crisis is not only about the lack of housing it is also the way the crisis is deeply entangled in the web of economic drive. People no longer look at houses as simply homes but as long term investment plans. Wealthy investors and corporate businesses have purchased large amounts of land and property throughout the UK resulting in housing and land prices increasing well beyond the reach for many.

For any fundamental change to happen in England there would need to be a dramatic shift in political thinking and land reform. This change is unlikely to happen in the foreseeable future, because the English political system is pretty much the same as it has been for the last 400 years.

The pioneers of Lammas and other LIDs around the UK have proven LID can provide all the fundamental elements of economic, social and environmental constraints needed for a healthy and happy life because they are already doing so. But for LID to be an effective tool in the current housing crisis, it would need scaling up dramatically. The main housing issues are in the densely populated urban city areas where most employment is located. LID need a minimum of three acres per family to provide all their fundamental needs. Land is also far too expensive around urban areas.

This study does however, conclude, LID can be affective in the right locations. It could help provide security for thousands of low income rural workers and rural communities that cannot afford to live in the country anymore. If land prices could be capped across the UK and LID was allowed where high impact development was not. LID would be a viable option for those wanting to live this affordable and healthy, but challenging lifestyle.

5.2 Recommendation for Future Research:

The main area for future research would need to be land issues with regards to fair distribution to the masses and not just the few. The current system appears to be unfair with the scales tipping heavily towards the wealthy and powerful. Much of the land in England is owned by unknown entities and is not currently added to any land register.

For any fundamental change to happen, the present system would need reforming, but as it is the powers that be, are happy with things remaining just as they are. If the current issue of global warming intensifies, people will only take so much before demanding change, this unfortunate situation can be clearly seen in Syria today.

Appendices:

Appendix: 1

Date of interview: 10am till 11.45 4th march 2016:
Interview Location: Lammas eco village, Pembrokeshire, south Wales.
Interviewer: Leon Greenwood
Interviewee: Tao Wimbush

Leon: Thanks for doing this Tao I really appreciate it and it's an absolute pressure to meet you by the way.

Tao: My pleasure happy to help, do you want to carry on with the questions or do you want to carry on with that chat.

Leon: Ye as we were, with the chat with the climate change.

Tao: I mean the way it seems to me is the kind of fundamental, the foundations of our current society are so sort of Huu! Committed to consumption and exploitation of the earth's resources to a form of skewed capitalist, were the rich get richer and the poor get poorer, I actually think though, you know there's going to have to be a massive kind of shift

Leon: Everything seems to be driven economically doesn't it to keep that, big GDP going trying to make everybody by a television.

Tao: Ye and whilst solar panels are really important, there are lots of green shoots ideas, I don't think the, it's not a simple thing to rebuild the foundations of a society or building whilst still operating its really, really difficult, so I think there's going to have to be some sort of, aahaaww! It's going to be tough you know!

Leon: Yep!

Tao: Coz were just starting to see mass migrations of people.

Leon: Right everybody wants, you know as a western society, we have everything don't we, we have got, perfect health care, everything seems, but I don't know, it's like a nanny state isn't it, were people are looked after, coz they really don't know how to look after themselves, that's the

way I look at it by doing this research you know, and a suppose in my eyes are their going to have to start educating people to start living in a natural way?

Tao: Yeee! I don't know if they ever will.

Leon: No, no, not the government no.

Tao: No I think your right, in that we have become so affluent in our culture that we have actually lost our routes.

Leon: Yes.

Tao: Because are routes are farmed out to third world providers, and that is a real problem in a time of crisis.

Leon: Are you talking manufacturing? Orr!

Tao: Well all sorts! Well you buy a bit of food from the supermarket, what are the chances any of those ingredients coming from the UK.

Leon: Not much.

Tao: You buy anything, a technical gadget or device or something from B&Q you know its, what I mean by we have lost our routes is that you know, we have become so removed from our own recourse base here, the land, that we have lost the knowledge and the understanding to live off the kind of resources that are around us.

Leon: As you was saying yesterday with the uumm ! Taa what was it, the 1947 umm!

Tao: Town and country planning!

Leon: Town and country planning ye!

Tao: Ye,ye

Leon: And how they started pushing everybody into towns and cities and sort of protecting the land, so it looks nice and pretty and.

Tao: Ye, and that's the kind of vision, that's the vision that's driving our society and you know are government and the politicians don't talk about it enough, although there has been some recent debate that is quite interesting but you know there is a vision which is, which goes something like, you know, the people shall be clustered in the towns and we will create big service arteries that will bring in energy, food, water and it will extract waste and that's the way that we can build for the future.

Leon: Right ok! To put some sort of frame work together.

Tao: Ye,Ye.

Leon: That's sort of made everyone, that's structured is so everybody is expected to live in a certain way aren't they, rather than.

Tao: Well we become consumers.

Leon: O you have to buy things! They make it like that don't they ye,ye ok.

Tao: Were a smaller part of a big system.

Leon: Right ok!

Tao: So what its saying is the solution is a macro so the person in the town doesn't have to worry about it of were the energy comes from or were the water comes from or were the waste goes coz that's sorted out by big brother if you like.

Leon: Ye! but obviously we are paying that through taxes.

Tao: Ye,ye.

Leon: They have to create taxes don't they.

Tao: Ye, your sort of looking at a sort of society as a whole, in many ways that can be quite an efficient way of looking at it but it's not a very resilient way of looking at it an it to my mind denies certain aspects of the human sikey, I mean that's why you know one planet development is kind of attractive, it scales down all those solutions, so like here in the house I know exactly where the electricity comes on when I turn on the light, and exactly were the water goes when I pull the plug out of the sink, and so all the kind of solutions all the support system are micro there kind of homemade and I can tweak them and mend them.

Leon: Ye it's amazing!

Tao: If there's a sort of natural kind of disaster of some kind umm! It's easy for me to kind of deal with and I don't need those massive attires i don't need that massif row of plants.

Leon: Power stations! And the infrestructure and the big infrestructure, its funny you say that because up just recently in Lancaster with all the floods and everything the power station was actually flooded and that was taken out and houses, thousands of houses you know, cut off from the electricity supply and ye! It sort of, you know connecting that to what you said, you know it's like.

Tao: Ye and it also like about consciousness, so I remember when I was growing up I would turn on the lights didn't know where that came from, didn't care! You know it didn't even cross my mind, hay if I turn on this 2 this big machine does it matter were, you know here, you kind of care, so if you leave the tap running you know you're going to be in danger of depleting the spring.

Leon: Ye, ye emptying the spring.

Tao: Emptying the spring and overwhelming your reed bed.

Leon: Right ok, ye, ye.

Tao: Ye! so you have an understanding of your impact of your resource base, were as main stream kind of culture environment you have no understanding of your impact you know, and as a result its kind of, there's this kind of expectation taken for granted the government or the system is there to provide a more sort of and is very disempowering and I think is becoming increasingly kind of scary or worrying for people coz.

Leon: It doesn't make people happy does it.

Tao: No.

Leon: Even though you've got that security of being able to, work into the house, lock the door, but there's other issues that are, like with the crime and the and like people that have got more than others, and unbalanced society, of like, that seems like a problem doesn't it.

Tao: Ye! And it's also like were we place are value, you know, and I think for people undertaking or moving to this way of life, the value on more on things like clean water, clean good food, clean air rather than flat screen TV, s.

Leon: I talked to, I noticed when I talked to one of your neighbours Kit as well and I've talked to Celia.

Tao: Celina.

Leon: Celina I mean I keep getting that wrong sorry! And yourself you know, you don't have a TV you know but you've got so much when you look out there, and all the natural things you got you got going on you know its lovely but I can imagine it being hard work as well, there's a lot of effort you've got to put in, but I can see it must be rewarding as well at the same time.

Tao: The thing is it doesn't feel like work because I'm, your kind of reaping the rewards yourself and your coming from a place of freedom with it, so I get up when I want, some days I don't know what I'm doing, I will just go outside and tune into it and it will be depending on the weather so if it horrible weather I will go and work in the Polly tunnel, not even really work, I

will go and play in the Polly tunnel, ye, or if its nice weather I will go and play on whatever, a bit of building that I'm doing.

Leon: Woww! I love it!

Tao: And so it just, in one sense ye we work hard, but in another sense it doesn't feel like work coz we play hard and we don't do it it's not like we work for a number of hours for money.

Leon: Ye you're doing it for you aren't you.

Tao: You're playing for the love of the land and the love of growing food and then you're going to reap the rewards.

Leon: It was so nice last night when I was here and you said, anyway I've just got to go and do my chores I've got to put the cows away and get the chickens away and the geese and just wow! So natural and, can I sort of now go on to, if I go on to my questions, basically I'm doing a project management degree and basically it's with construction so I had to sort of tie in to construction so I, and I just love this way of life and I wanted to tie this in with the construction so, I will just go through my hypothesis not a question well it, I suppose it's one or the other, well its : **Alternative low impact development could be the answer to the current housing crisis, whilst making a positive environmental differences within the UK.** Umm! So (10.10 mins in to interview) basically before I go into my questions do you think umm low impact development, would you class this as alternative low impact or just low impact development.

Tao: I'm happy to call it low impact development.

Leon: Low impact development.

Tao: Yep!

Leon: Do you think this could be beneficial to the housing crisis?

Tao: Totally!

Leon: Totally?

Tao: Totally! Of course!

Leon: Ye and you think it could sort of work on a bigger scale? a much bigger scale?

Tao: Ye defiantly! It could be scaled up easily.

Leon: Right fantastic! I love the absolutely the positive yes, I like that.

Tao: Ye of course it can! and it, it would you know lead to, it would be great fun.

Leon: Ye absolutely!

Tao: It would be funky it would be very empowering for people umm! Ye it would be fantastic you know, and it would not only, it would create a different type of housing, you know, it would create our type of housing that would be very varied in it aesthetics and in its construction, it would create a type of housing that would support a much more resilient land based life style and be much less dependent on national infrastructure.

Leon: But do you think, I know I've not gone into the questions yet but I'm sorry about that, but do you think like with the government, you know with the big economic drive and keeping everybody with their TV, s and everything else like we just talked about, do you think they will ever, I should really be going into my questions, but do think they will ever allow to, you know.

Tao: Well they are in Wales!

Leon: They are in Wales!! That's another thing ye! Since I watched the programs last year, all the Lammas programs you did, and you was obviously on of the leading pioneers that created Lammas, and from when you first walked on to the field you, you was looking up and saying well we want to achieve this, and we want to do that and gradually it evolved and you have done this amazing thing, and I haven't really seen like for a while how things have mooched on but when I talked to Celina they've actually bought some land just down the road which is umm which they sort of woodlands and they want to sort of do the same and everything on their land and so it is actually working, so the one planet actual policy is actually on its way now isn't it.

Tao: Ye,ye

Leon: And its happening which is just amazing, you know.

Tao: There's applications going in and applications being passed, you know, bit by bit umm it is taking you know it is coming to fruition, defiantly.

Leon: Right I will go into my first question then Tao so: (12.48 mins into interview) **Q1) Since Lammas successfully received planning permission in 2009, what has been the most challenging element regarding sticking to the "one planet policy" rules?**

Tao: Umm the I think what I would say is, for most people the most challenging part is generating income from land based activity um now without getting caught up in the kind of specifics of the policy, is how it work is each house hold has to generate approximately £5000 each year from land based activity, and that's quite difficult because were operating in the middle of a very heavily skewed and subsidised conventional economy, so for example you know, were growing food here on ate land and small holdings and umm if we take our produce to the shops were competing against farmers who are receiving massive European subsidise, just for existing.

Leon: So they can make it cheaper then.

Tao: Well exactly! so economically you know its impossible for us to kind of compete

Leon: And make a profit as well as the effort you have to put in.

Tao: Exactly, the famer next door, he's got something like a 1000 sheep umm and a few 100 cows and ye produces a fair amount of meat umm and he gets subsidise over a £100,000 per year to run his farm, you know so, we, let's say we grow some sheep, rear some sheep and take our sheep to the butchers, it, that's the challenge.

Leon: And you have to make that £5000.

Tao: That's right.

Leon: So that's part of, ye.

Tao: And the loop hole how we do it that we focus on value added produce so we instead of growing carrots we tend to grow carrots and turn it in to carrot pate or carrot wine.

Leon: O right, ye, ye.

Tao: That's how we get round it but it is you know.

Leon: I suppose you can sell that further afield as well couldn't you, because you preserve it for a start and plus you know, its lovely going on to like country markets and seeing homemade carrot wine or something like that, you don't mind paying extra money for it because you know, handmade and stuff like that, and not made on a mass scale you know production.

Tao: Ye, Ye.

Leon: Ok brilliant, thanks for that, that answered that, so my next question is (15.50 mins into interview) **Q2) What do you think the chances are, for the welsh assembles "one planet policy to be put out to the rest of the UK? Please give your reasons for why or why not this would happen.**

Tao: Ok I think that it is unlikely that England are going to adopt a one planet policy in the foreseeable future because I think it's worth understanding that, you know planning is very political because planning dictates the, were the people live, and to a large degree how the people live on the land and across the country and England, England kind of social demographic is firmly rooted in a class system in which by in large the aristocracy own most of the land and there for you got a kind of, a statuesque in England which is interested in keeping things kind of as they are.

Leon: Right ok.

Tao: You know the land owners are doing very nicely, thank you very much they will get massive European subsidies you know and so, and that's reflected in the kind of conservative kind of political force in England and I just don't you know it requires a bit of vision, it requires an alternative vision if you like, and that's something the Welsh government has been able to adopt partly because traditionally the Welsh society is much more kind of a [kind of terrain](#) 200 years ago in Wales the doctor lived in the same size house as the coal miner and he lived in the same size house as the politician ye!

Leon: Ye, yep.

Tao: And it's partly to do with roots and partly to do with just, I don't know, ye the traditional of small holding in Wales and there's a lot more rootedness to the land so there is an appreciation for a vision for where by the population is spread out more evenly across the land and that the benefits of the land base are shared out in a much more evenly way, and so to carry on with your question I think Scotland has potential, you know.

Leon: Things are moving on up there aren't they, because when I was up at Middlewood Trust, one of the guys there, sort of brought his family up there, I forgot what his name was now but he moved up there and bought land up there and it's less rules you know and less regulations and stuff.

Tao: Ye, and they have got like crofting.

Leon: Ye crofting that what he's actually doing ye that's what he's actually going to do ye is it all down to like devaluation is this why with like the English government giving more power to Wales.

Tao: That's it.

Leon: Right, so the devaluation thing has been a brilliant positive thing for low impact developers.

Tao: Defiantly.

Leon: Do you like to call yourself, would you class yourself as a *liddier*, I've heard the term *liddier*.

Tao: I'm happy to be considered a low impact developer, *Liddier*.

Leon: But the actual term *Liddier* I'm just trying to learn the terminology as well, some of the stuff I might come out with in these questions might be wrong.

Tao: Don't worry about it.

Leon: Do you want me to go on to the next question.

Tao: Ye,ye.

Leon: Ok thank you (19.22 mins into interview) **Q3 Do you believe alternative low impact development can have a realistic balance between the important elements of social, economic and environmental issues?** But I think you've answered a lot of that but.

Tao: Ye, you know I would say that a good indicator of successful low impact development Is a social and economic and environmental benefit, that can be kind of clearly demonstrated you know umm, social benefit, employment umm just ye, a variety of.

Leon: I've seen the social benefit myself you know with just the.

Tao: Just good places to live, sense of empowerment, umm ye you know and also the just kind of opportunities you know I think low impact development should bring education and training and engaging with schools, should be opening up the land base, economic well you know traditional meat farming which covers certainly most of the kinds of upland areas were low impact developments is most suited meat farming is about the most inefficient way we can dream of growing food, economically its rubbish.

Leon: Right.

Tao: So prior to Lammas coming here the farmer john Thomas who farmed this land 76 acres was bringing in an income of approximately £3000 a year.

Leon: O that's not a lot is it, to say that you've got nine umm nine plots now all having to find £5000 worth of economic, is that per house hold?

Tao: Ye,ye well ye and there also producing a whole load of stuff for ourselves as well , so when you start to quantify it you know you're looking at that same area of land.

Leon: So you're doing it now aren't you, your actually absolutely doing it.

Tao: Ye,Ye.

Leon: Amazing.

Tao: Ye that same area of land is producing something like £80,000 worth of produce.

Leon: When I first saw, sorry for butting in, when you first started trying to get planning permission umm the land was pretty poor in the way, it wasn't very fertile you know because a

lot of it I think you said had run down into the valley or something but as i can see six years on from you doing it you've got so many things growing now you know its err.

Tao: And if you can appreciate that this time of year.

Leon: Yes, I've seen the trees and the bushes and I've seen your orchards down the way and obviously it winter so there's nothing on them at the minute, and it was nice doing some weeding in your vegetable beds yesterday, so I can see it all really coming together.

Tao: Well when we came here there were like certain noticeable lack of insect life, bird life, there were no flowers on the land, there was not even any brambles it had been grazed for 25 years by sheep it was just really, really degraded it been a real joy to watch the wild life coming back in.

Leon: Wow!

Tao: Watching the insects coming back in, watch the bird life come back in and now were at a stage were.

Leon: Just looking at the birds now in front of us you have got a lot of life here.

Tao: Ye, but also much rarer birds you know there's the last few days there's been red kites circling they will be nesting, I've got barn owls nesting in the attic here.

Leon: In the attic here?

Tao: Ye, Ye.

Leon: Wow! Fantastic!

Tao: Ye, ye.

Leon: On your, in your house! That's amazing!

Tao: Ye we put an owl hole in as an integral part of the attic.

Leon: And they've taken to it, my god! is just so, it is amazing I've got to say, I've seen it with my own eyes, I had to come and see it with my own eyes and it is fantastic.

Tao: And then there's the other mammals the mammals, animals that haven't been seen here for a long time, hedgehogs, otters, you know.

Leon: Well there's nothing, they can actually move around can't they, it a big area but.

Tao: There's habitat!

Leon: There's habitat ye.

Tao: And its diversity.

Leon: Corridors for wild life.

Tao: Ye.

Leon: It's just amazing, it's not concreated over, you've got families living here but you've also got the wild life moved in ye and it's amazing so, right brilliant that's answered that question, I will go on to the next question, if by the way I'm over running just tell me and I, you know.

Tao: Its fine we've got till 12.45.

Leon: right ok no problem (24.07 mins into interview) **Q4) Could alternative low impact development play a part in helping resolve the housing crisis within the UK?** Which I think you've already answered that, earlier on didn't you.

Tao: Ye, let's put some caveats to it you know I think there's a sort of at the moment, there's an, education would help you know its umm only a few people would choose is low impact development because you know because the prospect of building your own house, growing your own food, installing your own infrastructure, is quite kind of scary, it could be scaled up and I think in order to scale it up successfully umm, education would really help, and just things you know like permaculture you know which is a kind of design tool or for creating sensible systems, at the moment Simon and Jasmine they've just started this week doing an intern ship they've got a dozen people up there doing a permaculture design course up there and through the summer here we will be running a whole range of courses.

Leon: I will have to definitely come in summer you know and do some of these courses.

Tao: Ye,ye, do.

Leon: I will don't worry; i might even move in ☺

Tao: ☺

Leon: Brilliant thanks for that umm right so I will go on to the next question (25.29 mins into interview) **Q5) What are your thoughts regarding the government scrapping the code for sustainable design, and what could be the long term implications for doing so?**

Tao: I think the code for sustainable homes scheme had really good intentions but like so many kind of initiatives in the UK umm suffered from corporate lobbying and just bureaucracy and ended up being a pretty ineffective tool umm in essence it good initiative but it just ye, I think

its, I think at the end of the day its, the problem is these are like sticking plaster try and remedy what is at its root core urr an inappropriate system.

Leon: Trying to make it look like there doing something like smoke and mirrors or.

Tao: I think that's how it was used but I think the whole way that housing is approached in the UK is fundamentally floored.

In trying to turn it into a corporate like commodity or cooperate service if you like with the big house builders coming in building all these Lego houses.

Leon: Ye there horrible.

Tao: You know when I look at modern housing it's just crap, absolute crap, it's really unhealthy for the occupants, it's really unhealthy for the environment, it's really flimsy, totally un-resilient and its really frustrating as a society we have the know how to build healthy breathable well insulated homes from natural local materials designed to work with solar gain and thermal mass and place, and so I think, I don't think it really matters now.

Leon: I noticed when the, I'm sorry for butting in, the one planet policy, I actually read that I noticed they used the sustainable code quite a lot and referring to the sustainable code you know.

Tao: Ye I mean it had good elements to it.

Leon: So they chose.

Tao: Ye they chose a particular part of it in part 3 to use it ye, some of that original well intentioned kind of initiative did come through to the kind of final frame work, ye there were elements of it that were really kind of good ye, all homes every roof should be rain water harvesting ye absolutely.

Leon: You are defiantly the pioneers of low impact development here aren't you.

Tao: Ye,ye and its important to understand we are just a bunch of lay people who are just decided , ok we actually don't have any more faith in the government or the corporate sectors to deliver any solutions to the crisis facing humanity we are going to take thing into our own hands, that's all we are and you know there's not even that many of us you know to start with, there's more now.

Leon: Its growing isn't it.

Tao: There's just 9 households.

Leon: Through your education um you know you are sort of educating people aren't you, sort of I does seem what I've seen in the last 2 years how it's sort of expanding out, and when I was talking to Celina yesterday umm how the one planet policy sort of the housing, o my god I can't think what they're called, the planners you're actually educating them, teaching them about the aspects of it all so.

Tao: Ye, ye there is ,it is a grass roots movement that takes completely different approach to kind of main stream construction and main stream housing provision and, and it is certainly kind of growing in power and strength.

Leon: Because I've been into my local planning office in Clitheroe and I took in my questionnaire and I've asked them to the sort of attitude you get back and I've rang them a few times and they say he's going to look at them but, you know not really fully sort of taking me on, and I come here and you sort of welcomed me with open arms you know it would be nice but I don't suppose the planners will ever welcome me with open arms, because when I did talk to him last year he said the problem that he had with it was sporadic construction would just happen everywhere people would just start building any old plastic houses or you know like just plastic bag houses, shanty towns unn things so.

Tao: Ye, ye well to kind of ye if you're coming from that conventional controlled perspective it can look quite scary coz you know.

Leon: Sorry Tao I keep I keep going of track and rambling on about something else.

Tao: You're the one that going to have to sort through it and make some sense out of it😊

Leon: 😊 I don't mind this is brilliant, really, I really do appreciate this.

Tao: Cool!

Leon: so my 6 question (31.18 mins into interview) **Q6) For what reason do you think the sustainable policy was scrapped?**

Tao: Which sustainable policy?

Leon: Sorry the code for sustainable design.

Tao: O! Just the Tories.

Leon: The Tories, cut backs.

Tao: Well it just the drive for ever more, there's a basic underling problem to the capitalist system that we've got at the moment in that it is based on infinite growth of a finite resource, ye

so there's only so much planet there's only so much rock, aluminium, trees, available and you've got a system based on more and more and more growth and more and more and more consumption and so in order to kind of get us out of this economic recession there are mistakenly choosing to remove any perceived obstacle's to economic growth.

Leon: Take down the barriers, environmental issues always get put on the back burner don't they, as soon as they need to get that big wheel rolling, the economic wheel rolling again ye it seems to like, what you're doing gets put on the back burner.

Tao: Ye well its economic growth at any cost and it's for the sake of the system because we have such a crude kind of system for system, you know infrastructure system if we want to survive.

Leon: Where we went to last time, were everyone needs to keep feeding the system, they have to get a job because industries, the people living in these houses feed the industry which feed then industry build all this consumption and to feed back to people for, to keep this economic tide going which is I suppose to keep this monstrous thing they actually did create you know, to keep the wheels rolling on that but that's eventually not going to help.

Tao: Well it's the one thing with unsustainable systems, sooner or later, they have to change

Leon: Unsustainable exactly, that's what it is isn't it, like just in the last recession we can see that can't we when the banks just kept lending more money and more money and people were borrowing it and the house prices were going up and up and up and even in my own eyes I could see that that wasn't going to be sustained and there was suddenly this explosion that put us right back down you know, and that's what's going to happen with the bigger picture with global warming and people digging up all the resources coz its unsustainable isn't it so I suppose, that's the way I sort of look at it.

Tao: It's going to have to change either the soft option which is almost, I think it's too late really and perhaps not, but you know the soft option is that we reform the system, and change the system, which I think was really a possibility you know, ten years ago, maybe even still is radical transformation reform could still, you know, save what is kind of known in society, but the more likely outcome now is some kind of crash.

Leon: Ye, it will do wont it especially, like, unless we get, suddenly do really well with renewables if say eventually which oil and, like, fossil fuels, there's only so much we've got, like, we talked about, it's not sustainable and if that's suddenly taken out of the scenario that would create so much havoc.

Tao: It's not just, you know more than just renewables, you know, we have got a fish crisis we've got a timber crisis we've got a precious metals crisis you know we've got a like you said the global warming and there for the climate chaos is kicking in as well.

Leon: That will kill a lot of eco systems and stuff.

Tao: And cause massive displacements of people which is what we can see in north Africa and the middle east and will disrupt the systems even more, were already on that feedback loop, were already in crisis.

Leon: Ye we are.

Tao: And so reforming at this point is incredibly difficult because you can see it reflected in the politics across Europe and across the world in fact because the kind of nee jerk initial response is one of south preservation, close the borders and look after yourself, and that's no solution.

Leon: They can only hold it back for so long can't they it's like holding back a dam that is filling up rapidly or holding back.

Tao: Holding back the tide.

Leon: Ye, holding back the tide, it's not going to happen is it, eventually it's just going to, brilliant, so I will go on to my 7th Question (36.17 mins in to interview) **Q 7) In your opinion are the environmental issues like for instance, attitudes towards climate change: staying the same, improving or getting worse?**

Umm I think threes a polarization, so I think on the one hand you see people who are kind of committed to the system and entrenched in the system burying their heads ever deeper into the sand and you know it's a kind of case of denial.

Leon: Like an ostrich will put its head in the sand because it just wants to pretend it's not happening.

Tao: Exactly.

Leon: And just keep going.

Tao: Just in total denial, total denial. So that's one side of it then the other side of it people who kind of actually do take the time to look up look around and think for themselves, the penny's dropping.

Leon: Like me for instance I was only looking at this two years ago when I did my first like, well, they don't like to call it a mini dissertation but that's the way I look at it, and when I started

getting into this subject, and the penny is starting to really drop and I can see, and I'm glad I took on this you know.

Tao: And things like the flooding helps.

Leon: Right: Ye the flooding, that rings massif alarm bells, it was like the end of the world, you know when I was telling you about my friends Landover when you could only see I don't know, about 9 inch of it, you know it's just unbelievable.

Tao: And that's just going to get, there's going to be more and more and more of that, you know and at some point there will become a critical mass, there will be some kind of turning point were by, you know those people with their head in the sand can no longer sustain.

Leon: They will be under water; they will be drowning ☺

Tao: Well ye, there not going to be able to sustain the system, those people with their heads up will demand or just start creating an alternative.

Leon: Ye there will be certain people who will, even in government as conservative as they are, there is people, they still have their own feelings how things are perceived so eventually someone's going to rattle a few cages aren't they, someone's got to, someone got to do something I'm sure.

Tao: Ye at the same time it's worth recognizing that main stream society is getting ever more clever at you know creating this veneer of glamor if you like, you know like, what I mean the systems for escapism that we have for ever more elaborate, more and more films, more and more internet, more and more kind of drugs, more and more elaborate kind of foods or ruses to try and keep you caught into this system umm so you, that's an indication into those, the burying your head in the sand kind of polarity, and then I guess we are one manifestation of which there are many others of the other polarity which is.

Leon: At least you've got your head high, you've got your heard proper high haven't you you actually do see the big picture, you have done for a long while.

Tao: Ye just time to kind of, it's time to be in powered.

Leon: When I was a child I remember, you know people like green peace and or people who sort of talked about the environment, it was like ye right whatever, Ha,Ha you know like, and now it's like actually become an issue one, if you would have talked about renewable energy or like why would you want renewable energy we've got loads of oil we've got loads of coal, what do you need that for, you know like god, Hippies, get rid of the hippies you know, ye but now things have changed so much, in my life time I've seen changes, so hopefully, well it will happen wont it it has to happen one day otherwise we won't have an earth to.

Tao: I don't think it's going to be one day I think it kind of, its upon us.

Leon: It's on us, ye it's on us! Like you said where already in the depths of it aren't we.

Tao: I think it's the last 4 months well 2015 was the warmest year on record and the last 4 months have been the warmest months since records began.

Leon: we've seen a lot of rain ye, we've seen tons of it, brilliant thanks for that Tao, I will go on to my next question.

Tao: I think we are on 8.

Leon: O ye we are, (40.34 mins in to interview) **Q8) What are your thoughts regarding the global push on climate change?** But I think that is the same question.

Tao: That's alright, we've just come at it from a different angle.

Leon: O ye. Because of the Paris summit umm ye.

Tao: Ye.

Leon: Is it tongue in cheek or.

Tao: No its well-intentioned but until the foundations and the roots of the issue are addressed which is this corporate capitalism that actually drives our social economic system until those issues are addressed there's not going to be any real change, you know you, what do I mean by that no amount of tweaking corporate capitalism is going to create a solution.

Leon: No as long as that big money bus is rolling away as long as that keeps going, that's, they will be happy to look at a few climate issues but or a few environmental issues.

Tao: And it's to do with the way corporations are set up you see corporations are set up to create, there set up to kind of validity greed actual cost, set up to create a profit at all cost, its ok to bend the rules, dodge the rules so long as You making a profit for your shareholders so it is like we've created a monster we've created a Frankenstein that is now completely out of control.

Leon: It's like how much can I get together in life it's like how much money can I collect, how much of this you know, for my future for my retirement, you know it's, it's the wrong way of looking at it.

Tao: And you've got these massive corporations that in order to survive, have to be absolutely ruthless, have to not give a shit about the environment.

Leon: Because your devaluing their profit aren't you, because if you start, because what become valuable then, if you start doing what you're doing, what becomes valuable is growing your own

vegetables and money will become worthless, I don't suppose any threat of devaluing there, you know the people up there that have got all this money, like you said earlier any threat towards that will just get stamped all over.

Tao: Ye and to a degree if you look at the current round of international trade treaty's that are going on, you know that is a classic example of, the corporations now have far more power than governments, so the governments can talk about Paris you know and make any agreements they like but it's the corporations are really.

Leon: That pay their Taxes.

Tao: Playing their tune.

Leon: But they don't always pay their taxes do they, because you see these bigger companies, they move money around and make it.

Tao: No their not paying their taxes, there playing there tune there making the rules up so that's the bit that's got to change for there to be any real sustained system change.

Leon: Brilliant thanks for that, so were on to question 9 now (43.33 mins into interview) **Q9) What factors do you think need addressing to ensure any sustainable policy will be taken seriously?** Which I think you've answered a little bit there.

Tao: I think time itself will take care of that because as time goes on you know, Britain the UK can only hold back this migration of people for so long you know, we, it's just going to grow and grow, for example Syria the roots of the Syrian conflict are actually in climate change its not you know Syria experienced a drought.

Leon: That's right ye I saw that the other day actually, I thought it was all about the war.

Tao: No,no that's what sparked the war and the civil unrest and you know the kind of well, that's what sparked it, you get these large movements of people, it's just time will kind of play itself out.

Leon: It seems a bit wrong doesn't it as a nation as a world how we have these borders and you know, we sort of, we, we expect us as a nation to live in a certain way and just sort of like, I don't know, I don't know where I'm going with this, but there's other people starving maybe I'm going down the wrong route with this or wrong road.

Tao: No,no your compassion is really, really important because mother nature you know she doesn't discriminate, she doesn't care whether your Chinese or whether your Greek or whether your Ethiopian.

Leon: No, it will be mother nature that makes the decisions in the end I should imagine.

Tao: Exactly and so ye, just time will play itself out, so let's just chew on that a little bit more, what factors do you think need addressing to ensure any sustainable policy will be taken seriously, ahuuu, what factors do you think need addressing? Well I think the political system needs addressing, I think the international law needs addressing I think, and what's missing, real vision.

Leon: A real vision that's a.

Tao: There's no real sustainable vision you know for the future.

Leon: It's still on the economic thing that we've talked a lot about, with the corporations and the money.

Tao: Ye, cool.

Leon: Brilliant, Thanks for that, now question 10 (45.58 mins into interview) **Q10) What are your thoughts regarding the future of low carbon sustainable housing?**

Tao: I think it is the future ☺

Leon: It has to be ☺

Tao: Ye, ye ok play, just play out the current trends, you know, umm you're in a high carbon unsustainable house, you are therefore entirely dependent on fossil fuels, you entirely dependent on national infrastructure you are entirely dependent on someone else to provide you with clean water, food, etc, etc, etc, and in a world that is in increasing crisis that's not a very attractive position, it's really not.

Leon: It's really starting to make me feel guilty, when I put the boiler on because I'm freezing it err, it's sort of sets the whole guilt trip going.

Tao: Ye, and also its, there's not a lot of joy in it, so maybe, maybe that's what that's about, coz, I don't want you to feel guilty but, I think there's think there's kind of something about joy, I know when I spend time in a conventional house I feel energetically it shuts me down.

Leon: Claustrophobic?

Tao: Yee and Its, you know its this veneer, you know, you know that you know just beyond the paint or even the paints that decorate that room there is, your sealed, you're into construction, your sealed, your totally sealed in a plastic or aluminium box.

Leon: That's right.

Tao: Ye, and those toxins that are in the air or in the kind of product that you buy, and even your kind of out breath is kind of all just kind of mixing around in this kind of toxic kind of box.

Leon: And you spend a lot of time in these toxic boxes, don't you, at least with the low impact way of life you're out and about, you're doing a lot outside aren't you.

Tao: Also this room here is breathing, the walls are breathing, ye, the roof is breathing, you know there, it's actually.

Leon: Do you mind if I take a few pictures because.

Tao: No not at all.

Leon: You know just so I can sort of relate them to the actual recording.

Tao: And so there's that side of it to do with health and kind of joy, you know as opposed to kind of, yes just the feeling of high carbon unsustainable housing.

Leon: I do feel relaxed in here, I feel chilled out, it just urr it is you know a different feeling to being sat in my own house 😊

Tao: 😊

Leon: I want one 😊

Tao: Ye well as an example right this place even with building regs, cost 14 grand to build.

Leon: Wow!

Tao: Ok I put in the labour for that, so that is a skewed figure but 14 grand including materials.

Leon: Ye that's good that's good.

Tao: Ye now, you know how can you, you know, you can't compete they can't compete, if they build a house a conventional house for 60 grand, its horrible isn't it.

Leon: 60 grand, are ya, ye they can build it for that but sell it for more, there's 3 houses being built next to me, there tiny in fact your house here is probably the size of one of them, ye in fact you've probably got more space in this house urr and there up for sale for like, there like three stuck together like three little terrace's umm they've got fiberglass chimneys to make it look aesthetically right because it's on a terrace street, umm there up for sale for 220 thousand pounds, and alright there putting really thick insulation to make it like, you know a little bit less carbon so there not, but honestly they've been built out of ply wood it's all a wooden shell and it's just been cladded with this false stone looking stuff, just absolutely minging, I mean the builders are doing a good job of it, it's a good, it's a brilliant building company that's doing it

but it's just horrible, well I find it horrible to be honest, and the price of it, for £220'000 I could Easley buy a nice piece of land here and build my eco home and, I don't know, Brilliant.

Tao: Well that's it that's the cracks at the end of the day, so that's in a way ok the future of low carbon and sustainable housing, I don't think there is one because there not very attractive.

Leon: Ye by insulating it more you're not going to let the heat escape as much, but I don't know, that doesn't cut it does it.

Tao: No,no,no.

Leon: There's more involved than a bit of insulation.

Tao: And bare in mind as well, Leon this is our work shop, when our house is built because that will be.

Leon: O ye ive seen the plans actually.

Tao: Ye that's all straw bale, and that's a lovely. Living in a straw bale house is lovely umm theve got a lovely feel to them, very warm very cosy.

Leon: What's the insulation in here?

Tao: This is sheep's wool.

Leon: Sheep's wool, right.

Tao: Straight off the sheep's back.

Leon: Ye I was thinking that last night actually because I saw there not very thick walls are they.

Tao: No.

Leon: They will be thick walls wont they, ye and that what the rods are for then, to slide the bales down onto.

Tao: Actually the rods are to tie the frame onto the footing.

Leon: Right ok.

Tao: And the bales we just use like, insulation like Lego bricks so there none supporting bales.

Leon: When I looked at the plans for it I noticed it's going to have trees like fruit trees like from, like tropical fruit trees.

Tao: Ye,ye.

Leon: That's amazing so.

Tao: Ye were building it, I mean that's really funky that is.

Leon: That's is going to be cool and its south facing, im looking forward to seeing that, I'm defiantly going to make a few more journeys down here you might be sick of me by the time, but don't worry I won't be bringing any questionnaire with me, I will have done my degree by then, so we are on question 11 this is the last and final question, umm going back to obviously what my question is like, is alternative low impact development could be the answer to the current housing crisis, which you have answered a lot of whilst making a positive difference within the UK so basically the question is (51.31 mins into interview) **Q11) Regarding this study is there anything else you could add that could help resolve the problem and help fill the knowledge gap.** Of my Hypothesis.

Tao: I would just say that, were kind of doing it.

Leon: Ye.

Tao: Ye, and to a degree your dissertation will help because hopefully it will be published on the website and it will be another bit of evidence.

Leon: That's if its any good ☺ but I'm hoping it will be.

Tao: What I mean by that is, you know, Lammas has been successful because we've got the grass roots movement, and we've had support from academics, and we've had support from kind of media, and photographers and we've had support from politicians and that's what's made, enabled us to get this far.

Leon: Ye.ye.

Tao: So I think there's always stuff that people can do and there's a roll that everyone can do anyone and everyone can play and it's all about, and it is to a large degree about awareness and raising awareness, because like, you know if you don't know there are solutions, you know it can feel pretty bleak and despondent when your caught in the rat race, stuck in the main stream

Leon: That's me ☺

Tao ☺ Ok well there are routes out.

Leon: Ye there are routes out.

Tao: And there's lots of routes out, it doesn't, you don't have to kind of do low impact development, there are other routes as well and, you know it's about highlighting and celebrating and all those, ye,ye you know as I've kind of mentioned to you before it's kind of, were a

movement that is driven by, well I'd like to think, were a movement that are driven by joy in a way, people are choosing this because you know, it's fun, it's an adventure.

Leon: Ye I can see that.

Tao: There are times when you are wet and cold.

Leon: Your living my dream.

Tao: Ye, and so why not.

Leon: ye and I've got to be careful when I'm doing my research not to be bias because I've got to look at all direction, I've got to look at it from the governments side I've got to look at from your side, but you seem to be winning at the minute, the way I'm looking of the overall picture, and eventually in 20 years' time, or something, things have moved on, you will be looked as the founding pioneers of low impact development, and it will be nice to say well you know, I was a little part of that, I know it's gone on for 6 years well its gone on for more but, you know, actually just doing this dissertation and being involved is just great.

Tao: Good.

Leon: And it's been an absolute pressure meeting you Tao, and thank you very much for doing this Tao and thank you very much, Cheers!

Tao: ☺

End of interview 54.36 minutes:

Thanks Tao for giving me the opportunity to come down to Lammas and do this interview with you, I had an amazing time, and you are an amazing person. I also met so many nice people and I took so much wisdom away with me. I will do my best to ensure I utilize the information you gave me carefully, so that, in the future it can be honestly and effectively used by others.

Here is a written copy of the interview, I haven't been totally thorough with the spelling and grammar because it will be going in the appendices, and as you can imagine, it took me ages to write out. I have tried to send a copy of the recorded version by email but surprise, surprise the file was too big, this was down to me wittering on ☺ if you want me to send a copy on disc please let me know where to send it.

I would also be grateful if you could say a big thanks to Sue from the farm house for being so nice and inviting me into her cosy home for dinner, along with all her other waifs and strays! It was amazing. Please could you also thank Katy and Leander for giving me the opportunity to work on their low impact house, they are such a lovely family and I'm hoping to find some time in the summer to come down again and help them build their stair case.

If you do get a chance to pass my other questionnaires around and want to send them back to me, my address is: 30 Kirkmoor road Clitheroe Lancashire BB7 2DU. However, it's not a problem if you can't because I'm so grateful for the time you have already given me.

Take Care, and all the best Tao, to you and your family

Leon xxxxxx

PS if your ever passing Lancashire and you need a place to stay just give me a bell on 07958794771 ☺

Appendix: 2 Consent Form.

Consent Form

Could low impact development be the answer to the current housing crisis whilst making positive social, economic and environmental differences in the UK.

Please answer the following questions by circling your responses:

Have you read and understood the information sheet about this study? YES NO

Have you been able to ask questions about this study? YES NO

Have you received enough information about this study? YES NO

Do you understand that you are free to withdraw from this study? YES NO

At any time? YES NO

Without giving a reason for your withdrawal? YES NO

Your responses will be anonymised before they are analysed.

Do you give permission for members of the research team to have access to your anonymised responses? YES NO

Do you agree to take part in this study? YES NO

Your signature will certify that you have voluntarily decided to take part in this research study having read and understood the information in the sheet for participants. It will also certify that you have had adequate opportunity to discuss the study with an investigator and that all questions have been answered to your satisfaction.

Signature of participant: Tao Date: 10.05.16

Name (block letters): Tao Wimbush

Signature of investigator: Leon Greenwood Date: 10.05.16

Please keep your copy of the consent form and the information sheet together.

Leon Greenwood: 30 Kirkmoor road, Clitheroe, Lancashire, BB7 2DU.

Appendix: 3 Answers from London Based Public Sector official.

Apologies for the delay in responding. I have now looked at your questions and my responses are as follows:

Q1: I don't think I can answer this one.

Q2: I am doubtful about the possibility of this being rolled out to the rest of the U.K. There are two reasons for this. First, prevailing policy in England and Wales focuses on meeting the massive demand that exists rather than this sort of proposal. Secondly, the size of the problem. There is such a big shortage of housing it is likely that only mostly high density development will meet the demand. This said sustainability of development is built into the development control system through the planning system and Building Regulations.

Q3: In appropriate locations, yes. With this I have in mind rural areas where a relatively small number of dwellings are needed for the local population. It's less appropriate in places such as London and the south east, where a huge numbers of dwellings are needed for people from the area but also for people moving there for work.

Q4: Again, yes it does have a part to play but it can't be the solution on its own. See my answer to Q3.

Q5: This could lead over time to the development of dwellings that do not take sufficient account of sustainability, which should be at the heart of housing development.

Q6: I'm not sure, but it may have been to remove duplication of regulation because the Building Regulations cover this field.

Q7: I think they are more or less staying the same in government circles.

Q8: Climate change is a huge challenge for the entire world. Unless everyone grapples wholeheartedly with that challenge the peoples of the world will pay the price in the future.

Q9: In developing homes in particular, there needs to be a focus on the essentials, ie in getting the location of the development right, together with the size of the development. And in ensuring the design and construction is appropriate to keep emissions low.

Q10: All housing should be low carbon and sustainable.

Q11: This is an area where we need a public debate so that we meet the housing demand of today without damaging the environment for future generations.

I hope this helps. I'm happy for you to share my answers as long as you don't use my name or mention my job. You can say something like: a public sector official working in the planning field'.

Let me know if you need anything more.

Happy Easter.

Appendix: 4 Original letter to Lammas.

10/11/2015

Leon Greenwood

30 Kirkmoor road
Clitheroe
Lancs
BB7 2DU

Tel: 07958794771

Email: leonjade22@aol.com

Dear Lammas

My name is Leon and I am a 45-year-old mature student I am currently in my final year of a BSC degree in project management in construction. I was hoping you could help me out with an important part of my primary research data for my 10'000-word dissertation.

My Dissertation Question is: **Could alternative low impact development be the answer to the current housing crisis?**

I was hoping it may be possible to visit you for some of your valuable knowledge as this would really help with my studies, I am also a self-employed joiner with a van full of tools and would love to trade some of my skills for a little of your time and wisdom.

I wrote a mini 3000-word dissertation for my second year regarding low impact development and got so much knowledge and inspiration from your amazing Lammas project. I also carried out a volunteer weekend at Middlewood trust for my primary research data and took so much away with me not only for my studies but also a clearer outlook on life the team at Middlewood were all amazing and so helpful.

Thank you Lammas, I look forward to hearing from you.

Kind regards

Leon Greenwood

Appendix: 5 Questionnaire Template.

Leon Greenwood
30 Kirkmoor Road
Clitheroe
Lancashire
BB72DU

06/01/2016

Dear Sir/ Madam

I am currently studying for a BSc honours Degree in project management in construction, I am now in my final year and have been assigned to carry out a 10'000-word dissertation. For this to be achievable I need to collect primary and secondary data. I would be most grateful if you could help me achieve this by filling in the details of this survey.

This survey and the information you provide will only be used for the primary data needed for my dissertation and adding any personal details is optional.

Thank You.

Leon Greenwood.

Alternative low impact development could be the answer to the current housing crisis within the UK.

Simon Fairlie wrote “A low impact development is one that, through its low negative environmental impact, either enhances or does not significantly diminish environmental quality” (Tinker Bubble Yeovil, 1996)

Due to the current housing crisis, the UK government have ambitious new plans to build 1 million more homes by 2020. The government are doing their best to address the housing issues but at the same time, could be neglecting environmental issues. Sustaining resources i.e. water, fuel, materials and cutting carbon emissions due to global warming is big on the global agenda. Countries around the world are being encouraged to do their part in tackling this ever growing problem.

Alternative low impact developments (environmentally conscious and sustainable developments) could be a method of addressing some of the environmental issues. There are a growing number of people and communities’ eager to adopt sustainable living. There are already a number of successfully established communities around the UK pioneering the Low impact concept. Due to the growing developments of new technologies it is now possible for communities to live partially or entirely off grid, harvest water and compost sewage waste etc. Many of the established communities also grow a percentage of their own organic food and create income through educational workshops etc. The developments are usually built where available, with the use of natural, recycled and local materials.

Questionnaire:

Q1)

On a scale of 1 to 10 how aware are you regarding current global environmental issues? Please tick the box and feel free to comment.

Not aware:	1	2	3	4	5	6	7	8	9	10	Very aware:

Q2)

Have you ever been involved with low impact living, here in the UK or abroad i.e. the kibbutz's in Israel or WWOOF (worldwide opportunities on organic farms) if yes please give details.

--

Q3)

What would be your concerns regarding low impact development? I.e. off grid eco sustainable homes.)

--

Q4)

What is your opinion regarding local planners consenting approval for new low impact developments in your local area?

--

Q5)

On a scale of 1 to 10 how well do you believe the government are doing in meeting housing needs? Please tick the box and feel free to comment.

Poor:	1	2	3	4	5	6	7	8	9	10	Excellent:

Q6)

If given the chance would you consider building your own sustainable home or get involved in establishing a sustainable community? Please give your reasons why or why not.

--

Q7)

If you had one question regarding low impact development, what would it be?

--

- Please feel free to add any further comments regarding this survey in the notes box.
- Please note adding personal details too this survey is optional.

Name:		Age:		Male:		Female:	
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Appendix: 6 Questions for Lammas and Public Sector Official.



Questions for Lammas and London public sector official 2016:

1. Since Lammas successfully receiving planning permission in 2009, what has been the most challenging element regarding sticking to the “one planet policy” rules?
2. What do you think the chances are, for the Welsh assembles one planet policy to be put out to the rest of the UK? please give your reason for why or why not this would happen.
3. Do you believe alternative low impact development can have a realistic balance between the important elements of social, economic and environment issues?
4. Could alternative Low impact development play a part in helping resolve the housing crisis within the UK?
5. What are your thought regarding the government scrapping the code for sustainable homes, and what could be the long term implications for doing so?
6. For what reason do you think the sustainable policy was scrapped?
7. In your opinion are environmental issues like for instance, attitudes towards climate change: staying the same, improving or getting worse?
8. What are your thoughts regarding the global push on climate change?
9. What factors do you think need addressing to ensure any sustainable policy will be taken seriously?
10. What are your thoughts regarding the future of low carbon sustainable housing?
11. Regarding this study is there anything else you could add that could help resolve the problem and help fill the knowledge gap.

Bibliography

- Chapter-7 (2003) *Sustainable homes and Livelihoods in the countryside*. Available at: <http://tlio.org.uk/sustainable-homes-and-livelihoods-in-the-countryside/> (Accessed: 17 April 2016).
- Crofting-Commission (2016a) *Welcome | Crofting commission*. Available at: <http://www.crofting.scotland.gov.uk/> (Accessed: 18 April 2016).
- Friends-of-the-Earth (2013a) *Economics & resources*. Available at: https://www.foe.co.uk/campaigns/green_economy (Accessed: 18 April 2016).
- HCA (2014) *Documents*. Available at: <https://www.gov.uk/government/organisations/homes-and-communities-agency> (Accessed: 13 April 2016).
- History and Policy (2004) *The hidden history of housing*. Available at: <http://www.historyandpolicy.org/policy-papers/papers/the-hidden-history-of-housing> (Accessed: 12 April 2016).
- Living-in-the-future (2013b) *Tinker Bubble Low Impact Community: Living in the future (Ecovillages) 3*. Available at: <http://livingthefuture.org/lammas.php> (Accessed: 15 April 2016).
- Lammas-Annual-Monitoring-Report (2015) *Annual monitoring report for Tir y Gafel Ecovillage*. Available at: <http://lammas.org.uk/wp-content/uploads/2013/03/Tir-y-Gafel-Annual-Monitoring-Report-2014-year-5.pdf> (Accessed: 13 April 2016).
- RICS (2016b) *Who owns our land?* Available at: <http://www.rics.org/uk/news/news-insight/comment/who-owns-our-land/> (Accessed: 18 April 2016).
- Badewi, A. (2013) *Ontology, Epistemology and Methodology*. .
- BBC (2014) 'Housebuilders benefit from help to buy extension', *BBC Business*, .
- Berg, S. (2015) 'Ebbsfleet: Model garden city?', *BBC UK*, .
- de Castella, T. (2015) *Why can't the UK build 240, 000 houses a year?* Available at: <http://www.bbc.co.uk/news/magazine-30776306> (Accessed: 20 April 2016).
- Cheshire, P. (2014) *Turning houses into gold: The failure of British planning*. Available at: [file:///C:/Users/Leon/Documents/dissertation%20year%203/z\)%20litriture%20for%20disertation/information%20from%20internet/turning%20houses%20into%20gold.pdf](file:///C:/Users/Leon/Documents/dissertation%20year%203/z)%20litriture%20for%20disertation/information%20from%20internet/turning%20houses%20into%20gold.pdf) (Accessed: 15 April 2016).
- Christopher, D. (2003) Available at: <http://etheses.lse.ac.uk/1735/1/U185615.pdf> (Accessed: 15 April 2016).

Clark, T. (2015) *Code for sustainable homes scrapped*. Available at: <http://www.building.co.uk/code-for-sustainable-homes-scrapped/5074697.article> (Accessed: 14 April 2016).

Cohen, T. (2010) 'Look who owns Britain: A third of the country STILL belongs to the aristocracy', *Daily Mail*, .

The town and country planning (development management procedure) (England) order 2015, c. Available at: <http://www.legislation.gov.uk/ukxi/2015/595/contents/made> (Accessed: 22 April 2016).

Countryside council for wales low impact development – planning policy and practice final report (2002) Available at: <http://tlcio.org.uk/wp-content/uploads/2013/12/Welsh-Low-Impact-Report.pdf> (Accessed: 11 April 2016).

Curry, S.-D. (2002) *FARMING & FOOD a sustainable future report of the policy commission on the future of farming and food*. Available at: <http://webarchive.nationalarchives.gov.uk/20100807034701/http://archive.cabinetoffice.gov.uk/farming/pdf/PC%20Report2.pdf> (Accessed: 18 April 2016).

Daniels, G. (2003) *Environmental movement*, "Dictionary of American History". Available at: <http://www.encyclopedia.com> (Accessed: 13 April 2016).

DCLG (2012) *National planning policy framework*. Available at: <http://webarchive.nationalarchives.gov.uk/20120919132719/http://www.communities.gov.uk/documents/planningandbuilding/pdf/2116950.pdf> (Accessed: 18 April 2016).

Eliioett, L. (2011) Available at: [http://www.theguardian.com/politics/2011/dec/02/uk-economic-forecast-gloomy,Larry Elliott](http://www.theguardian.com/politics/2011/dec/02/uk-economic-forecast-gloomy,LarryElliott) (Accessed: 20 April 2016).

Fairlie, S. (2009) *Low impact development: Planning and people in a sustainable countryside*. United Kingdom: Jon Carpenter.

Feeding the future innovation requirements for primary food production in the UK to 2030 (2013) Available at: <https://feedingthefutureblog.files.wordpress.com/2012/11/feedingthefuture2013-web.pdf> (Accessed: 11 April 2016).

Flick, U. and Flick, P.U. (2014) *An introduction to qualitative research*. 4th edn. Los Angeles: SAGE Publications.

Flip, C. (2014) *Qualitative vs. Quantitative*. .

Gosling, T. (2013) *Chapter7 Homepage*. Available at: <http://tlcio.org.uk/chapter7/> (Accessed: 17 April 2016).

Gray, D.E. (2009) *Doing research in the real world*. 2nd edn. Los Angeles: SAGE Publications.

Harvey, F. (2016) *Build on flood plains despite the risks, say UK government advisers*. Available at: <http://www.theguardian.com/environment/2016/jan/27/homes-and-companies-should-be-built-on-flood-plains-despite-risks-says-panel> (Accessed: 15 April 2016).

HM Government (1947) *Ukpga 19470053 en town and country planning 1947*. Available at: http://www.legislation.gov.uk/ukpga/1947/53/pdfs/ukpga_19470053_en.pdf (Accessed: 11 April 2016).

HM Government (2004) *Planning policy statement 7: Sustainable development in rural areas*. Available at: <http://webarchive.nationalarchives.gov.uk/20120919132719/http://www.communities.gov.uk/documents/planningandbuilding/pdf/147402.pdf> (Accessed: 17 April 2016).

HM Government (2010a) *Code for sustainable homes: Technical guide. November 2010*. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/5976/code_for_sustainable_homes_techguide.pdf (Accessed: 14 April 2016).

HM Government (2010b) *Croft reform (Scotland) Act 2010*. Available at: http://www.legislation.gov.uk/asp/2010/14/pdfs/asp_20100014_en.pdf (Accessed: 18 April 2016).

HM Government (2015) *The town and country planning (general permitted development) (England) order 2015*.

Jones, K. (2015) Available at: <http://lammas.org.uk/wp-content/uploads/2013/03/Mainstreaming-the-Alternative.pdf> (Accessed: 12 April 2016).

Kulbicki, L. (2011) Available at: [file:///C:/Users/Leon/Documents/dissertation%20year%203/z\)%20litriture%20for%20disertation/information%20from%20internet/Does_Welsh_National_Planning_Policy_effectively_address_Low_Impact_Development_in_the_open_countryside_Louise_Kulbicki_2011.pdf](file:///C:/Users/Leon/Documents/dissertation%20year%203/z)%20litriture%20for%20disertation/information%20from%20internet/Does_Welsh_National_Planning_Policy_effectively_address_Low_Impact_Development_in_the_open_countryside_Louise_Kulbicki_2011.pdf) (Accessed: 14 April 2016).

LAMMAS LOW IMPACT SETTLEMENT PROJECT (2006) Available at: <http://www.ceredigionlammas.freeola.org/ProposalPembs.pdf> (Accessed: 13 April 2016).

Life, C. (2016) *Who owns Britain: Top UK landowners*. Available at: <http://www.countrylife.co.uk/features/who-owns-britain-top-uk-landowners-20178> (Accessed: 10 April 2016).

van Lohuizen, A. (2016) *Research: Repossession and Eviction Hotspots 2014 - shelter England*. Available at: https://england.shelter.org.uk/professional_resources/policy_and_research/policy_library/policy_library_folder/research_repossession_and_eviction_hotspots_2014 (Accessed: 12 April 2016).

Maxey, L. (2008) *Low impact development: The future in our hands*. Edited by Jenny Pickerill and Larch Maxey. United Kingdom: University of Leicester Department of Geography.

McMillan, K. and Weyers, J. (2011) *How to write dissertations and project reports*. 2nd edn. Harlow, England: Trans-Atlantic Pubns.

Myers, D. (2012) *Construction economics: A new approach*. 3rd edn. London: Taylor & Francis.

Naoum, S.G. (2006) *Dissertation research and writing for construction students*. 2nd edn. Amsterdam: Elsevier Butterworth-Heinemann.

New report seen as a 'game-changer' for future UK food production (2013) Available at: <https://feedingthefutureblog.files.wordpress.com/2013/06/feeding-the-future-press-release1.pdf> (Accessed: 11 April 2016).

Overman, H. (2012) *The UK's Housing Crisis*. Available at: <http://cep.lse.ac.uk/pubs/download/cp382.pdf> (Accessed: 12 April 2016).

Pelsmakers, S. (2014) *The environmental design pocketbook*. United Kingdom: RIBA Enterprises.

Policy response new housing measures 2016 (2016) Available at: <http://pdf.euro.savills.co.uk/uk/residential---other/policy-response-new-housing-measures-2016.pdf> (Accessed: 13 April 2016).

Quirke, H. (2015) *Tinkers Bubble Documentary*. Available at: <https://www.youtube.com/watch?v=FmjsuPCjskc> (Accessed: 16 May 2016).

Rosen, N. (2008) *How to live off-grid: Journey outside the system*. London: Bantam Books (Transworld Publishers a division of the Random House Group).

Ruth+Lythe+for+the+Daily+Mail and Lythe, R. (2013) 'Dirty tricks plague help to buy: How greedy developers are ruthlessly exploiting flagship scheme to help struggling homebuyers', *Mortgages & home*, .

Salsman, R.M. (2000) 'What does competition mean under capitalism?', .

Saunders, A. (2016) 'The UK housing crisis: a disaster of our own making', *Management Today Magazine*, .

Scotland, J. (2012) *English Language Teaching Language Teaching Language Teaching English Language Teaching*, 5(9). doi: 10.5539/elt.v5n9p9.

The Scottish Government (2014) *The land of Scotland and the common good - report of the land reform review group*. Available at: <http://www.gov.scot/Resource/0045/00451087.pdf> (Accessed: 9 April 2016).

Segar, R. (1996) *Holtsfield chalet community on countryfile broadcast 1996*. .

Starting a literature review - university of reading (no date) Available at: <https://www.reading.ac.uk/internal/studyadvice/StudyResources/Essays/startinglitreview.aspx#why> (Accessed: 8 April 2016).

TCPA (2014) *New towns and garden cities lessons for tomorrow creating garden cities and suburbs today*. Available at: http://www.tcpa.org.uk/data/files/TCPA_New_Towns_Study_Stage_1_An_Introduction_EMBA_RGOED.pdf (Accessed: 14 April 2016).

The help to buy equity loan scheme department for communities and local government report by the comptroller and auditor general (2014) Available at: <https://www.nao.org.uk/wp-content/uploads/2015/03/The-Help-to-Buy-equity-loan-scheme.pdf> (Accessed: 13 April 2016).

Thorpe, D. (2015) *The 'One planet' life: A blueprint for low impact development*. 2 Park square, Milton park, Abingdon: ROUTLEDGE.

Land use consultants and positive development trust (2012) *One planet development practice guidance*. Available at: [file:///C:/Users/Leon/Documents/dissertation%20year%203/z\)%20litriture%20for%20disertation/information%20from%20internet/one%20planet%20welsh%20policy%20\(1\).pdf](file:///C:/Users/Leon/Documents/dissertation%20year%203/z)%20litriture%20for%20disertation/information%20from%20internet/one%20planet%20welsh%20policy%20(1).pdf) (Accessed: 14 April 2016).

Venezia, J. (2013) *Off grid: A guide to living free*. United States: Createspace.

Vidal, J. (2016) 'Wettest ever December broke UK river records, hydrologists confirm', *The Guardian*, .

Welsh Government (2012) ✓ *CertifiedPDF® Welsh assembly government One wales: One planet the sustainable development scheme of the Welsh assembly government*. Available at: <http://gov.wales/docs/desh/publications/090521susdev1wales1planeten.pdf> (Accessed: 11 April 2016).

Wightman, A. (2015) *The future of land reform in Scotland*. Available at: http://www.andywightman.com/briefings/docs/briefing_7.pdf (Accessed: 9 April 2016).

Wimbush, P. (2012) *The birth of an Ecovillage*. .

Winstanley, C. (2009) *Writing a Dissertation for dummies, UK edition*. 4th edn. United Kingdom: Wiley, John & Sons.

Wrench, T. (2015) *A simple roundhouse manual*. United States: Createspace Independent Publishing Platform.

Written, Eagles, A., Wilson, C., Johnson, W., Rahman, K., Smith, B. and Davies, M. (2008) *CRACKING THE CODE HOW TO ACHIEVE CODE LEVEL THREE AND ABOVE how to*

achieve code level Three and above CRACKING THE CODE. Available at:
<https://www.rbkc.gov.uk/pdf/66%20Cracking%20the%20Code%20Sustainable%20Homes%20April%202008.pdf> (Accessed: 14 April 2016).

Citations, Quotes & Annotations

Segar, R. (1996) *Holtsfield chalet community on countryfile broadcast 1996*. "Video" (Segar, 1996)