

Creating a stink

Controversies over intensive poultry unit
developments in Herefordshire and Shropshire:
contested values, knowledge and experience

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Summary

This research explores the contested relations triggered by planning applications for intensive poultry units (IPUs) in Herefordshire and Shropshire. Using a threefold theoretical approach inspired by Actor Network Theory, Pragmatism and Phenomenology the research traces the values and concerns of the polarised networks of actors in both the agricultural sector and the new public which emerged to object to applications. I explore the knowledge constructed and deployed in the planning arena and the disconnects between scientific reports into predicted odour, noise and visual impacts and the lay knowledge and experiences of people in IPU localities. Tracing the relations within and between the groups of human and non-human actors reveals multiple uncertainties over IPU impacts, particularly cumulative water and air pollution and how tourism may be affected.

Documentary analysis, interviews and meeting observations reveal how planning authorities have struggled to handle the increasing contestation within a policy vacuum and weakened institutional context. The longstanding agricultural hegemony is found to normalise intensive farming and colonise competing sectors. Objectors increasingly lack trust in technocratic planning processes and politicised decision-making. Mobilising ethnographic methods has enabled an exploration of the multi-sensory, material and emotional responses of people to industrial premises in rural settings and emergent associated surveillance and exclusion. The competing framings and rationalities at play in the situation are identified as objectors have begun to challenge scientised evidence and hold authorities to account.

The research contributes new understandings of the little-researched UK intensive livestock production sector: how power relations have been enacted and begun to shift and the gradual slow violence and ecocide impacting multiple rural localities. I identify how governance structures could respond more effectively through acknowledging uncertainties, incorporating multiple perspectives and experiences and taking a more open and strategic approach to intensive livestock production.

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Finally, thanks to my family for all their support through the process and, in particular, to Scott for his unfailing encouragement and patience in accompanying and sustaining me on this journey.

'It's time to snatch our futures back from the 'experts'. Time to ask, in ordinary language, the public question and to demand, in ordinary language, the public answer.'

Arundhati Roy (2019:119)

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Glossary

AD	Anaerobic Digestor/Digestion
AMR	Anti-microbial resistance
ANT	Actor Network Theory
AONB	Area of Outstanding Natural Beauty
BAT	Best Available Technologies
BSE	Bovine Spongiform Encephalitis
CAFO	Confined Animal Feeding Operation
CIWF	Compassion in World Farming
CLA	Country Land and Business Association (previously Country Landowners' Association)
CPRE	Campaign to Protect Rural England
CPRW	Campaign to Protect Rural Wales
CSF	Catchment Sensitive Farming
DEFRA	Department for the Environment, Food and Rural Affairs
EA	Environment Agency
FAO	UN Food and Agriculture Organisation
FMD	Foot and Mouth Disease
GM	Genetically Modified
HPA	Health Protection Agency (now Public Health England/Wales)
ILU	Intensive Livestock Unit
IPU	Intensive Poultry Unit
JR	Judicial Review
LEP	Local Enterprise Partnership
LVIA	Landscape and Visual Impact Assessment
MAFF	Ministry of Agriculture, Fisheries and Food (now DEFRA)

MHCLG	Ministry of Housing, Communities and Local Government
NDP	Neighbourhood Development Plan
NE	Natural England
NFU	National Farmers Union
NGO	Non-Governmental Organisation
NMB	Nutrient Management Board
NMP	Nutrient Management Plan
NPPF	National Planning Policy Framework
NRW	Natural Resources Wales
NSIP	Nationally Significant Infrastructure Project
PM	Particulate Matter
SAC	Special Area of Conservation (EU Habitats Directive designation)
SPG	Supplementary Planning Guidance
SSSI	Site of Special Scientific Interest
WUF	Wye and Usk Foundation

Chapter 1 Introduction

1.1 A minor local controversy in peripheral rural England?

'Stench from broiler units is inescapable'

This headline in the Hereford Times (13.10.15) is from a letter sent in by a local resident living opposite a newly opened poultry unit at Penrhos, near Kington, Herefordshire. There had already been eight letters and articles in the paper through the course of 2014 and early 2015 about this contentious planning application. What had prompted this outrage? Why were local people so concerned?

There has been commercial chicken farming in Herefordshire since the 1950s. Lyonshall parish, where the Penrhos proposal was located (population 750), already had eight poultry farms, with a total of 54 chicken 'sheds', mostly supplying the Cargill processing factory in Hereford 17 miles away. The parish council and local people had previously been supportive of farmers. So what had changed?

This was not an isolated case. Four planning applications for intensive poultry unit (IPU) developments around that time had collectively generated over 40 letters and articles in the Hereford Times and four in neighbouring Shropshire generated similar controversy plus hundreds of objections to the planning authorities. Objections to the Penrhos case included concerns about the visual impacts of the IPU:

*'a large alien complex in a hitherto green field in open countryside.
(...) Industrial units that have no reason to be on farmland are an
unwelcome intrusion.'* (CPRE¹ 9.7.14).

Objectors were also concerned about smells, noise, dust and air pollution the IPU would generate and the impacts of heavy goods traffic that would serve it. There were concerns about the IPU being less than 300m from several houses, its sheer scale and the proliferation of IPUs locally. Some objectors were concerned about

¹ Campaign to Protect Rural England

the lack of sustainability of the poultry industry and several were worried about impacts on the local tourism industry:

'I understand that farmers have to make a living but does it have to be at such a cost to the rest of us? If this spread of chicken houses isn't curtailed we won't be living in a place people want to visit anymore but an intensively farmed wilderness.' (Resident 21.1.14).

In total, 84 objections were lodged against the planning application. However, there were also 79 submissions in support. This was a new phenomenon: rarely before had so many people mobilised to support an agricultural planning application. Supporters argued the development would bring economic benefits to the applicant's farm and local suppliers. Many were nearby farmers and tradespeople:

'people wishing to make a sustainable living from the countryside and employ local people deserve praise. Not only will this site produce local food with low food miles it will also have an economic effect on support businesses in the area.' (Farmer 1.7.14).

Supporters contrasted the local farming community with references to people moving in from elsewhere:

'The countryside is not a playground for people to come and retire to. It needs to generate incomes for those of us who are of working age. Modern farming is a fact of life - we have to embrace it (...) however unpleasant it may seem' (Resident 6.7.14).

There were multiple references to the UK's food security, how affordable and healthy chicken is and that it is better to raise chicken locally than import it. As levels of contestation over the application increased, more consultants reports were submitted supporting both sides of the argument. Statutory consultees submitted comments on their areas of expertise including ecology, heritage conservation, landscape, traffic, drainage and flooding. The Environment Agency (EA) issued an environmental permit and said no assessment for ammonia emissions was required. Natural England (NE) made no objections whilst pointing out the site was close to a stream in the River Wye catchment, a Special Area of Conservation (SAC)², plus six Sites of Special Scientific Interest (SSSIs). Initially planning officers approved the application under delegated powers, without taking the proposals to the planning committee. Objectors won a judicial review of that process and the case went to committee for redetermination and was granted permission. The presumption in favour of sustainable development in the

² SAC is the highest European designation under the Habitats Directive

National Planning Policy Framework was said to outweigh other concerns. A list of 15 conditions was attached, relating to issues including the colour of the sheds, external lighting and planting.

The unit at Penrhos was built in 2015 (Figures 1.1 and 1.2). This took the number of chickens in the parish to about 1.7 million or 2,250 per inhabitant. Lyonshall parish is said to have the highest concentration of chicken sheds in Europe³. In 2018 an application was submitted for six sheds housing 360,000 birds on a site within 1km of Penrhos⁴.



Figure 1.1 Penrhos IPU near Kington, Herefordshire 2018



Figure 1.2 Before and after images of the Penrhos IPU site (CPRE Herefordshire)

³ I heard several locals say this along with an environmental officer.

⁴ It remains undetermined in mid September 2020

This case demonstrates how a planning application that would previously have been approved by the local authority without much objection, suddenly became controversial and met serious resistance. Council procedures were disputed, the planning documentation and scientific modelling were challenged, tourism arguments were raised for the first time, publicity was generated and both objector and supporter campaigns emerged. The case marked the point when farmers seeking to build IPUs in Herefordshire realised that circumstances had shifted, the stakes had been raised, awareness had widened and opposition was mobilising.

This research explores how such a situation emerged, how planning applications for IPUs across Herefordshire and Shropshire became so controversial. I explore the people, organisations and other actors that were drawn into the contestations and the information and knowledge they used in their arguments. Planning decisions are based on ‘evidence’ produced by each ‘side’ in what can be a very polarised situation; the contested knowledge is key. But this situation is about much more than which side wins each planning decision. As seen in the case above, the controversy opens up a wide range of issues. There are multiple potential impacts to consider, but also contested views about farming and the rural economy. These controversies reveal clashes between competing rural value systems; differing views about what the countryside is for and how rural space should be governed.

1.2 The poultry industry: global and national context

The main reason for the increase in IPU planning applications is that chicken and egg consumption has been growing since the 1950s; as part of the ‘*meatification*’ of diets (Weis 2007). UN Food and Agriculture Organisation (FAO 2020) figures for global production of poultry meat show an increase from 9m to 122m tonnes between 1961 and 2017, and an increase in egg production from 15m to 87m tonnes. Technological innovations such as refrigerated transport, frozen chicken and air chill technology facilitated this growth (Dixon 2002). Chicken became more popular than other meat in most countries around the turn of the century. It is seen as healthy, easy and cheap, with few cultural taboos. Figure 1.3 illustrates the long term trends using US data, demonstrating how chicken has taken over from red meats. Lymbery (2017) suggested there has been a ‘*chickenisation of the planet*’.

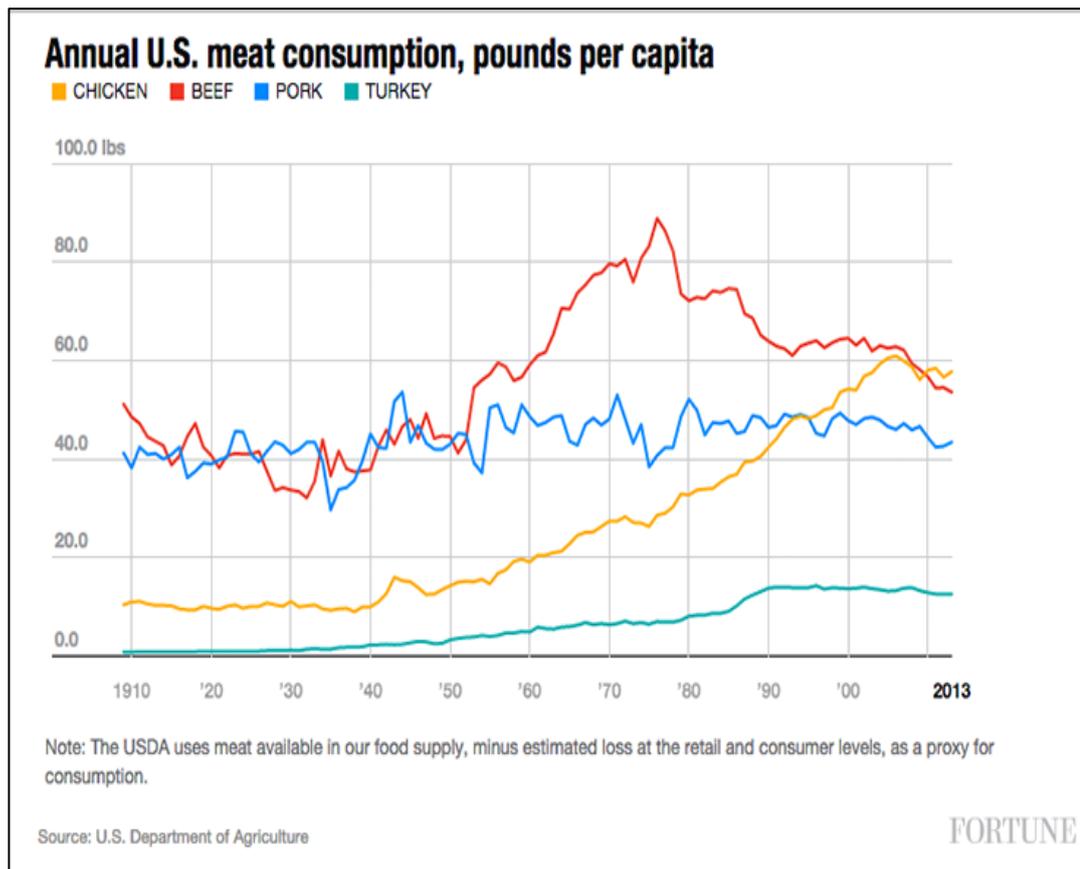


Figure 1.3 United States meat consumption 1910-2013 (Haspel 2015)

Chicken now comprises 42% of meat consumption in the UK; the amount eaten per head has increased from 30kg in 2000 to 36kg in 2017 (AHDB 2018). There are 3,651 ‘chicken shop’ restaurants in the UK with sales of £2.3 billion in 2019, in addition to the £1.6 billion spent on chicken in supermarkets (Hancock 2020). Poultry industry publications predict demand will continue growing, at least in the short term.

The UK is 75% self-sufficient in chicken production (AHDB 2018). Production has increased by a third since 2000 (Figure 1.4) and reached 1 billion chickens a year in 2017. Globally the figure increased from 40 to 68 billion chickens a year between 2000 and 2018 (FAO 2020).

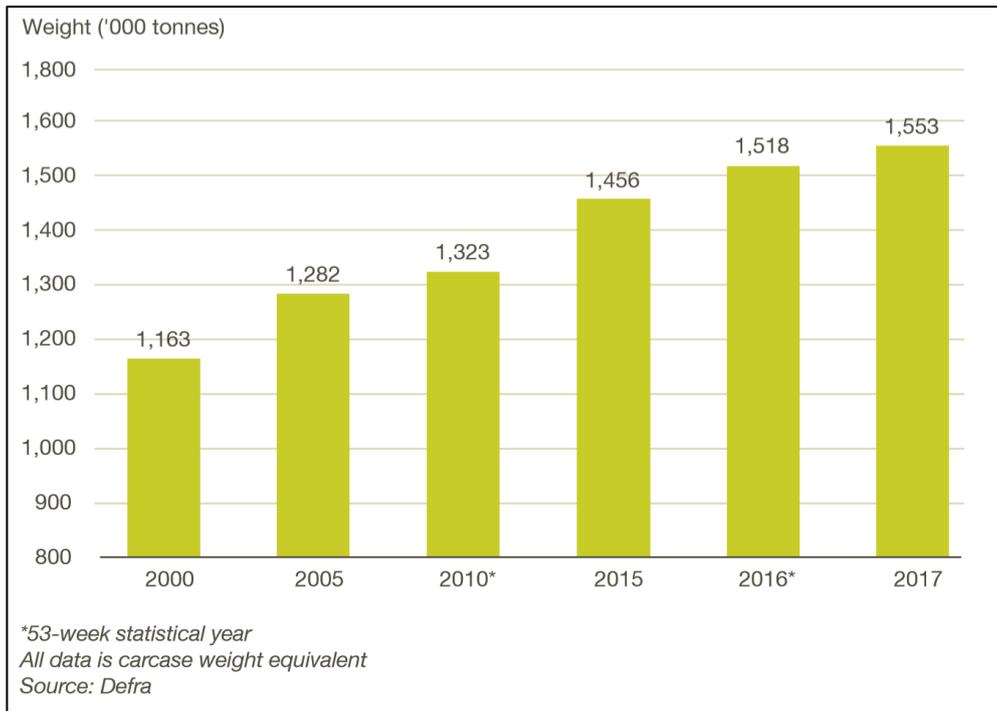


Figure 1.4 UK broiler chicken production (AHDB, 2018:8)

‘Conventional’ IPU units produce 96% of UK broiler (meat) chickens. Broilers have been bred to grow larger, mature faster, using less feed (Figure 1.5) and are still juveniles when slaughtered at 35-45 days old. A small proportion are raised as ‘slow grow’ or organic birds.

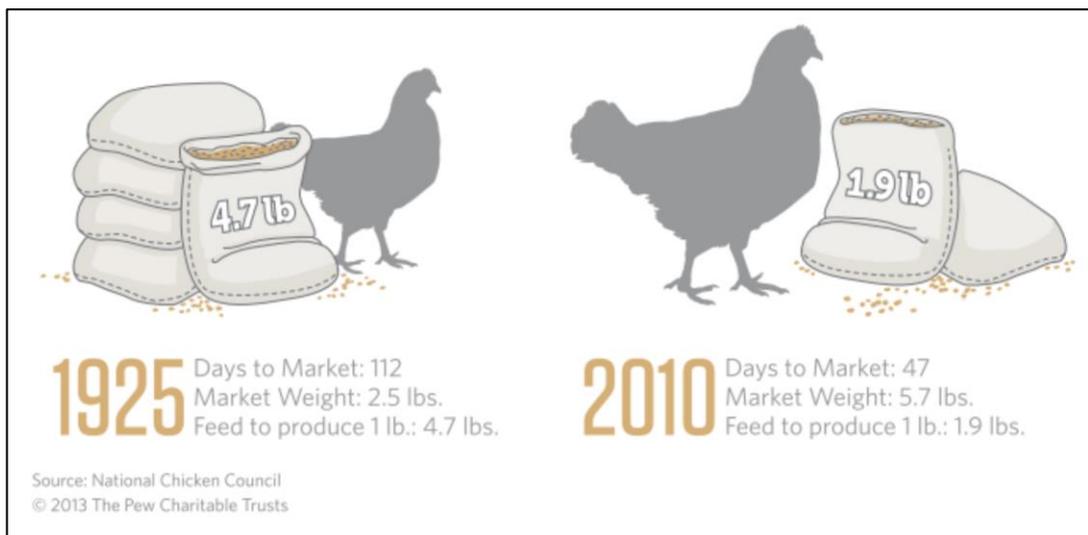


Figure 1.5 United States broiler size and food consumption 1925-2010 (PEW 2013:3)

In order to supply the increasing demand poultry farms have transformed in nature, size and operation. UK broiler sheds housed an average of 25,000 birds in the 1980s and 90s, 40,000 during the 2000s and now reach capacities of 50-55,000 birds (Figure 1.6).



Figure 1.6 Inside IPU shed at Penrhos (Wasley et al. 2017)

Some UK farms house 500-750,000 birds at a time and most raise eight ‘crops’ a year. The whole process is mechanised and monitored by computer, from egg hatching through to slaughter and packaging:

‘We are about to enter an era when the first human contact with a chicken grown for food may be the moment when it enters the mouth of the consumer.’ (Ellis 2008:xi).

UK egg production also continues to grow, reaching over 10 billion eggs a year in 2017, making the country 85% self-sufficient (AHDB 2018). Egg production units usually house 16,000⁵ free-range hens per shed or hundreds of thousands in conventional ‘colony’ systems⁶.

The poultry industry is vertically integrated with processor companies owning hatcheries, some IPUs, transportation, feed mills, and slaughter and processing plants producing shelf-ready products for supermarkets.

‘From chicken breeding to grocery store packaging, the 21st-century broiler chicken business is possibly the most industrialized sector in livestock agriculture.’ (PEW 2013:1).

⁵ Or 32,000 in multi-tier units

⁶ See Appendix 1 for more background detail on the UK poultry industry.

Processing companies contract with farmers to supply chickens but the birds remain in the company's ownership throughout. There are three main UK poultry processing companies; 2Sisters, Moy Park and Avara (formed from the merger of Faccenda and Cargill in 2018), collectively processing 16-17 million chickens a week.

The other reason for the escalating planning applications in Herefordshire and Shropshire becomes apparent when the spatial distribution of broiler production across the UK is examined. Compassion in World Farming (CIWF) compiled figures from environmental permits required by poultry farms with over 40,000 birds (Figures 1.7 and 1.8).

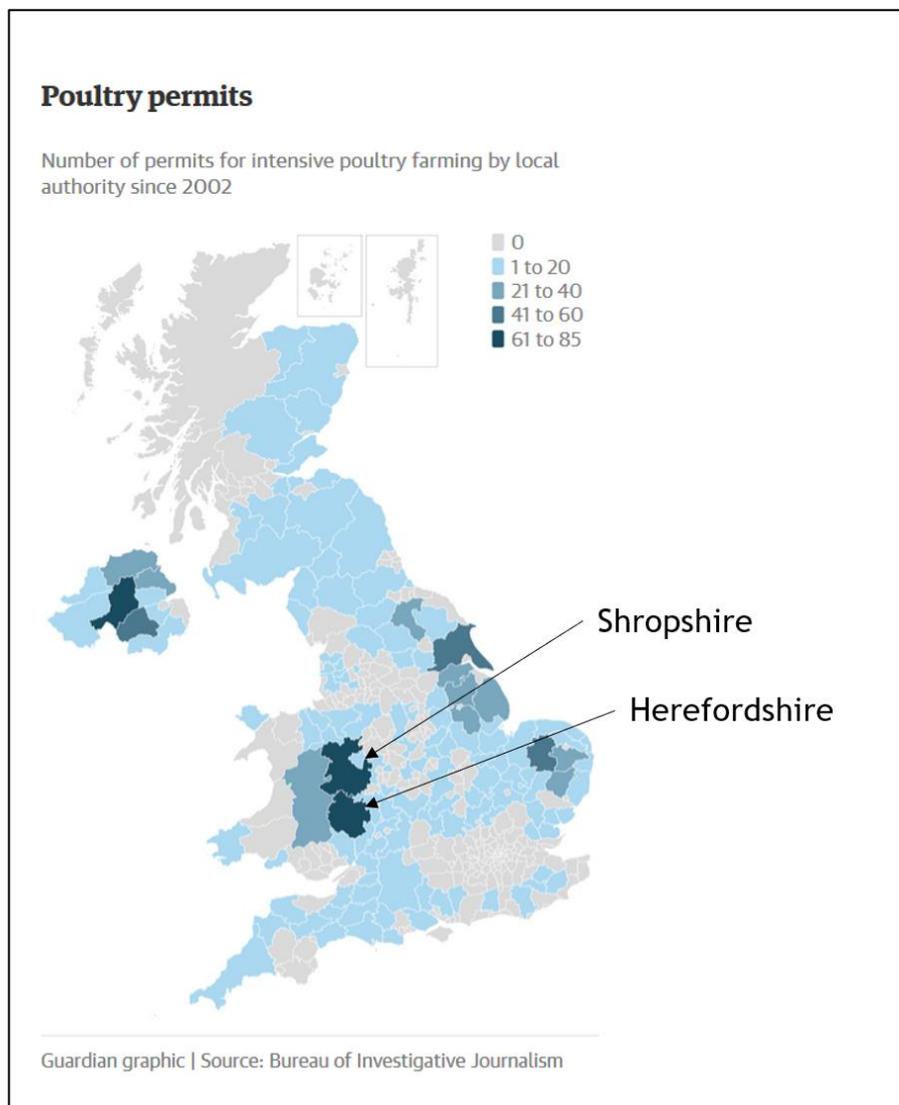


Figure 1.7 UK poultry unit permits by county (Wasley et al. 2017)⁷

⁷ Bureau of Investigative Journalism and CIWF data published in The Guardian 17.7.17

Herefordshire and Shropshire are the two top counties in the country, with 17 and 13 million broilers respectively. The industry is extremely spatially concentrated. Controversy has emerged in these locations with high concentrations of IPU's, while awareness elsewhere remains extremely low.

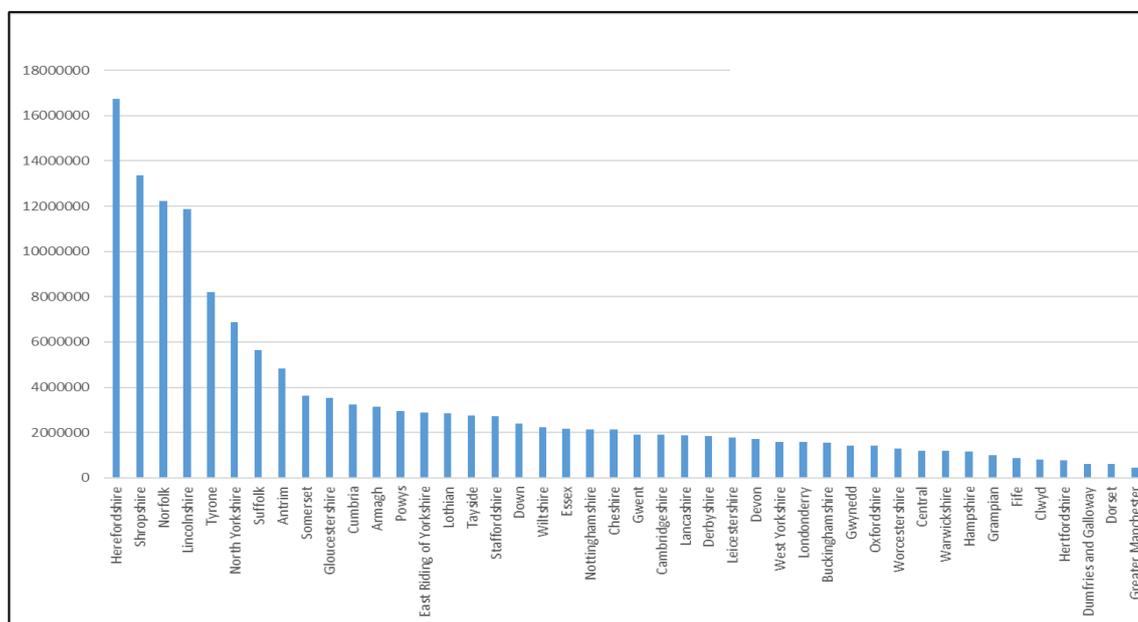


Figure 1.8 Broiler chicken numbers per UK county (CIWF 2017)⁸

Awareness is so low that almost no academic research has been done into contestations around UK poultry unit developments or indeed other intensive livestock units. This is despite scientists raising awareness of global environmental impacts of livestock agribusiness some years ago. The industry is a major contributor to global land degradation, climate change, air pollution, water shortages, water pollution and loss of biodiversity (Steinfeld et al. 2006). This FAO report also identified that 33% of arable land globally is used for feedcrop production. Debates about UK intensive livestock farming are generally located within wider discussions on how food and farming can transition to a post-carbon world. Marsden characterised the situation as one of ‘*contested sustainabilities*’:

‘the global ecological and economic externalities have come home to roost and as such we are likely to witness a redefinition of the

⁸ Graph created using CIWF data on environmental permits for IPU's with over 40,000 birds. This represents the number of birds at any one time. My own estimates are higher: chapter 5. Annual figures for broilers are approximately eight times these numbers as eight crops are raised each year.

countryside as a contested way of trying to cope and resolve some of these new global challenges.’ (Marsden 2017:21).

The current strategy of ‘sustainable intensification’ promoted by the UK Government and farming bodies leans heavily on science and technology-led routes to further intensify production whilst attempting to reduce environmental externalities. Marsden identified a policy void within which environmental actors try to fight further development while government puts the onus for addressing environmental issues onto private sector developers.

1.3 The research

This research, focusing on IPUs in two English counties, responds to a series of important issues. These include questions around longstanding tensions in rural areas (e.g. between production and consumption, farming interests and incomers). Other questions relate to more recent uncertainties about the impacts of new agricultural technologies and intensification, such as air pollution, bird flu or anti-microbial resistance. But there are also fundamental questions around what forms of agriculture, planning and environmental governance will be needed to ensure a sustainable food supply, healthy environment and resilient rural community. This type of controversy opens up to scrutiny multiple struggles over values, discourses and knowledge (Callon *et al.* 2001). As more actors and information become involved there is more clarity about what is known and areas of uncertainty or ignorance. Considering the differing perspectives and interests of the actors involved helps illuminate the issues and dynamics. It is more likely to lead to better understandings and responses. It is also more democratic.

Framed by a concern over how rural localities are being changed by IPU development and the implications for rural communities and actors, the questions this research addresses are:

1. How have controversies about Intensive Poultry Unit developments in Herefordshire and Shropshire emerged?

This includes identifying the actors involved and how they have been drawn into the contestations

2. How have values, knowledge and experience been contested during the planning process?

This three-part question includes how actors’ values and concerns influence action and how values are articulated and contested. It asks how

knowledge is contested and what knowledge is missing from the debate. Then it explores how IPU are experienced once built to test whether scientific modelling captures the reality and materiality of IPU and whether additional knowledge might be harnessed to help make decisions in future.

3. How is power enacted and performed by the actors involved in IPU contestations?

This question brings multiple threads of the research together to explore the shifting relations between the heterogenous actors, including non-human actors.

The thesis title *'Creating a stink'* relates to several dimensions of the topic and groups of actors drawn into the controversies. There are farmers creating a literal stink from their IPU affecting their neighbouring community. The smells come from chicken shed ventilation systems and the ammonia emitted. Unpleasant odours are also widespread when chicken manure is cleaned out between 'crops' and when manure is spread on fields as fertiliser. The smell is an indicator of the nitrates and phosphates in the manure. Impacts from increasing volumes of these 'nutrients' on ecosystems and river water quality are a major concern of local people and government scientists. But this research involves other 'stinks'. There are the objectors creating a stink or making an issue out of the potential impacts of a planning application. There is also the whiff of suspicion or possible stink of corruption around some planning processes and associated politics. As one objector told me:

'The whole thing stinks from beginning to end.'

Finally, the actors who play the least active part in this story; the chickens themselves, have some role in creating the stink. Chickens are largely invisible throughout the process and indeed throughout most of this research. The malodourous sheds, pungent manure piles, the wafts from passing chicken lorries and the reek of the processing factory in Hereford are reminders of their presence. Smell and other sensory experiences weave their way throughout this research.

In chapters 2 and 3 I conceptualise the research in more detail, presenting my theoretical approach and reviewing relevant literature, before showing how this thinking has flowed into the chosen research methods in chapter 4. Chapter 5 explains the situation in more detail: the historical context and my data on the growth of the poultry industry across Herefordshire and Shropshire. It also introduces the instigators of the contested situations: the farmers and the farming/landowning sector. The following four chapters (6-9) explore and discuss three key aspects: values, knowledge and experience, along with the contested nature of the planning processes. All aspects are contested: the values held by the networks of actors; the knowledge presented or omitted from the planning process; and the experiences of the IPU once built. Chapter 10 discusses three broad sets of findings from the research. It draws together the threads relating to power relations, takes a wider perspective of the whole situation and how rural localities are changed by IPUs and considers the implications for rural governance and planning. The conclusions complete the thesis, clarifying the contributions of the research and potential future research agendas.

Chapter 2 Theoretical Approach

This chapter provides a theoretical framework assisting the subsequent research analysis, first by considering the qualities of controversy and contestation and why they make a good starting point for exploring the complex situation around IPU developments. The chapter then discusses risk and uncertainty; the factors lying beneath much of the controversy and concerns of the growing public of people drawn into the contestations. I set out the blended theoretical approach I have chosen and discuss the literature that has helped me conceptualise the multiple issues involved.

2.1 Controversy and contestation

Controversy first drew my attention to issues around IPUs. Local newspapers seemed full of concerns from increasing numbers of people about the potential impacts and dangers. As arguments over the benefits and negative impacts of IPUs were aired levels of contestation escalated and more people became involved.

The words controversy and contestation are in many ways equivalent. Both words mean dispute, disagreement and argument and each word is usually included in the definition of the other. However, controversy suggests that a conflict is made public somehow, whereas contestation can mean '*calling or taking to witness*' (*Shorter Oxford English Dictionary* 1973). Several authors use a similar phrase about protestors 'bearing witness' to something happening. Reed (2008), for example, used it in relation to the roads protestors of the 1990s: protestors may know they have little chance of winning the dispute but feel it is important not to let a development go unchallenged. This again implies the issue is being made public and given more scrutiny; developers are challenged and better held to account. In practice, controversy is the more commonly used word. However, contestation emphasises disagreement and argument between actors and feels particularly appropriate in a polarised conflict. In the academic literature both words are used. I plan to follow suit, using controversy when stressing the public nature of the disagreement and contestation when its disputatious nature is most significant.

Controversy and contestation open up complicated issues to scrutiny and questioning. Callon *et al.* (2001) stated that controversy leads to more debate,

amongst more people and wider, better consideration of all aspects of a problem. Controversy can help identify what is known and what is not known, identifying the 'zones of ignorance or uncertainty': 'controversy allows an inventory to be made of the different dimensions of what is at stake in a project.' (Callon et al. 2001:30).

Decision makers may think they have all the relevant information, but a controversy is likely to identify new perspectives or knowledge. Controversies draw a wider range of actors into a situation, including lay people who may have felt peripheral to the issues. The networks of actors become more visible. Controversies enable exploration of what Callon *et al.* called 'overflows' or unexpected consequences generated by scientific or technological development such as environmental pollution or health risks. They referred to some problems being identified as a monster or 'monstrous phenomenon' and people's involvement in the controversy is a plea to have the problem taken seriously. They acknowledged that resident mobilisation triggered by proposals for developments such as motorways, high speed trains, airports or storage of dangerous waste is not simply about the fear of pollution but can also be explained by people's relationships with the land, area, history and its elites. These are themes I explore in this research. Callon *et al.* tended to focus on overflows from public sector projects such as major infrastructure investments, but they also acknowledged overflows or 'externalities' from business activities which, as with IPUs, may have negative effects on other businesses, a local community or wider society. The knock-on effects may have been unforeseen or not considered properly by regulatory authorities and there may be no mechanism for compensation.

Essentially '*controversies enrich democracy*' (Callon *et al.* 2001:28) by helping explore relations between multiple actors in a situation, allowing political relations and the different framings of the arguments to be investigated, as opposed to closing down discussion and containing issues (Donaldson *et al.* 2013). This is how I use the IPU controversies; to explore how they have come to be, all those involved and the multiple issues and framings.

Callon *et al.* (2001) saw the planning system as a form of 'delegative democracy' which includes two breaks or divides in how such democracy addresses controversies: delegation to expert scientists and delegation to politicians. There is a gulf between an individual and their political spokesperson who has other interests and party politics to consider. People are thus doubly removed from the

debate as both a lay person and an ordinary citizen. Callon proposed 'dialogic democracy' instead: using mechanisms such as hybrid forums to involve people more effectively in the controversies that affect them.

2.2 Risk and uncertainty

Controversy is fuelled by risk and uncertainty and IPU contestations involve both. To focus first on risk, IPU are exactly the type of risk that Beck identified as resulting from modern industrial society; what he termed 'the risk society' (Beck 1986). Beck argued that the drive to increase productivity leads to increased risks, but these are often overlooked. He identified how risky business operations are often located in less developed countries and regions: '*underdeveloped provincial holes' enjoy special popularity*' (p41). Beck described how agriculture had become '*a distribution point for the toxins that threaten the lives of animals, plants and people*' (p79). He also highlighted how contestation arises: '*As the risk society develops so does the antagonism between those afflicted by risks and those who profit from them.*' (p46). As local residents become anxious over the possible risks they will be subjected to, they may develop solidarity and become a political force to protest. Alaimo (2016) terms this a sense of 'exposure', a feeling of vulnerability and anxiety, which may trigger involvement in objection and protest. Beck identified how access to the media and PR become significant when controversies emerge, as those accused of producing the risk defend themselves.

Beck described the example of diffuse agricultural pollution, and difficulties of attributing responsibility, as a typical failure in techno-scientific rationality. The complex regulatory regime and politics means individual farm businesses tend to avoid sanction, amidst a general complicity that it is simply the way the system works. Pollution sources are often difficult to pinpoint and quantify scientifically making it challenging to apply 'the polluter pays' principle. If penalties are not applied, pollution is likely to continue. Science also tends to focus on averages; however, in practice it is the extreme cases of pollution which affect people the most, even if only occasionally. Beck critiqued the concept of acceptable levels of pollution, likening it to a blank cheque to poison nature 'a bit':

'the question of whether plants, animals and people can withstand a large or a small bit of toxin, and how large a bit, and what 'withstand' means in this context - such are the delightful horror questions (...) at stake' (Beck 1986:64).

He pointed out the irony that laboratory experiments on animals are carefully controlled and documented whereas reactions in humans from pollution are not noted unless an individual can prove it was caused by toxin. In effect industrial society is experimenting on the human population, without their consent, in an uncontrolled environment, and with an '*inverted burden of proof, if they should happen to detect something*' (p69). If risks are not recognised scientifically, they are not regarded as existing legally, medically, technologically or socially and they are thus not prevented, treated or compensated. In a planning context the risk would be ignored and people's concerns treated as irrational. Beck argued that there has been a loss of 'social thinking': industrial pollution and loss of nature are viewed in a technical and economic way and impacts on health and quality of life have been relatively ignored.

Callon *et al.* (2001) didn't accept the inevitability of ordinary citizens being doomed to exclusion by politicians and scientists. They proposed the use of 'hybrid forums' which include lay people in discussions alongside scientists. Such forums are public arenas where different actors come together to debate complex issues. Scientists would be encouraged to leave the seclusion of their laboratories so their explanations can be scrutinised. The process helps clarify what is known, what questions still need answering and what additional research is required to reduce the uncertainty. Lay people can help frame problems and can be effective researchers themselves.

Callon *et al.* distinguished between risk and uncertainty, preferring to focus on the latter. With risk the issues may be known and the focus is on calculating the risk of them happening. Uncertainty is when there is 'plausible potential danger': there may be partial evidence but still considerable debate about the extent of the issues, impacts and what potential answers may be, especially in relation to health, food and environmental impacts. Arguments over IPU involve many risks and also large areas of uncertainty. The 2006 FAO report (Steinfeld *et al.*) listed many contamination risks from livestock units⁹ (see also Gunderson 2015). To take one example there is a risk of an outbreak of avian influenza amongst poultry in an IPU (Davis 2005). Farmers have risk prevention procedures such as bio-security

⁹ These include; camphylobacter, e-coli, salmonella, clostridium botulinum, foot and mouth, bird flu, plus various parasitic and microsporidia diseases. It also lists substances which can be found in the environment from drug and feed such as antibiotics and anti parasitic substances plus heavy metals such as copper, zinc, selenium, cobalt, arsenic, iron, manganese, cadmium and selenium. As animals only absorb 5-15% of the metals they ingest, much is still present in manure and returned to the environment.

measures and mitigation plans and/or insurance. However, there is considerable uncertainty about how avian flu could spread to other farms, whether it could mutate and infect the human population and if it were to do so, what the impacts might be. The health impacts from ammonia emissions or anti-microbial resistance (AMR) in the local environment are similar uncertainties (Wing and Wolf 2000; Douglas *et al.* 2018). These risks and uncertainties contribute to consumers experiencing an increasing range of anxieties about their food, its qualities and impacts (Murdoch 2006a; Jackson 2010). The blame for such risks is often misattributed away from intensive livestock farming to protect the industry. For example, Blay-Palmer (2008) found that during the salmonella in eggs outbreak of the late 1980s the intensive egg industry was able to translate the risk and direct most blame at free-range producers to limit damage:

'narratives and realities are (re)written to serve the goals of the industrial food system. (...) In the end it seems that networks of food are mobilized to preserve networks of capital.' (Blay-Palmer 2008:89).

2.3 Concerns and publics

New technologies, such as IPU, assemble 'publics' as people come together around specific issues and a sense of shared concern. Harvey stated '*A controversy assembles publics who care.*' (2015:177). The role of a researcher is thus to uncover the actors' interests, what they care about and what futures they are looking to. This tallies with Latour's recommendation to focus on 'matters of concern' rather than 'matters of fact' (Latour 2005). He noted that concerns may be highly uncertain and supposed 'facts' (about issues such as BSE¹⁰ or GM¹¹ crops) may be disputed by the actors. He said a better understanding will be reached by focusing on people's interpretations of the situation and potential dangers, how actors are identified into certain groupings and how actions play out in reality. Latour too suggested '*feeding off controversies*' (p52) and watching what happens rather than making assumptions about group interests or individual actions. Puig de la Bellacasa (2011) argued that cares should be added to concerns. She stressed the differences between the statements: '*I am concerned*' and '*I care*'.

'The first denotes worry and thoughtfulness about an issue as well as the fact of belonging to those 'affected' by it; the second adds a

¹⁰ Bovine Spongiform Encephalitis or 'mad cow disease'. The BSE outbreak in the UK started in the late 1980s running into the early-mid 1990s.

¹¹ Genetically Modified

strong sense of attachment and commitment to something.’ (Puig de la Bellacasa 2011:89)

To care has stronger ethical and affective qualities. It can also connote worry for others, perhaps those who may be at risk of harm but who are less able to voice their concerns, including non-humans.

Marres (2005a) argued that the complexity of issues such as the impacts of modern technological developments sparks a new public into being and motivates concerned people to get involved in political processes, such as planning applications. Drawing on the debate between Lippmann and Dewey in the 1920s, she discussed how issues which have potentially widespread harmful effects are exactly those that need to be democratised further. Dewey and Lippmann both argued against relying on expert scientists to guide decisions through increasingly technical and voluminous information. The public needs to be involved in decision-making over the most challenging controversies:

*“Where the facts are most obscure, where precedents are lacking, where novelty and confusion pervade everything, the public in all its unfitness is compelled to make its most important decisions.”
(Lippmann 1927:121 quoted in Marres 2005:45).*

Marres (2007) also described the pragmatist Dewey’s views that as science and technology progressed there should be more public involvement in politics around such issues, particularly where institutions struggle to address public concerns or when issues are likely to transcend procedural settings. She argued the need to democratise the process of framing the issues so that the public’s concerns are aired. Researchers should focus on the effectiveness of participation processes as well as how the issues are defined and articulated. They should then follow the trajectory of the issue and how it is handled through the planning process (Leino and Laine 2011). Reynolds (2013) urged that attention be paid to how these ‘issue publics’ generate their own specific knowledge, counter-expertise and situated insights; what he called their ‘*lay expertise*’ (p456).

The question then raised is whether the new public is heard; whether the authorities listen with an open mind and are amenable to considering their perspectives and knowledge. Wynne (2016:115) was pessimistic, blaming the ‘*deaf machinery*’ of contemporary, science-focused, institutional governance cultures. He said risk assessments tend to suggest only minor uncertainties around one or two variables, denying much wider uncertainties. Citizens mobilising against

uncertain new technology have been pilloried and public engagement undermined which may silence dissenting voices.

Welsh and Wynne (2013) traced how institutional authorities and science have misrepresented publics. During the 1950-60s (and continuing) the public were portrayed as passively acquiescent to scientific advances, as perhaps today the fourth agricultural revolution is projected as obviously a good thing to be welcomed by all (Barrett and Rose 2020). The public is viewed through a neoliberal lens as little more than consumers. The 1990s onwards saw publics portrayed as incipient threats to scientific progress; irrationally resistant to innovation and economic competitiveness. This may be how many view the IPU protesters. Welsh and Wynne's third modality of publics from 2000 onwards is of a politicised public which needs surveillance and policing; such as GM or climate change protestors. While IPU protests may not yet be seen as threats to social order, arguments around food security and biosecurity could be raised to position a concerned public as such a threat (Lang 2020). Objectors may pose questions that authorities want to avoid, and in return objectors may be cast as the threat or risk, rather than the technology about which they are objecting. This research explores how the new IPU objector publics make their case, how they and their arguments are portrayed and whether they are heard.

2.4 Studying hybrid rural relations

Since the 1990s geographers have found relational approaches useful in understanding the heterogeneous interactions driving change in the countryside. Many have drawn on the poststructuralist work of Callon, Latour and Law to explore the situations and actors involved. Murdoch and Marsden (1995) analysed a planning battle over a proposed quarry in Buckinghamshire. Woods (1998) discussed the controversy over stag hunting on public land in Somerset. Murdoch (2003) used the example of the 2001 foot and mouth disease (FMD) outbreak in the UK to demonstrate how unexpected consequences can be triggered by hybrid problems (see also Donaldson *et al.* 2002; Law and Singleton 2014). Controversy over agricultural pollution from dairy farms was studied by Lowe *et al.* (1997) in Devon and again by Diaz *et al.* (2013) in Brittany. My research looked at similar situations, involving polarised arguments over potentially unwelcome consequences.

Post-structuralist geography urges researchers to consider spaces as hybrid, open and interconnected; cross-cut by multiple processes, practices and identities. It is useful to focus on how people have conflicting understandings or readings of space and how some actors will try to dominate or resist. The countryside is also more than human (Whatmore 2002); it is co-constructed by humans and non-humans.

Callon (1984) first set out a new approach of a 'sociology of translation', which became known as Actor Network Theory (ANT). He outlined how power relations should be studied using an impartial, symmetrical approach to all (social and natural) actors to explain the often conflicting viewpoints. The mechanism of translation is how the social and natural worlds take form and how some entities control others. To understand the power relationships between actors Callon urged researchers to describe how actors are '*defined, associated and simultaneously obliged to remain faithful to their alliances.*' (Callon 1984:224).

ANT has been described as a '*methodological sensibility*' rather than a theory as such (Sayes 2014:142). Key processes are how the issue is problematised in the first place, how actors are enrolled in networks on either side of the argument and how effectively networks mobilise. ANT approaches trace heterogeneous relations between entities and highlight the embodied nature of social being in space. Geography and space are viewed not just as containers of processes but as dynamic: made by hybrid relations, interactions and complex processes of change. What gives any place its distinctiveness is the wide range of relations that meet and weave together at a particular locality (Murdoch 2006). These interrelations may be through both consensual and contested processes, including the exclusion of some things as well as the forcible enrolment of others. There may be struggles and contestation over whose framing of a situation dominates. Such struggles may include new groups of actors coming together to resist and to attempt new ways of doing things. There is an emphasis on how such shifts are performed or acted out and how this changes space.

Such a post-structural, relational approach is appropriate for my research. It shifts the focus from a topographical study of space made up of distances, lines and structures, to a topological geography of hybrid spaces and dynamic, heterogeneous relations; mixtures of the natural and social, human and non-human (Murdoch 2006). The advice of Callon, Latour and other ANT theorists is to '*follow the actors*' to trace the networks of relations which link actors together and how they '*build and explain*' their worlds (Callon 1984:201). A relational

approach focuses on networks, connections, flows and mobilities in constituting space and place. ANT is a particularly useful approach for geographers working on research which combines both scientific and social elements such as agriculture, environment and medicine (Greenhough 2009).

A key idea of ANT is that proximity isn't metric. The many localities affected by intensive agriculture nationally or globally will have much in common, wherever they are located. In Herefordshire and Shropshire I have been tracing how global corporate actors such as Cargill, McDonalds and major supermarkets have been shaping rural localities through relations with agricultural, governmental, community and other actors and how the local actors influence or resist the processes. Woods called for more research into how globalised power reconstitutes rural places and for:

'more qualitative and ethnographic research uncovering the discourses and narratives of globalization, rurality and place that frame the responses of local actors; (...) and for work on the political mobilization of rural activists contesting globalization' (Woods 2007:503).

My research responds to this call and explores how local networks of campaigners have mobilised to challenge the impacts of global trade on their localities.

ANT is also particularly suited to studying new issues where things are changing fast (Latour 2005). Actor-network theorists seek to investigate 'how' questions; how things have come about or emerged, rather than 'why' questions (Law 2007). In my research this means tracing how IPU developments have become contentious. Also how a range of actors have been enrolled in the contestation. Law (2007) emphasised the need to focus on description and use ANT as a toolkit for telling interesting stories about situations and relations between actors.

2.5 Non-human actors

Non-humans actors including livestock, wildlife and technologies, become involved in IPU contestations. This non-dualism is an essential element of ANT: dismissing divisions between nature and culture and the human-centred perspective of much of social science. Rurality and 'animality' are intertwined: *'Animals are central to how the rural is constructed in both imaginative and material terms'* (Jones 2003:283). Jones stressed the need to go beyond cultural constructions of animals in the landscape and to consider their corporeal presences and questions of agency and ethics. For example, fences (or chicken sheds) can be seen as parts of

ANT assemblages to enrol animals. Force and maintenance are likely to be required to sustain their enrolment in human driven networks, and features such as fields, hedges, walls, fences, buildings, markets, abattoirs, etc. make up the forms of the English countryside.

During the nineteenth and twentieth centuries livestock was gradually removed from urban areas as animals were seen as '*out of place*' (Philo 1995). Animals being herded through streets to slaughter became an affront to civilised society in terms of safety, modesty and morality. Now we are in a new phase of removing livestock from view in rural areas into intensive rearing systems. In this research the chickens may be significant actors but are themselves all but invisible. The focus is on the sheds and their outputs; the traffic, air pollution, manure and other waste products. The animal has been lost from focus, reflecting the invisible position of the chickens in the agro-industrial system (Wilbert 2009; Rose 2011) or Whatmore and Thorne's (2000) '*ghostly populous*' of animals. When Berger said '*Everywhere animals disappear.*' (1980:36) he had wild animals more in mind than agricultural livestock. But agricultural animals and wildlife are increasingly disappearing from view and this research considers not only the presence and actions of non-humans but also their absence from the landscape.

ANT authors call for research to maintain an awareness for non-humans and how such entities are heard or given a voice, whether through direct observation, ecological assessments, people lobbying on their behalf or enrolling non-humans into contestations. Non-humans may add something to events or enact some form of agency in how things happen and the challenge is to trace this action (Sayes 2014). Hinchliffe *et al.* (2005) stressed that non-humans may act in unexpected ways and introduce further uncertainties into controversial situations; the presence of a rare species may be disputed for example. I plan to follow Michael's (2017) suggestion that non-human animals need to be differentiated from other non-humans and from each other, as their capacities (such as sense organs) vary. The objects and processes which may become actors in IPU networks include rivers, poultry sheds, lorries, chicken manure and local footpaths; possibly also key documents or artefacts such as the models used during planning applications. Many of the non-humans which emerge in this research have limited agency, but it may still be possible to identify ways in which they 'act' within the networks and contestations. I shall focus on how non-humans are drawn into networks and whether in that process they are reconfigured or transformed somehow (Whatmore and Thorne 2000). I aim to explore the relations between the non-

humans and humans, how the non-humans are presented, performed or valued by various actors and the outcomes of their involvement in networks (Michael 2017).

2.6 Incorporating Pragmatism

ANT provides an effective initial approach for this research, however, it felt rather abstract in isolation, with an emphasis on describing what has happened. As a practitioner and research consultant I also wanted an overt focus on what is to be done about the situation researched; a practical, future-oriented sensibility. ANT also prioritises the scientific and technological aspects of contestations which I believe have equally complex cultural and environmental aspects. I was interested in how Marres drew on Dewey's work about public involvement in complex issues (section 2.3). Both ANT and pragmatism problematise situations, exploring multiple relations and uncertain issues in an open-minded way. Bridge (2020b) has traced how ANT (and assemblage theory) are partly rooted in pragmatist thinking. Pragmatism, he says, gives a more radically empirical reading of issues and has a more action-oriented approach. It is in simple terms more 'applied' than ANT; looking for solutions that the 'publics' involved in and generated by the contestation can take forward. There is a focus on knowledge production and action by the publics involved (Harney *et al.* 2016).

Pragmatism focuses on the practical consequences of events; grounding knowledge in the everyday practices of places and people (publics). Jones (2008) set out the perceived advantages of linking pragmatism with Non-Representational Theory¹² (Thrift 2008). Non-representation:

'is future, practice, and life orientated. It is a turn to creativity, specificity, openness, fluidity, risk, uncertainty, and pluralistic views of knowledge as practice in/of/for the world. It tries to be tentative, modest, fallible, experimental and collective. All these are also traits of pragmatism' (Jones 2008:1603).

Pragmatism is characterised by pluralism and suspicious about claims of rationalism. Smith (2009:421) emphasised that the future is viewed as open to change or '*plastic, negotiable, alterable.*' The focus is not on identifying truths but on understanding and knowing the world through practice, experience and performance. There are parallels to Phronesis and its focus on using practical wisdom in deciding how to act, e.g. Flyvbjerg's 1998 study of democracy and

¹² Closely allied to ANT

power in a planning context which detailed how actors selectively used knowledge and information tactically to define and deploy their own rationalities (Wills and Lake 2020).

Pragmatism also links well to multi-sensory and mobile research methods and the study of embodied everyday experiences and lives (Wood and Smith 2008). Morgan (2014) argued that pragmatism incorporates a social justice perspective. He described how for Dewey the main research question is about the nature of human experience: recognising and describing a problematic situation and considering how this made a difference to various actors and outcomes. Pragmatic planning recognises it may not be possible to reach a consensus amongst actors but that conflict and debate can be useful in finding a way forward (Jon 2020). Pragmatism encourages researchers to consider and construct possibilities however challenging the situation is. Dewey and fellow pragmatists saw problems as ultimately solvable. Forester (2012) advocated critical pragmatism in planning research, to address what action might be possible:

'in situations characterized by deep distrust and suspicion, deep differences of interests and values, a good deal of fear and, often, anger, poor or poorly distributed information, and more.' (Forester 2012:10-11).

He stressed the importance of exploring power relations practically and paying attention to the process by which actors are involved in the planning process; the importance of listening to concerns, sharing information, identifying what information is missing and to have dialogue about possible solutions.

Emel (1991) proposed a critical or provocative pragmatism, incorporating creative elements, which: *'makes room for a multiplicity of nature-society relations, for the equality of scientific, literary, spiritual, and artistic ways of knowing'* (Emel 1991:386). Her essay argued that modernity is unsustainable, has generated ecological crises and that technocratic, reductionist and rationalised approaches and institutions need to be challenged. However the researcher should try to 'stay in the game' rather than being too radical, risking credibility and being ignored. She voiced a need to 'bridge' critical discourses and shift the focus to action. We should focus on what can be done to tackle ecological crises, rather than argue about theoretical stances.

Jones has recently further developed his thinking about pragmatism and drew upon the same essay by Emel:

'Local, tactical and radically incremental actions are needed throughout the networks of globalised modern society in the hope of somehow generating systemic change. We need new ways of doing things.' (Jones 2020:212-213).

Jones saw these complex inter-related impacts as '*ecocide*' and how rural areas are being subjected to waves of 'slow violence' from climate change, pollution and species extinctions which he linked to the spread of modern, industrial farming systems.

The term '*ecocide*' was coined by Guattari's translators (Pindar and Sutton 2000). Guattari (2000) viewed the prefix '*eco*' as the original Greek '*oikos*' meaning home, habitat or natural milieu, and thus '*ecocide*' incorporates not just loss of biodiversity, habitat and pollution but impacts on people's sense of place and belonging. Guattari's concept of '*ecosophy*' urged an ethico-political approach to issues of environmental destruction and industrial pollution which needs to incorporate not just environmental ecologies but social and mental ecologies in addressing the impacts of capitalism's technological and scientific advances.

Jones' chapter brought together the scale and urgency of the ecological, political and planetary crises we currently face and the frustration that humanity has not been able to do much about them. He saw an '*era of ecocide*' being ushered in by established capitalist systems working to protect their privileged positions and continue business as usual, mobilising science and technology to their benefit. Jones blended NRT, ANT and pragmatism, proposing an Anti-Representational Theory. He saw this as a creative, collective and interventionist approach to addressing dynamic situations, which include much uncertainty. The focus is still on relations and processes rather than objects and on the particular situation rather than general rules. He advocated not merely moving away from representational approaches but a more direct confrontation with current dominant knowledge systems; representation and rationality which are so '*aggressively defensive and defended*'. Jones proposed an approach of '*radical incrementalism*'; local methods used to tackle particular situations '*resisting ecocide through creative ecological action*' (p220). This sits well with my focus on the growing resistance to and contestation of rational planning processes.

Other recent work on pragmatism (Bridge 2020b; Bridge 2020a; Wills and Lake 2020) and how it can repurpose ANT (Marres 2019) holds the prospect that this research could contribute to new perspectives on pragmatism and how a blended approach may have particular promise, notwithstanding some challenges.

2.7 Multisensory, embodied and emotional approaches

In addition to using a linked relational and pragmatic approach, I wanted to incorporate a multisensory and embodied methodology to research people's experiences of IPU. This was influenced by Emel and Jones both suggesting incorporating creativity into methodologies. The planning process currently addresses certain sensory aspects through modelling and technical assessment processes. However, these processes cannot capture many aspects of how people experience IPU in reality. My hope was that focusing on experiential aspects may lead not only to a better understanding of why people may object so strongly to developments but also help identify ways of enriching the information and evidence that could be considered during the planning process. Jon (2020) identified the links between pragmatism and phenomenology. She argued that the way Dewey conceptualised experience is similar to phenomenology and postmodernism in that passion or emotion, is a key element of experience which is often omitted from verbal or written descriptions.

Actors will experience IPU in relation to their individual values, knowledge and previous experience. I was interested in how people familiar with a locality may have their experience and feelings about that place and their quality of life disrupted by a large new development. I was also keen to explore how non-local people (visitors) experience such rural localities. They may be less sensitive to changes that have happened but may still respond to sight, sound and smell. If visitors' enjoyment is impacted there could be implications for the visitor economy.

Contestations over rural planning sometimes prioritise the visual impact of the proposed development. Sight is often thought of as humans' primary sense and planning processes are dominated by plans, maps, photographs and visual assessments of what the new buildings will look like. Abram (2003) argued that although planning decisions are dominated by the visual, the 'rural gaze' is not independent of other senses. The two-dimensional focus on paper evidence distances local authority planners from the ground level gazes of rural residents. Similarly, the visual sense has tended to dominate in tourism; leisure visits are often thought of as 'sight-seeing' and destinations are primarily promoted through visual imagery (Urry 1990). Many authors have challenged this dominance of the visual (Crouch 2000; Edensor 2000; Howes 2005; Pink 2007; 2015). As concepts of embodiment and performativity became more prevalent in geography and

sociology there was a move from representational to non-representational theoretical approaches. This links to the wide literature on phenomenology and post-phenomenology, drawing on work by Merleau-Ponty, and focusing on embodied experience of place and space (Macnaghten and Urry 2001; Rose and Wylie 2006; Ash and Simpson 2016). Concepts such as the rural idyll (chapter 3) and tourist gaze (Urry 1990) remain important, but this work argues they need to be linked to all the senses and actual bodily experiences moving through a landscape.

By linking a multisensory, experiential approach with ANT and pragmatism I aimed to enrich the research and engage more directly with the landscape. Wylie (2007) suggested research needs to participate in landscape. He said researchers should explore tactile as well as visual landscape experiences using a more performative approach. Critiques of phenomenological approaches are that they focus very much on the individual human experience and perceptions and may overlook social, economic, historical and political contexts. Wylie felt the approach is sometimes tainted by a certain romanticism: accounts may often be rustic and nostalgic. He suggested this could be countered by taking care with temporality and human subjectivity. Indeed Wylie's solo walks (2002; 2005) have influenced me as ways of capturing my own thoughts about the landscapes I have been exploring. Wylie (2007) found some difficulty accommodating landscape within topological approaches. He felt relational approaches overlooked some of the physical, visual, phenomenal and spatial elements which give landscape its richness. By prioritising complex relations and trajectories, Wylie said, you get a curiously flat and depthless picture; *'the ground may be patterned but it is flat'* (p206). He called this an ontological over-flattening; topology without topography; a surface without shape or depth. Rose and Wylie suggested that incorporating affect and bringing landscape studies together with relational approaches may lead to better understandings:

'landscape may creatively insinuate itself into vitalist, relational and topological geographies: landscape reintroduces perspective and contour, texture and feeling, perception and imagination.' (Rose and Wylie 2006:477).

This is the type of impact I was hoping to gain by integrating phenomenological thinking and methods into this research. The approach needs to be attentive to the materiality of rural space (Haldrup and Larsen 2006): the ground surface, vegetation, weather conditions etc. The experience of encountering a large IPU in

the countryside is bound up with the materiality of the surroundings, the weather and one's emotions (Lee Vergunst 2008). Individuals will experience both a physical and mental response which will be affected by their own personality and sensitivities. The rights of way themselves, the footpaths and bridleways, reveal usage and change over time. Ingold saw places as being like knots and the threads from which they are tied are lines of 'wayfaring' across the countryside (Ingold 2010:143). He suggested that knowledge is best gained by wayfaring along such trails.

Implicit in much of the above discussion is that impacts of developments such as IPU's can be emotional as well as multisensory. Kearns and Collins (2012) described the anxiety felt by residents threatened by new development. They talked of people's particular love for an area; '*encompassing feelings of connection, sacredness and reverence*' (p937). Their research drew on the extensive literature on place attachment but went beyond that to suggest that feelings and emotion are critical to understanding what is at stake in contestations. Place-based emotions and a lived relationship with place are likely to play a fundamental role in shaping understandings, generating the 'outrage' Kearns and Collins reported and motivating resistance.

2.8 Mobilities and walking approaches

IPUs are often experienced on the move; as people walk, cycle or drive through the countryside. A mobilities perspective has been helpful (Cresswell 2006; Sheller and Urry 2006; Urry 2007) and I have been inspired by numerous studies using mobile methods to explore the experiences and sensory perceptions of people moving through landscapes (Edensor 2000; Macnaghten and Urry 2001; Lorimer and Lund 2003; Edensor 2006; Pink 2007b; Ingold and Lee Vergunst 2008; Lorimer 2011; Pink 2015; Vannini 2015; Bates and Rhys-Taylor 2017; Vannini and Vannini 2017). Edensor (2000) contrasted the reflexive body of the walker with the labouring body of the farmer; the walker's body is a 'body in becoming' versus the 'body in being' of the farmer. He felt the experience of walking was a means to enact the romantic gaze and collect sights but also a way to alert all the other senses; experiencing nature as sensual, tactile and '*taste-full*'. People often walk seeking an auditory peacefulness which will enable self-reflection and give health benefits. This suggests walkers may be more sensitive to sensory impacts than farmers working in the landscape.

Edensor also stressed a temporal perspective saying walking triggers memory, and that regular walkers experience continuity and notice change along their routes in a familiar landscape (see also Lee Vergunst 2008). Again this might suggest walkers are likely to notice change from a development more than others. The materiality of walking across varied terrain and habitats makes most walkers more alert to the particularities and qualities of the landscape (Lee Vergunst 2008). Walking pace gives time for all one's senses to be used. Walkers may also have encounters along the way, with landscape features, wildlife and other people, including landowners (Ingold and Lee Vergunst 2008).

Olwig (2008) contrasted 2D and 3D conceptualisations of landscape: the first as space, distant from the body and perceived by a monocular perspective. The second, a 3D material landscape of earth, fields, woods which requires binocular vision, multiple senses and movement to perceive. The first is a view of possession, scenery and staged performance; possibly a landowner commanding the view of their land flattened and demarcated on a map or in a painting: a *'possessive one-eyed gaze of the surveyor, perspective painter or the tourist with a single-lens camera.'* (Olwig 2008:85). As Abram (2003) also identified, it could be the landscape of planners, working largely from maps or visual impact appraisals. The second landscape includes a communal sense of belonging to the land and comes from dwelling and moving through the landscape not viewing it from afar. Olwig saw this as a landscape of inhabitants; a tapestry into which people's lives and experiences are interwoven. He made an analogy with sheep hefting to the land, and that people can be hefted too, creating a sense of belonging and knowledge. In terms of walkers, some may fall into the category of one-time visitors with their single lens camera and others will be regular visitors or locals who take frequent walks and feel the sense of belonging.

Olwig extended this thinking to a legal perspective; making the connection between rights of way being legally kept open because they are being walked. A walker not only wears a path into the ground but also maintains people's rights to use the route. Walking can thus be seen as a form of resistance itself¹³. Solnit saw walking not only as a way of gaining a sense of place but also a way of exploring places under threat; perhaps where fewer people are venturing in a modern world: *'walking maintains the publicness and viability of public space.'* (Solnit

¹³ There have of course been famous protest walks, such as the Kinder Scout Trespass in 1932

2001:176). She also suggested that walking could be imagined as an '*indicator species*' (p250) to signify the health of an ecosystem. If walking is endangered or diminished it identifies problems in the system and freedoms being constrained. Following this thinking if walking becomes less viable in the vicinity of an IPU then this would be an indication of impacts on local people, communities and the environment.

2.9 Power relations

Relational approaches to power see it as dispersed between actors rather than something that can be possessed. Mills (2003) described how Foucault saw power operating like a net or chain; a system of relations permeating through society, involving ongoing, everyday struggles and confrontations which may strengthen or weaken over time. Individual people are not recipients of power: but the point at which power is enacted or resisted. Power is a strategy which can be performed in a certain context and is never totally achieved. It is contingent and dynamic and actor networks have to constantly reinforce their common interests (Muller 2015). It is important not to make assumptions about where power lies but rather to observe flows of power which result from the relations which are revealed. How do actors associate with each other, form alliances and do they remain faithful to these alliances (Callon 1984)?

Power relations are interwoven with material arrangements such as landownership and with social practices, networks and local politics. Foucault emphasised that individuals within organisations such as government bodies may have a wide range of agendas and opinions and that government's power can be relatively fragile and subject to change (Mills 2003). He also foregrounded resistance to power.

Foucault's work influenced how ANT views knowledge, first through focusing on discourses or systems which structure what people say and know, and also what is not said, known or is excluded. Secondly Foucault focused on how people know something and how something becomes established as true. He urged researchers to focus on the processes at work which produce and establish knowledge.

Foucault said that '*it is not possible for power to be exercised without knowledge, it is impossible for knowledge not to engender power*' (1980 quoted in Mills 2003:69). Power is often mobilised most effectively by those groups of actors who deploy the most highly valued knowledge about something, like a planning application, and they can then make the strongest arguments about it. However,

it is also possible for the marginalised actors to produce knowledge themselves which then challenges power relations. Knowledge is not objective and value-free it is always working in the interests of certain groups.

Pragmatism also recognises the significance of ‘knowledge as power’ and how this may both feed or resolve conflict. Pragmatist perspectives usually conceive power as an enabling force; something which makes things happen, or the ability of an agent to act or intervene in events (Allen 2008). Even apparently weaker actors or bodies may have autonomy to act in a powerful way. Allen called this the ‘*power to*’ make a difference or bring about social change.

In a planning context then, a researcher needs to follow how power is enacted or performed during the application process; to uncover the power dynamics in a particular contested case. Woods (2005) proposed three dimensions of rural power saying that leadership in rural societies is based on a combination of resource power, associational power and discursive power. Resource power involves control over access to resources such as land, property and finance. Power from association is an ability to achieve things from being part of a network or knowing particular individuals. Discursive power is the ability of someone or some organisation to act because others believe they are powerful and accept their actions, without disputing them. Woods associated these three types of power with the rise of the ‘agrarian elite’ in the mid twentieth century as power shifted from the established landowners to farmers. Some authors argue that more recently the incoming middle classes and rural retirees have been able to disrupt traditional power relations to dominate village politics and constrain farming and resist development (e.g. Boyle and Halfacree 1998). Others would argue that the agrarian and landowning elite continues to hold sway and steer decision-making: that there is an agricultural hegemony which actively defends its interests.

Monbiot suggested:

‘Perhaps we suffer from agricultural hegemony: what is deemed to be good for farmers or landowners is deemed, without question or challenge, to be good for everyone.’ (Monbiot 2014:154).

The concept of hegemony was used by Gramsci to describe how ideas and ways of thinking which benefit dominant groups in society become normalised and go largely unchallenged within that society (Jones 2006). In rural areas, some would suggest that people tend not to challenge the agricultural world view and the needs of farmers and landowners. The concept of hegemony is not dissimilar to Foucault’s ‘governmentality’ (Robbins 2012). Building on his idea of power-

knowledge, governmentality involves certain logics and ways of thinking pervading a network of power relations. People internalise these norms even if they are not in their own interests. Foucault emphasised the regular, and sometimes unthinking, enactment of values by individuals and groups which sustain the dominant system.

2.10 Threefold theoretical approach

The theoretical approaches I am drawing upon suit the complicated, controversial nature of the problem. The relational approach has allowed me to explore multiple voices and pay attention to humans, animals, environments and objects. ANT has enabled me to foreground the controversy and uncertainty which run through the disagreements over IPU and their impacts. I wanted to explore what the issues are, how they have emerged and been problematised and why people care about them. Also how the issues have sparked a public into being, enrolling a range of diverse interests and actors into the contestations. Both ANT and pragmatism pay attention to power relations and constructions of expert and lay knowledge. I see the blended theoretical approach offering me the methodological sensibility of ANT deployed with a pragmatist 'attitude':

'pragmatism can be understood not as a theory or even a set of theories, but rather as an attitude towards theory and knowledge. Theories are tools, metaphors to be used if we feel they are useful to us. They are not tools for revealing the world but for intervening in it.' (Jones 2008:1601).

A pragmatist approach examines political and ethical questions but with a focus on intervention and potential practical responses. Pragmatists call for a focus on action and that seems to be what concerns Callon *et al.* (2001) as well. Not just how the situation and its constituent uncertainties have come about, but also how to respond, to act, more effectively.

Phenomenological and mobile approaches are tools to explore additional perspectives and enrich the research. Gaining a better understanding of how people experience IPU through the senses, materially and moving through the landscape plus their emotional responses, feeds back into understanding people's values and concerns, their lived experience and connection to the locality. It also opens up opportunities for different types of knowledge which could help communicate impacts which are currently omitted from planning processes.

Experiential approaches are particularly useful for exploring tourism perspectives for example. The additional perspectives offer potential for new interventions.

This tripartite theoretical framework felt somewhat precarious when I first constructed it, but I hope that attempting this blended or hybrid approach may, in itself, constitute a useful contribution to academic research. The IPU contestations are exactly the type of issue or situation that the literature suggests could be most usefully approached in this way and I will reflect on its success and limitations at the end of the thesis.

The next chapter further explores the literature to set the research in context. I give an overview of the empirical literature on intensive livestock farming and UK rural contestations, before focusing on the three key aspects identified in my second research question: values, knowledge and experience.

Chapter 3 Literature Review

Having established the theoretical framework in chapter 2, this chapter situates the research in relation to work on rural planning contestations, power relations, contested knowledges and experiential approaches. The journey through the literature steps into several disciplines and there are significant gaps, some of which this research aims to address. Section 3.1 explores the literature around rural contestation and intensive livestock units, their impacts and planning implications. The next three sections follow the three elements of research question 2. Section 3.2 explores values and power in rural communities and how people become involved in contestations. Section 3.3 focuses on how knowledge is contested in the planning system. Finally, I draw together key experiential literature on multisensory, embodied and mobile research in section 3.4. Key threads which run throughout are the rural and agricultural context; contested planning processes and, wherever I have found relevant research, a tourism perspective.

3.1 Rural contestation, IPU and planning literature

3.1.1 Contesting rurality

The rural context of this research is important. Although divisions between urban and rural have become less distinct with innovations in transport and technology and a more mobile population, the concept of rurality remains powerful in the popular imagination:

'The rural stands both as a significant imaginative space, connected with all kinds of cultural meanings ranging from the idyllic to the oppressive, and as a material object of lifestyle desire for some people - a place to move to, farm in, visit for a vacation, encounter different forms of nature, and generally practise alternatives to the city.' (Clope 2006:18).

Clope here captures many of the place meanings that this research will consider: the rural as a place of migration, agriculture, tourism and nature; there is not one rural but many (Murdoch and Pratt 1993). This multidimensionality is increasing and contributes to the contestations which arise in rural areas. Rural contestations often relate to large developments, such as energy, minerals and transport infrastructure, but also involve urgent questions over climate change and biodiversity loss.

In the UK rural contestations often pit the farming sector against other interests; in some instances farmers have been the protestors or militants and in others the target of protests. Two clusters of rural protests emerged during the 1990s and 2000s. There was a period of '*new agrarian militancy*' (Woods 2005) when the farming and landowning community protested about policy changes introduced by the Labour government, such as the fox hunting ban and fuel prices. Reed (2008) argued that such protests were not a popular movement but led by elite actors trying to defend old customs, privileges and influence. Ward (2002) too saw it as a cultural and political crisis prompted by the Conservative Party being (temporarily) marginalised. The second cluster of contestations emerged around modern agricultural practices; GM crops (Reynolds 2013; Macnaghten and Carro-Ripalda 2015), the BSE outbreak (Woods 2005; Blay-Palmer 2008) and the FMD epidemic (Murdoch 2003). Public awareness of the risks associated with modern agriculture was raised amidst widespread concern (Wynne 2001; Blay-Palmer 2008). Government responses were felt to have been inadequate. In particular the FMD crisis was addressed initially as a threat to agriculture while greater subsequent losses to the visitor economy were not foreseen (Woods 2005).

Some contestations continue in modified forms today, including fox hunting, bovine tuberculosis and badger culling (Enticott and Franklin 2009; Enticott 2015). There are periodic controversies about livestock disease outbreaks (Davis 2005), food scares (Lawrence 2013), the implications of artificially grown meat (Sexton 2018) and longer term threats such as anti-microbial resistance (Woolhouse *et al.* 2015; Morris *et al.* 2016; McKenna 2017). There are also new contestations over projects such as the HS2 rail line and the debate over 'rewilding' (Monbiot 2014).

The powerful and longstanding concept entangled within many of these contestations is the 'rural idyll'. Idyllic conceptions present rural areas as tranquil, beautiful, pastoral and bucolic; the countryside as a place of peace, innocence and simple virtue (Mormont 1983; Mingay 1989). There have long been strong themes of tradition, nostalgia and romanticism in popular rural imagery (Bell 2006; Short 2006) (Figure 3.1).

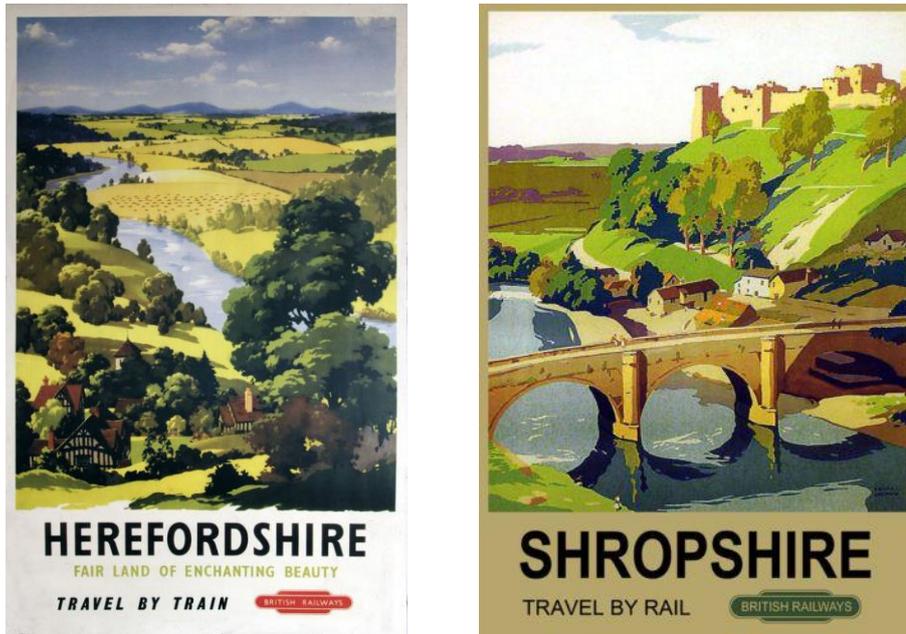


Figure 3.1 1950-60s British Rail posters for Herefordshire and Shropshire¹⁴

The concept has for centuries motivated people to visit and ‘consume’ the countryside seeking ‘romantic’ landscapes, unspoilt nature, tranquillity and authentic experiences (MacCannell 1976; Urry 1990). The 2019 Herefordshire Guide (Figure 3.2) demonstrates a typical mix of rural imagery including animals, food and drink, outdoor activities, heritage and rural experiences.

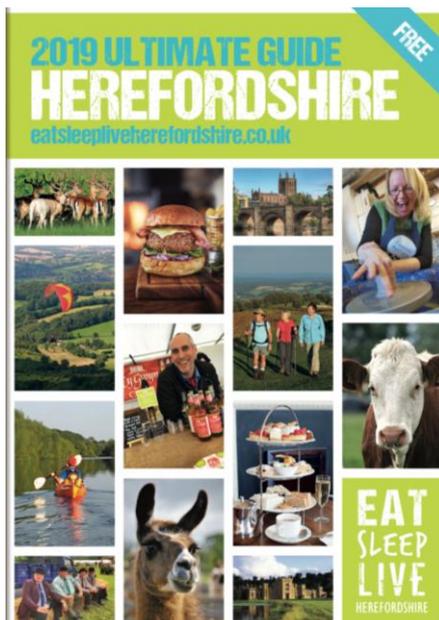


Figure 3.2 2019 Herefordshire Guide¹⁵

¹⁴ NRM/Pictorial Collection/Science & Society Picture Library

¹⁵ <https://www.eatsleepliveherefordshire.co.uk/> accessed 2019

The idyll influenced the birth of the preservationist movement¹⁶ (Williams-Ellis 1928) and counter-urbanisation later in the twentieth century (Halfacree and Boyle 1998; Phillips 2014; Stockdale 2014). Historically it worked to sustain traditional social structures, obscure contestations and suppress challenges to the landowning classes (Williams 1973; Bunce 2003; Woods 2005; 2011a; Short 2006). More recently the idyll disguised poor rural living standards and marginalised issues of gender and race (Cloke and Milbourne 1992; Cloke and Little 1996). Short (2006) proposed that the rural idyll can be interpreted as the language of victors in social, political, economic and environmental power struggles within the countryside.

The successful mobilisation of the concept reflects power relations in rural society. Accounts of the idyll being increasingly deployed against farmers demonstrate how non-agricultural and landowning voices were being heard more strongly (Lowe 1989; Rogers 1989; Bell 1994; Harvey 1998; Murdoch 2006; Short 2006). Farming's role in idyllic representations had shifted; modern agriculture was no longer a core element of the idyll and instead became increasingly perceived as a threat to it, particularly by incoming middle classes. The pace and scale of agricultural change was causing concern along with a dawning realisation of the global nature of much agribusiness. In their study of agricultural pollution in Devon dairy farms Lowe *et al.* (1997) identified how a discourse of natural morality had been projected onto farming over centuries. Farmers traditionally occupied the moral high ground as stewards of the countryside. The farming sector continued to use this to defend agriculture and dismiss the existence of agricultural pollution. However, Lowe *et al.* identified a significant shift whereby a new environmental morality was emerging to challenge farming as a source of natural values. The issue had become more about who could be trusted to safeguard the countryside.

The rural idyll continues to be contested and used as a normative device to shape people's views of rural areas and construct rurality. Landowners use it to maintain the status quo, reinforcing notions that the English countryside is relatively unchanged and farmers are good countryside stewards. However, it is sometimes also used as an attack argument by farmers and landowners deploying the rural idyll to undermine the concerns of naïve incomers. Shucksmith (2016) suggested

¹⁶ Including the founding of the Open Spaces Society, National Trust and CPRE (Campaign to Protect Rural England) in the late nineteenth and early twentieth centuries

that the idyll continues to serve the interests of powerful elites as it is easy to dismiss its backward nature and utopianism as unrealistic. He argued the idyll can be used to promote neoliberalism and the view that there is no alternative to the market and new developments which serve the market.

3.1.2 UK intensive livestock developments literature

There has been little academic attention paid to contestations around intensive livestock rearing in the UK. There are scientific papers examining specific issues such as ammonia emissions, AMR or water pollution¹⁷. Universities with specialist agricultural departments undertake industry-focused work on issues such as the poultry supply chain (e.g. Manning and Baines 2004; Manning *et al.* 2007). There has also been work around animal welfare issues and meat consumption (e.g. Buller and Morris 2003; Miele 2011; Evans and Miele 2012; Buller and Roe 2014). However, contestations around impacts on local communities and controversies over planning have not attracted much academic attention. Intensive farming and intensive livestock units (ILUs) are more usually referenced in broader food, agriculture and rural academic texts such as Morgan *et al.* (2006); Lang and Heasman (2015); and Marsden (2017) as part of the broader corporately controlled agribusiness system. Their environmental and health impacts are mentioned but without much detail.

One exception is a commentary by Holloway and Bear (2011) which explored a proposed ‘super-dairy’ for 8,000 cows at Nocton in Lincolnshire. The ultimately unsuccessful proposals drew considerable opposition largely around the sheer scale of the proposed development and how the technologies proposed would impact on the cows’ natural behaviours and welfare. Holloway and Bear viewed such large scale ILUs as a new phase in the:

‘continuing capitalisation of livestock animals in contemporary regimes of agricultural biopower: animal bodies are seen as sites of investment to which novel technological and farming practice interventions are applied.’(Holloway and Bear 2011:1490).

Objectors saw such mechanisation as a step too far in the intensification of livestock farming.

¹⁷ I discuss ammonia emissions, air pollution and AMR (anti-microbial resistance) in chapter 7 and water pollution in chapter 8

It has been journalists and campaigners who have researched intensive livestock farming in the UK in recent years (CPRE no date; Lawrence 2013; 2016; Monbiot 2015; 2020; Soil Association 2015; Compassion in World Farming 2016; Wasley *et al.* 2017; Wasley 2018; Yeoman 2019; Jones 2019; Levitt 2019). Lymbery and Oakeshott's book *Farmageddon* (2015) exposed the 'true cost of cheap meat' and its associated health and environmental impacts. Lymbery (2017) also argued that although pig and poultry production are not subsidised, the public subsidises feed crops and the clean-up costs of pollution. He characterised the UK Government's support for sustainable intensification of agriculture as industrial farming continuing 'business as usual' with a little 'greenwash' (see also Garnett 2015; Levidow 2015). Lymbery disputed the argument that ILUs are needed to feed the growing global population, arguing that we already grow enough food to feed the world twice over, but much is wasted or does not reach those most in need.

The lack of academic scrutiny of UK intensive livestock developments is puzzling. There may be limited funding¹⁸ for such topics or they may be viewed as obscure or unpopular. Woods (2011b) described a 'reticence' and 'wariness' amongst rural geographers about returning to topics that characterised the early years of the subdiscipline. Perhaps UK academics felt that the subject had relatively little extra to offer as intensive farming in North America has been well studied (Boyd and Watts 1997; Furuseh 1997; Novek 2003; Mackenzie and Krogman 2005; Imhoff 2010; Ramsey *et al.* 2013; Stoddard 2015). There may be little awareness of recent ILU proliferation given its geographical concentration and rural pollution is often invisible to urban audiences and urban based academics (Kelly-Reif and Wing 2016). Possibly there is an (unconscious?) awareness amongst UK rural geographers that studying agri-industrial developments might draw criticism and attacks on professional credibility from the well-connected farming lobby. Some rural geographers are themselves from farming backgrounds. For whatever reasons, I uncovered a large gap in the UK literature.

¹⁸ Neo and Emel (2017) found agricultural research in the United States increasingly relies on funding from the pharmaceutical and livestock supply companies.

3.1.3 CAFO¹⁹ and ILU contestations

North American literature on CAFOs documented substantial evidence of detrimental impacts of industrialised livestock farming on communities' quality of life (Lobao and Stofferahn 2008; Emel and Neo 2011; Carolan 2016). There are several national and regional US organisations that campaign about intensive poultry farming (PEW 2011; 2013; Garcés 2012) and multiple campaigning books published in the US (e.g. Schlosser 2002; Midkiff 2004; Singer and Mason 2006; Kirby 2010; and Leonard 2014). Several of these documented campaigns against the development of new CAFOs or contestations over pollution caused by existing plants. Increasing levels of planning contestation were documented, especially about water pollution and environmental risks; lack of transparency and trust in the process; and that CAFO developments do not sit happily in areas with high levels of newer residents or tourists (Constance and Bonnano 1999; Novek 2003; Mackenzie and Krogman 2005; Sharp and Tucker 2005; Williams 2006; Ramsey *et al.* 2013). In most locations government officials prioritised economic development over local people's quality of life. Mackenzie and Krogman (2005) recommended a more strategic process to identify where CAFOs could be sited, rather than a reactive, case by case permitting system. Where controls were introduced, such as moratoria in parts of Manitoba (Ramsey *et al.* 2013), production shifted to different areas. Several studies of anti-CAFO campaigns identified how local cultural norms affect the actor dynamics and how issues are framed (Williams 2006; Henson and Bailey 2009).

A key theme of the North American literature is how contract farmers are trapped in exploitative financial contracts with the processor (PEW 2013; Emel and Neo 2015; HBO 2015; Neo and Emel 2017). Growers must meet precise standards but also carry all the risk. This issue of relatively poor farmers caught in an exploitative treadmill system does not emerge strongly from the (more limited) European literature (e.g. Tamásy 2013; van Bueren *et al.* 2014) or recent research in Australia (Butt and Taylor 2017; Taylor *et al.* 2017).

Weis (2007; 2013) described the negative impacts of CAFOs as the '*ecological hoofprint*' of agriculture and identified six categories of impact: land, water, atmosphere, public health, inter-species relations and the degradation of work.

¹⁹ In North America intensive livestock units (ILUs) are called CAFOs, Confined Animal Feeding Operations, and I will use this terminology when referring to literature where it is used.

He accused the World Trade Organisation of entrenching the dislocation between small farmers and transnational corporations which control agricultural inputs but externalize environmental costs, describing global livestock production as: *'systemic disarticulation of agriculture from ecosystems, communities and even the authority of nation states'* (Weis 2007:161). Weis highlighted the illusions that surround cheap meat, how narrowly the problems are often framed, externalities are ignored and how the industry uses technological *'overrides'* to address the inherent issues which arise in intensive systems.

Butt and Taylor (2017) concluded that contestation over IPU proposals *'(re)introduces the political'* to planning arenas as it draws in a wider range of issues beyond those normally considered. Taylor *et al.* (2017) suggested the competition between intensive agriculture and amenity is not just over land use, but also over representations of rural place and rurality and what sort of future rural landscape is desirable. Planning is one of the few forums in which opposition to broader rural change can be contested, but the planning system struggles to handle such polarised contestations.

This literature highlights that research should not only focus on IPU impacts and the campaigns against developments but also how actors have to operate within the particular rural culture and regulatory regime in the locality. It is interesting to explore what issues are or are not viewed as *'material'* and how these are framed in the planning process. The research needs to explore the way the *'disarticulation'* of intensive agriculture is becoming manifest in the English rural context.

3.1.4 Other UK rural planning literature

IPU/ILU development in the UK can be viewed alongside rural planning contestations which have received more academic attention, including: wind farm developments (Woods 2003; Devine-Wright and Howes 2010; Wheeler 2017); power line construction (Devine-Wright 2013; Batel *et al.* 2015); mobile phone masts (Park *et al.* 2008); fracking (Whitmarsh *et al.* 2015; Beebeejaun 2017; 2019; Williams *et al.* 2017) and Nationally Significant Infrastructure Projects (NSIPs) (Rydin *et al.* 2018b, 2018a; Natarajan *et al.* 2019). This literature addresses power relations in planning processes and rhetorics used in contestations: for example

how objectors are often labelled NIMBYs²⁰ (Wolsink 2006; Devine-Wright 2009). There is evidence of unpopular developments being sited where there is a local democratic deficit and less opposition (Van Der Horst and Toke 2010). There are also debates over the evidence and knowledge used during planning contestations which I shall draw on in my discussion.

Negative impacts on tourism emerges as a key issue, particularly in the wind farm literature (Wales Tourist Board 2003; Scottish Government 2008; Devine-Wright and Howes 2010; Regeneris and Tourism Company 2014; Rudolph 2014). Most studies conclude that some visitors find wind turbines negatively impact their enjoyment of views, and there may be modest impacts on visitor economies, but also that some visitors positively enjoy seeing turbines. Woods' analysis of the controversial Cefn Croes wind farm planning inquiry explored the dynamics and political arguments among rural actor networks in Mid Wales. Here the dynamics positioned a '*still powerful agricultural elite*' (p285) alongside more progressive environmentalist concerns in favour of renewable energy. Woods concluded that such contestations should not simply be characterised as polarised disputes between locals and incomers, or environmentalists and developers. Instead: '*the researcher needs to understand the complex negotiation of discourses of nature, landscape, environment and rurality which frame collective and individual actions.*' (Woods 2003:287).

Wind farms are also an example of how local populations may become familiar with intrusive developments and local communities may then display ambivalence to existing sites (Wheeler 2017). Familiarity allowed the structures to fade into the background of some people's everyday lives. Others felt a sense of awe and fascination with the structures and others perceived historic continuity in their development from smaller windmills in a landscape. Wind turbines are, of course, very different in nature from IPU's; generating no smells, no air or water pollution, less traffic and being emblematic of a cleaner, greener way of living.

One study into planning contestations around intensive fruit growing was also helpful, partly as it focused on Herefordshire. Evans (2013) researched extensive strawberry polytunnel developments, particularly in the Wye Valley Area of Outstanding Natural Beauty (AONB), and found the sudden arrival of such '*neo-productivist agricultural technology*' triggered local protests. Concerns were

²⁰ Not in My Back Yard

mainly about the visual impact of tunnels on landscape quality: the reflectivity of plastic sheeting and expanses of metal frames. Other concerns included additional traffic, dust, pesticides and foreign fruit pickers. Evans identified tourism elements to the contestation:

'protestors were attempting to rally wider support for their objections by making assertions, albeit unsubstantiated, about the negative impact on the 'tourist economy'. This emerged repeatedly as a line of argument because it was a simple method of assigning an economic value to the 'price-less' aesthetic' (Evans 2013:65).

He hinted the tourism impacts were not necessarily genuine but were used, in his view, by protestors to bolster their arguments and indicate a possible economic impact. He suggested that part of the problem was the rapid spread of the new structures:

'Industrialised agricultural ventures are technology-intensive and large in size which, (...) comes as something of a 'culture shock' to those who have constructed a rural idyll.' (p70).

Evans distinguished between protestors most concerned with visual impacts who tended to be incomers, and those objecting to a wider range of issues who were longer-established residents. The complex arguments on both sides exacerbated the contestation which Herefordshire planners struggled to handle:

'an inadequate and unresponsive planning system lay exposed, further heating the dispute. Both growers and protestors sought to exert their influence for a resolution in their favour, so that planners became a central focus of the conflict.' (p67).

The situation is not completely analogous with IPU developments: strawberry farming does not have animals and their waste management at its heart. However, it is an example where the planning system failed to adequately address widespread proliferation of a new and impactful agricultural technology and how this exacerbated the conflict. Evans illustrated the issues with the following diagram (Figure 3.3):

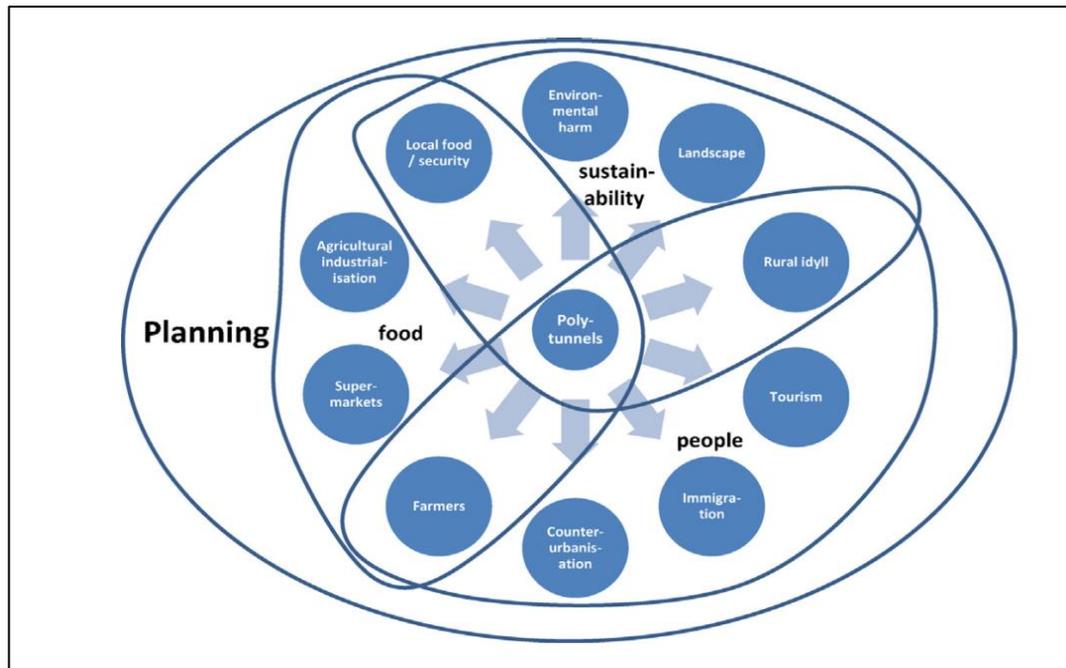


Figure 3.3 Rural conflict complexity (Evans 2013:71)

IPIs could be placed at the heart of this diagram. The only issue not relevant is immigration: as poultry is far less labour intensive than strawberry picking²¹. Evans predicted: *‘future disputes over the conduct of neo-productivist agriculture are set to be highly acrimonious’* (p67). He suggested that rather than focusing on single issues, researchers must explore multidimensional relations between ‘bundles of issues’; a challenge to which this research has responded, despite the acrimonious environment.

3.1.5 Current perspectives

The mainstream, neoliberal vision of agricultural futures persists, focusing on achieving global food security through sustainable intensification. Several authors identify a neoliberal argument that ‘there is no alternative’ (TINA) to further intensification of agriculture (Wolsink 2006). Drake *et al.* (2018) suggested that the ‘TINA’ framing shifts issues from the public sphere into a private sphere where the issue is viewed as simply needing a technical solution:

²¹ On farm at least: this research does not focus on poultry processing plants where the workforce has a high proportion of non-British workers and there may be work condition issues.

'These combined forces - economics and technology - form a powerful discourse about the inevitability of one kind of agricultural future and the impossibility of others' (Hencke 2008:172).

Alternative, agro-ecological approaches focusing more on food sovereignty are gaining ground but are extremely small-scale compared to corporate agri-business. Butt (2019) identified this increasing bifurcation in agriculture between intensive livestock agribusiness and small-scale, often sub-commercial farms. He felt this polarisation and multiple uncertainties about new agricultural production systems create problems for orthodox land use planning. Butt raised the issue of whether ILUs should be treated as farming by the planning system, given the risks and vulnerabilities involved and suggested that the limits to intensive agriculture are being reached.

There may be a bifurcation in agricultural systems but intensive agri-business remains very dominant, particularly in the poultry sector. It has been suggested that broiler chickens might be the most suitable marker species in the fossil record of the 'Anthropocene' (Bennett *et al.* 2018; Patel and Moore 2018). Patel and Moore linked cheap food such as chicken with their other six 'cheaps' and argued that we are still in what they termed the Capitalocene period:

'The social struggles over nature, money, work, care, food, energy, and lives that attend the Capitalocene's poultry bones amount to a case for why the most iconic symbol of the modern era isn't the automobile or the smartphone but the Chicken McNugget.' (Patel and Moore 2018:5).

They discussed how capitalism thrives not by destroying natures but by putting natures to work; as cheaply as possible.

loris is another critic of the food security rhetoric and claims of big agri-business corporations to 'feed the world': *'agribusiness is increasingly about business in and for itself, and it is less concerned with rural development, nourishment or food production.'* (2016:89). loris used three frames to describe current shifts. First *'displacement'*; agribusiness is being sectorally and spatially transformed and concentrated globally. Secondly *'financialisation'*; that agri-corporations prioritise making money over agricultural outcomes. Thirdly, *'mystification'*: companies tend to dissimulate over the neoliberal motivations and processes at play and disguise and conceal the associated risks, disputes and impacts. Many of these factors can be identified in studies of ILUs globally; geographic concentration in certain areas, focus on scale and cost minimisation to drive profits and a lack of

honesty over many aspects of the development and operation of intensive farming sites. It is unsurprising that contestation and controversy ensue.

A report from the Royal Society of Arts (RSA 2018) commented on the concentration of power in UK agribusiness food chains and the concomitant reduction in the role of the public in shaping the future of the countryside. They observed that compartmentalised government roles at both national and local level work against effective and collaborative policy making in rural areas.

Fitzpatrick *et al.* (2019) drew attention to the hidden external costs to society from the existing UK food system (see also CIWF 2017; Friends of the Earth 2010) (Figure 3.4).

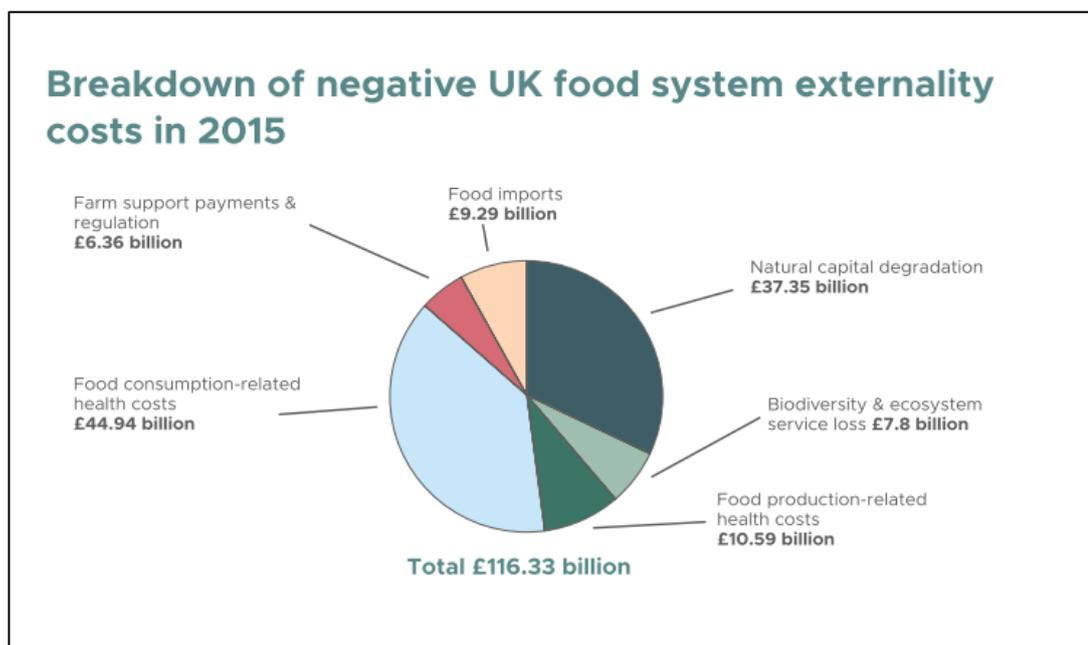


Figure 3.4 UK hidden food costs (Fitzpatrick *et al.* 2019:9)

The report contradicted claims that intensively reared food is cheap. There is no incentive for farmers to become more sustainable and those that do farm more sustainably incur more costs and must charge a premium for their products. The report briefly discussed social and cultural impacts of ILUs, for example: *‘the ever-greater distances people need to travel to find landscapes and unspoilt countryside for leisure and to satisfy aesthetic or spiritual needs.’* (Fitzpatrick *et al.* 2019:52). It called for more research into impacts of intensive production systems on human wellbeing, society and culture, topics which my research explores.

3.2 Rural values, power relations and resistance

Farmers and landowners have long dominated rural power relations in the UK (Woods 2005). Woods described how during the twentieth century, farmers held the majority of places on county, district and parish councils: building their associative power. Their discursive power was strengthened through the National Farmers Union (NFU) and its lobbying activities. Woods identified an ‘*agrarian-business hegemony*’ (p41) with farmers dominating rural communities but working with the remaining landed gentry and market town business elite. This hegemony successfully preserved the countryside as an agricultural space, in the pursuit of ‘agrarian capitalism’. He suggested that, despite increased rural mobility and immigration of urban residents, there is still a rural elite, and that farmers remain over-represented in local networks of power. Woods mapped elite rural networks in Somerset and traced links between influential people through private schools, agricultural societies, hunts, the NFU, the Masons, London clubs and the Conservative Party, as well as family ties. He discussed the perceived secrecy which obscures the covert power source of elite networks and how they act as gatekeepers to rural power:

‘The use of elite networks for recruitment and patronage helped to ensure that councillors and other local governance office holders tended to have similar ideological outlooks and similar ideas about the character of the locality, thus creating an impression of consensus.’
(Woods 2005:82).

The networks served to maintain a rural mindset amongst those with influence, prioritising farming and field sports. Even though a new middle class had emerged, their entry into elite rural networks was slow, particularly if they espoused alternative ideas.

The NFU and CLA²² had previously been identified by other authors as key players in sustaining the agricultural hegemony. Shoard commented that:

‘The NFU behaves as if those who dispute the right of farmers to decide the fate of the countryside can be dismissed as ignorant and naive. It implies that these people (...) lack understanding of the mysterious intricacies of farming.’ (Shoard 1980:104).

By the turn of the century Harvey (1998) described how the NFU continued to have the ear of government and had built an ‘*intimate*’ relationship with MAFF²³. He

²² Country Land and Business Association (previously the Country Landowners' Association)

²³ The then Ministry of Agriculture, Fisheries and Food, now DEFRA

called the NFU *'the seat of the agricultural establishment'* (p111). Cocker (2018), describing the same period, talked of the *'seemingly unbreakable bond of shared values and common cause'* (p210) between the NFU and MAFF. Woods (2005) also described how the NFU and CLA were able to influence government farming policy, ensuring it focused on scientific innovation. He described MAFF as *'in effect the NFU's advocate within government'* (p134). Harvey (1998) reflected on the disproportionate influence of the CLA²⁴, pointing out that its members include some of the wealthiest and most influential people in the country. It is clear there was a major disruption in 2001 due to FMD and MAFF was abolished to form DEFRA²⁵ but most of the same officials remained in place and the new department was slow to widen the range of interests with which it engages (Murdoch 2006).

I have found only a few more recent references to agricultural lobbying relations. However, it appears the NFU, CLA and their support for conventional hi-tech farming continue to dominate agricultural rhetoric within the national political environment (Smith 2018). Helm (2019:239) called the NFU *'one of the most effective lobby groups in Britain'* saying it *'punches massively above its weight'* and remains a *'big vested interest'*. Lang (2020) recommended the agricultural lobby be excluded from bodies such as the Food Standards Agency, suggesting that they tend to block progress towards a more coherent and sustainable food strategy.

The mainstream agricultural sector and wider networks are deeply entrenched in neo-productivist thinking and a drive to apply scientific innovation (Thompson 1995). The farming media reinforces the NFU's support for high input and intensive methods as farming newspapers, magazines and websites are dependent on advertising revenue from seed, fertiliser and machinery suppliers. Other actors who may reinforce certain framings and power relations are the land agents and companies, who network within agricultural circles and handle agricultural planning applications. Lowe et al. (1997) spoke of farming actors, due to their control of economic and cultural resources, colonising rural space to ensure their arguments dominate.

Power relations are revealed in the way issues are constructed and framed and whether counter-arguments or objectors are undermined or 'othered' in some way

²⁴ CLA membership (50,000) is much smaller than many rural interest groups and charities

²⁵ Department for the Environment, Food and Rural Affairs

(Wolsink 2006). The groups whose value constructions of nature and farming are dominant exert more power. With Lowe *et al.*'s 1997 research into farm pollution environmental activists had won arguments around pollution, arguing that agricultural self-regulation was ineffective. However, they found many actors including the NFU, local media and farm advisory bodies fought a 'rear-guard action' to protect farmers' interests, arguing that farmers had been victimised by an uncaring urban society. Much of the argument focused around whether the knowledge about pollution and its causes was accurate and complete. Again knowledge and power are intertwined: '*What matters is power, as getting people and organisations to perceive your knowledge claims as representing the truth is often what really matters*' (Carolan 2016:223). Clegg and Pitsis (2012:74) also stated; '*Power produces its own truths*' and suggested that the researcher needs to find out how dominant ways of thinking and conceptualising the world become normalised.

Although set in another time and place, I have found Scott's landmark 1985 study of rural society undergoing change during an agricultural revolution in Malaysia to be helpful in thinking through the polarised discourses between landowners and the rest of rural society. The ideology and vision of the rich tends to dominate and controls social order. The elites control local culture, education and media and can thereby engineer consent for their dominance by controlling the accepted discourse around what is good, fair and legitimate. The rich are rarely openly criticised as it is socially awkward to do so and risks repercussions. Scott referred to Gramsci in discussing the rich: '*symbolic hegemony allows them to control the very standards by which their rule is evaluated*' (1985:39). Scott identified that a struggle over the 'facts' is a central feature of the arguments. He also described how rich farmers justify the decisions which make them more money. They may argue that they 'need' to make the changes and that there was no choice; no alternative; their hands were tied. Scott saw this as a performance; rich farmers portraying themselves as the party in greatest need, for example that they might have to look after the interests of their children who need a plot of land themselves.

Scott argued that hegemonic control was more effective over the subordinate class's acts rather than their beliefs. The wealthy landowners succeeded in ensuring the poorer classes conformed, but were unable to control what they thought about their situation. Scott disagreed with Gramsci that a system of social domination may appear inevitable even to those most disadvantaged by it. He felt

that people were often simply resigned to their situation which may seem impossible to challenge. That did not mean they did not recognise the injustice. One response to an unjust system was 'flight'; to move away. Other responses to the situation were the '*everyday forms of resistance*' that much of his book discussed. He proposed a more limited or modest construction of hegemony where:

'the main function of a system of domination is to accomplish precisely this: to define what is realistic and what is not realistic and to drive certain goals and aspirations into the realm of the impossible, the realm of idle dreams, of wishful thinking.' (Scott 1985:326).

What forms of resistance are viable may shift over time, as might their levels of success.

Bell's research in Appalachia studied resistance or '*micromobilisation*' in several small communities impacted by coal mining and mountain top removal (Bell 2016). Her main question was similarly why do so many people not protest about obvious injustices inflicted by the coal industry to demand social justice and accountability. Bell identified four main factors which reduced the level of local protests. First, depleted social capital in the communities with sparse social networks and community organisations. Secondly, there was a clear gender imbalance in the environmental protest movement; men were much less inclined to become involved as it conflicted with the local hegemonic masculinity of the region. Thirdly, the coal industry and its supporters worked hard to maintain the profile of the industry in terms of economic value and cultural identity. Finally, she recognised that much of the environmental degradation caused by the mining industry was not visible to most residents, being away from the main highways. All these points could relate to intensive agriculture in place of coal mining.

Similarly to Scott, Bell identified power relations preventing some people from speaking out about issues, even if they were concerned (see also Williams 2006). But she also recognised how some people did mobilise and mount resistance. People gradually stopped seeing the system as legitimate and recognised injustices of various kinds. They began to question the hegemonic 'fatalism' and to demand changes to the system and ultimately to initiate that change collectively themselves.

3.3 Contesting knowledge in a rural planning policy arena

3.3.1 The planning system

The forum in which contested knowledge and uncertainty about IPU is assessed and decided upon is the planning system and ultimately a local authority planning committee. The process is technocratic: officers have to deal with multiple technical reports, presenting 'factual' issues, before making their recommendation. There is little acknowledgement that experts often disagree (Wynne and Lynch 2015). Murdoch (2006) argued that the planning system is deeply entrenched in topographical thinking and processes in a very functional and technological way. He judged that planning has traditionally had difficulty drawing both social and natural entities into its rigid governmental framework and tends to be selective about which actors are given access to the process. The planning process has difficulty representing the complexity involved with issues such as IPU.

Murdoch cited Jacobs' 1961 study in America which demonstrated planning systems could not handle intricate, interlocked and unique details of particular places. Councillors struggled to cope with the nature of the problems. Indeed, decisions had often been made in advance of the planning meetings. She critiqued how the planning system was subdivided into isolated areas of expertise which appeared rational but failed to address unique and dynamic issues in particular localities. This 'silo-ed' approach is an obvious feature of the UK planning system. Jacobs proposed a more bottom up approach focusing on the particular within a more complex whole; shifting from an overhead, 2D plan view to the 3D view from the street; focusing on how people use and experience the space (see also Haraway 1991).

Flyvbjerg's 1998 study of planning in Aalborg, Denmark, illustrated how planners are immersed in politics. Specialised planning knowledge is often disregarded and decisions based on bargaining, compromise and negotiation between politicians, developers, environmental and amenity groups. The planner becomes less a neutral facilitator of expert information and more what Murdoch called '*an orchestrator of political processes*' (2006:143). Flyvbjerg identified how technical reports and other apparently neutral evidence can become key storylines in debates or be ignored and side-lined. Much depends on who influences what research is commissioned, what is reported, what is given weight, who is given

information in advance and why some actors are listened to while other are not. He found that some actors define the reality and set the agenda; their analysis of a situation becomes accepted without challenge and power relations are in turn supported by the rationality generated.

Other planners have explored relational approaches to planning. Healey (2007) urged researchers to pay attention to the range and types of knowledge mobilised in policy making processes and considered situated knowledge and meaning to be crucial. Hillier proposed a form of performance based spatial planning which would be more collective, try to capture actors' values and understandings, recognise power differentials and avoid trying to take an objective view. She commented:

'Situations are fluid and contingent, action consequences cannot be reliably predicted and satisfactory outcomes cannot even be defined in many instances. Somehow, however, decisions must be taken in (...) a 'swamp' of uncertainty, flux, unpredictability, change and 'the impossibility of knowing very much'' (Hillier 2008:38).

Rydin (2012) used ANT to examine planning procedures and in particular the use of black-box modelling processes. Such modelling of technical phenomena loses transparency and results in a singular outcome or label appearing to prove something is 'acceptable' and no longer subject to scrutiny. She described black boxing as a way of closing down discussion and disputes (Rydin *et al.* 2018a). In looking at decision-making over Nationally Significant Infrastructure Projects (NSIPs), Rydin *et al.* explored the supposedly evidence-based process and how it struggled to deal with uncertainty over knowledge claims by one side or the other. They identified a tension between the need for a regulatory system to be robust and certain, yet: *'In these politicised contexts, the focus is on occasions of conflict and contestation, because knowledge in planning contexts is rarely unitary or certain.'* (Rydin *et al.* 2018:220).

3.3.2 Contesting expert knowledge

How technical assessments, evidence and arguments are understood, interpreted and either accepted or rejected by actors is a key element of the IPU contestations. Technical reports produced by consultants for applicants are presented as expert, objective and factual. They aim to address the risks and reassure the decision makers and concerned public. Allmendinger and Haughton (2015) argued that although the planning authorities treat expert reports as technically and politically neutral the consultants used and the techniques chosen

will have been carefully considered; *'the 'neutrality' itself is one that is carefully constructed'* (p46).

There is an extensive Science and Technology Studies (STS) literature on the public understanding of science which I do not have space to explore in depth. However, it is useful to summarise the shift in thinking from a deficit model of public understanding of science to a more inclusive approach. In the past, and in many contexts still to this day, the attitude was that technical or scientific controversy should be left to the scientific 'experts' to decide on (Irwin and Michael 2003). In more recent decades there has been a shift to criticise the types of scientific rationality this tends to involve and to include more contextual, situated and tacit knowledges that local people may be able to contribute to decision-making²⁶. Jasanoff argued that scientific 'facts' are socially constructed: *'the idea that scientists can speak truth to power in a value-free manner has emerged as a myth'* (Jasanoff 1990:17). Numerous authors have explored how it may be possible to include lay knowledge from the concerned public into some decision-making processes, but in the development planning arena this is especially challenging.

Science is sometimes used to make an issue more technical and close debate down in a similar way to black-boxing. Lowe *et al.* (1997) called such a process the *'scientification'* of the issues around agricultural pollution: transforming them into purely technical matters and therefore perceived as less significant. This suppressed public interest, to the benefit of the government agencies and farmers. Campaigners against the pollution began to better quantify the problem and this improved understanding and widened the range of concerned publics. Measuring, monitoring and reporting the pollution enabled it to be better defined and awareness re-awakened. Similarly, Petts and Brooks, in their study of air quality management, found that typical UK regulatory culture tends to distance experts from the lay knowledge of local residents: *'The notion that the lay public can be knowledgeable about environmental conditions and management priorities is still challenging to experts.'* (Petts and Brooks 2006:1055). They questioned whether current UK institutions can cope effectively with environmental problems.

²⁶ Similarly to the earlier discussion about Lippman, Dewey and Marres.

Scientists and politicians tend to disparage lay people's views as emotional, irrational and irrelevant. Wynne (1992) described science as being insensitive to the variability and uncertainty of many situations and often incapable of admitting its own limits. Local authorities and commercial interests will often tackle such situations by sourcing more and better science to help make (or justify) the decisions (Jasanoff 1990). Several authors have researched situations where scientific assessments of hazards from proposed developments have been used to mislead local residents and try to allay their fears (Irwin and Wynne 1996; Irwin *et al.* 1996; Irwin and Michael 2003). The concerned public are often well informed, knowledgeable and highly sceptical of the scientific evidence with which they are presented (Wynne 2001). Scott noted the: *'hegemonic planning mentality that excludes the necessary role of local knowledge and know how.'* (Scott 1998:6). Modernist, neoliberal and scientific thinking focuses on the future; it values knowledge from laboratories or models more than that from experience of the local environment. Scott also argued that the scientific field of analysis is often narrowed to exclude inconvenient areas of uncertainty or unexpected consequences. He called the scorn for practical knowledge unscientific itself. Scott described how scientists or experts denigrate local, situated knowledge as it tends to undermine or threaten their own credentials (see also Aitken 2009). Jasanoff *et al.* used the term *'boundary work'* to describe how: *'scientists in effect post 'keep out' signs to prevent nonscientists from challenging or reinterpreting claims labelled as 'science''* (1990:236).

Rydin *et al.* (2015) found that in NSIP wind farm cases decision makers dismissed local residents' information about social and economic impacts. They concluded that in many NSIP cases the decision makers are trying to find a way to handle public concerns without dismissing them completely or classifying them as unimportant, and yet still allow the development to proceed. Discussion tended to focus on what could be done to mitigate impacts, rather than whether to go ahead with the development or not.

In her study of fracking contestations Beebeejaun (2017:418) argued the *'unhelpful binary'* between expert and lay knowledge oversimplifies and: *'can miss the blurred boundaries between experts and communities, in an attempt to present certain decisions as technical rather than political'*. She found that many community members were already quite expert in some knowledge areas and others developed significant expertise during the protest campaigns. Despite an enormous imbalance in resources available to community protesters, they

collected additional data and worked to develop knowledge from their lived experiences of the local environment. In some cases the community had commissioned expert reports to challenge official versions. They had also linked to other communities facing similar threats to collate evidence of likely cumulative effects on quality of life. Interestingly Beebeejaun found that both tourism and agricultural businesses or organisations refrained from objecting to fracking proposals. They '*kept silent because images of a rural and safe environment underpinned their continuing success.*' (Beebeejaun 2017:427).

There are few research studies of hybrid forums, proposed by Callon *et al.* (2001) to resolve complex planning related issues through mobilising 'dialogic democracy'. One exception is a study into flooding in North Yorkshire (Whatmore and Landström 2011). A 'competency group' involving social and natural scientists worked collaboratively with local people affected by flooding and re-examined evidence; lay accounts as well as scientific flood modelling. They were able to empower the situation so that non-experts could raise queries, introduce evidence and discuss possible solutions. The previously accepted flood modelling technology was re-evaluated and new solutions developed. Whatmore and Landström pointed out that scientific models may be enmeshed within both the commercial imperatives of the consultancy firms carrying out the work and also the contractual relations with the local authority or business that commissioned them (see also Donaldson *et al.* 2013). Whilst this example is useful, flooding is relatively uncontentious: everyone in the area will recognise flooding as a problem needing a solution. Arguments over IPU are much more polarised and multifaceted than flooding and more problematic to untangle. Also IPU impacts are not a 'natural'²⁷ hazard like flooding: they are caused by specific businesses/farms where issues of responsibility will be sensitive.

3.3.3 The planning policy vacuum

Recent shifts in the national planning regime, including the reduction of the National Planning Policy Framework from over 1000 pages down to 50, mean planners and decision makers must assess complex development proposals against vague concepts of 'localism' and 'sustainable development'. Allmendinger (2016) called this a vacuum: a space within which national government prioritised deregulation and entrepreneurial spirit. He suggested that planners have

²⁷ Acknowledging that flooding can be influenced by human activities and management.

retreated into a role of development management rather than development control. They are no longer able to address distributional or ethical issues or the wider political questions about what planning should be trying to achieve. There is a presumption in favour of development and the onus is on the local authority or objectors to say why it should not proceed. Planners are supposed to be deciding in the public interest but the public interest has been upscaled to apply to national food security rather than local concerns (Lennon and Scott 2015). Allmendinger (2016) also highlighted the lack of a third party right of appeal in the UK. Protesters cannot appeal against a decision or dispute the science used to make the planning decision. Only the decision-making process can be challenged in court through a judicial review. He felt this was leading to increased feelings of impotence among objectors. Their participation was sometimes seen as legitimating the process rather than having any influence on decisions.

The overarching planning objective of 'sustainable growth' is viewed by many as a deliberate use of positive language to disguise neoliberal priorities. Allmendinger argued that over the last two decades UK planning has variously '*displaced, deferred or dispersed the political*'. Protest has not been eradicated but has been rendered increasingly pointless. These shifts in policy are set in a context of massive funding reductions for UK local authorities. Government figures suggested that planning and development departments had experienced cuts of 53% between 2010 and 2017 (NAO 2018), although authorities have partially made up the deficit by raising planning fees.

It may be that there is not just a policy vacuum but an institutional vacuum as well. Hajer (2003) argued that there has been a weakening of the state and that complex problems cannot always be addressed by state organisations and actors. He said policy making now sometimes takes place in an '*institutional void*', where a range of dispersed state, partnership and increasingly civil society actors try to influence policy making, often deploying conflicting scientific arguments. Hajer felt the institutional void is most obvious in areas such as environmental politics, genetics, biotechnology and the '*new politics of food*' (p177). Some actors may try to fill the institutional void and occupy the new political spaces which may have opened up. The legitimacy and effectiveness of state bodies may be questioned and there is a loss of trust in information, processes and decisions. Similarly to Callon, Hajer suggested that in order to make sound policy and decisions it is important to identify areas of ignorance and uncertainty as well as scientific knowledge: '*The recognition of certain uncertainty could be the basis*

for a different approach.' (p186). He suggested mixing scientific and social knowledge in a more interactive and 'deliberative' way, including a better understanding of the ways people perceive the specific problem. The political form and processes may need to be adjusted to build trust (Gomart and Hajer 2003). The policies agreed should then also be monitored and adjusted as necessary. This is similar to Callon's dialogic democracy and might be a route actors in IPU decision-making could consider.

3.4 Experiencing IPUs

3.4.1 Visual and tourism impacts

It is often the visual impacts of IPUs which are the first to be identified, for example in media coverage. Here, given the scarcity of literature, I conflate visual impacts with a landscape and tourism perspective. Even using a tourism lens there are few studies on the impacts of intensive farming on people and the contestations between tourism and agriculture. Two older texts recognised the potential for contestation (Shoard 1980; Harvey 1998). Shoard's book bemoaning the negative impacts of intensifying agriculture had a whole chapter devoted to tourism. She set out the premise in simple terms:

'The complexity of the economics of the countryside becomes instantly apparent when the implications of agricultural change for the tourist industry are considered. (Not, of course, that they are considered when the fate of the countryside is being determined, since agricultural interests hold sway). It is of course just not possible to predict the effects on tourism of a far-reaching deterioration in the quality of our countryside. But it seems reasonable to anticipate some fall off of interest if visitors were to find not the English countryside they had seen in picture books' (Shoard 1980:165).

Shoard viewed the proposition that agricultural practices might affect tourism as 'reasonable' or common sense. She pointed out that industrial farming would destroy the basic resources of tourism and that tourism is more important economically in most rural areas than farming.

Shoard made recommendations to tackle the impacts of intensive agriculture including changes to the planning system and institutions. She also recommended six new national parks be established urgently because their outstanding quality was facing major threats from agricultural change²⁸. The six included the Vale of

²⁸ Of the six she recommended two have since become national parks (the South Downs and Norfolk Broads) and two (the Chilterns and Dorset Downs) have been AONBs and

Herefordshire which she considered: '*some of the most unspoilt and beautiful farmed landscape in England.*' (Shoard 1980:246). But she recognised that dominant agricultural interests threatened this area more than most. While the Lower Wye Valley had been designated an AONB in 1971, the rest of the area has been left without such status²⁹. The story my research tells could perhaps have been forestalled if Shoard's warnings had been heeded.

Harvey's 1997 polemic mentioned post-war Herefordshire's mostly small-scale mixed farms, orchards and hop fields and how they were considered almost 'too rural'. Harvey was dismayed at the loss of wildlife due to intensive farming practices which he said created a '*dead landscape*', in contrast to the rich and vibrant sensory experience which previous generations would have encountered. This is another prompt for my research to pay attention to the countryside's sensory elements.

Several authors have attempted to quantify negative impacts of agriculture on tourism. Vanslebrouck *et al.* (2005) and Van Huylenbroeck *et al.* (2006) conducted a hedonic pricing appraisal of how various agricultural production landscapes impacted tourism operations in Flanders. They found that farming practices influenced the attractiveness of an area for tourism and thus the prices that can be charged for tourist accommodation. Accommodation prices and visitor perceptions were negatively influenced by ILUs, agricultural pollution, the presence of fodder crops such as maize and, to a lesser extent, horticultural greenhouses. They also found a correlation with nitrogen surplus per hectare, attributed to pollution from livestock manure. Another quantitative study, in Turkey, examined the visual impact of livestock buildings on the landscape (Kaplan *et al.* 2006). A panel viewed photo and video footage and found the long low buildings (for sheep and cows mainly), manure heaps, agricultural equipment, fencing and water channels caused substantial visual intrusion in rural settings. The research proposed proactive zoning for such farms and consolidation of scattered unsightly livestock buildings. A study exploring the impacts of fish farming on tourism in coastal parts of Scotland (Nimmo *et al.* 2011) found only

recently recommended for upgrade to national park status in the Glover Review (2019). This leaves the Somerset Levels and her very first recommendation, the Vale of Herefordshire (most of the west of the county) and Lower Wye Valley, where little action has happened in the 40 years since.

²⁹ Both the Black Mountains/Golden Valley area and the far north west of Herefordshire were considered at various times for designation as AONBs but this never came to fruition (CPRE Herefordshire 2018).

modest levels of concern from tourism-dependent businesses, although there were concerns about the potential impacts on scenery and the natural environment if fish farming were to be expanded further³⁰. The focus of the research was visual with little discussion about environmental impacts, pollution or risks that fish farming poses.

Several studies into Scandinavian farm tourism enterprises explored how modern farms can find it challenging to offer successful visitor experiences when customers have expectations coloured by the rural idyll (Brandth and Haugen 2014; Cassel and Pettersson 2015). Frisvoll (2013) found farm tourism in Norway was caught between the need to sustain the image of an authentic countryside and the realities of more industrialised agriculture which local economic and tourism agencies may want to hide as it might threaten the area's 'brand'. This is similar to Daugstad (2008) who found that the agricultural landscape most valued for tourism is the most marginal and least industrialised; characterised by a mosaic of mixed small-scale farming.

The one other area in which the tourism impacts of ILUs are better documented is in relation to water eutrophication: algal blooms and green tides from excess nutrients in river, lake or sea water. This could be considered a visual impact but will also impact smell and has considerable environmental and health implications. Accounts include Bové *et al.* (2001) who suggested that some farmers in Brittany spread 30% more pig and poultry manure than required because there was not enough land to receive the volume produced. The polluted rivers and algal blooms then impact the sea and coastline. Lymbery and Oakeshott (2015) documented the impacts on the Brittany coast where animals (and possibly several people) have been poisoned by hydrogen sulphide fumes from the rotting algae:

'the beaches in the area are no-go zones, and hotels are struggling. Sunbathers and sightseers have deserted the picturesque inlet and coves. Holidaymakers have been replaced by workers in bulldozers battling to clear the unsightly and potentially lethal algae that have been washing up on the shore.' (2015:176).

They also reported people accusing local government of covering up the issue for fear of further harming the local tourism trade (see also newspaper articles Chrisafis 2011; Lichfield 2011). Saltmarsh (2010) quoted Breton tourism business

³⁰ There have more recently been several high-profile disputes about new, larger fish farms in sensitive coastal sites in Scotland.

owners who had lost revenue but were struggling to make their protests heard: *'Hotels, restaurants and other tourist businesses can't mobilize in the way that farmers can'* (Saltmarsh 2010). Saltmarsh reported a €134 million five-year clean-up and monitoring plan had been launched, demonstrating the high costs of remedial government action. Other destinations where similar problems have been reported include Jersey (Morris 2017); Venice, Antigua, China and the West African coast (Smetacek and Zingone 2013); and multiple locations in the United States. For example Chesapeake Bay and both coasts of Florida have been badly affected by algal blooms in recent years (CBS 2016; Charlier *et al.*, 2008; PEW 2011; Stanglin 2019) impacting the tourism and leisure industries as well as endangered species and habitats such as manatees in coastal mangroves.

Diaz *et al.* (2013) studied the Brittany green tides using ANT. They called it a classic example of a *'sustainability impasse'*; despite 40 years of initiatives by industry actors, government bodies, researchers and environmental NGOs, the green tides still recur annually. Farmers had successfully resisted systemic change: they defended the agricultural narratives and values even as the situation developed over time, enrolling new actors into their way of thinking. They avoided arguments to address more fundamental issues, such as reducing stocking densities on intensive farms.

'As long as the underlying values are not questioned, the regime will only implement limited technical changes. This amounts to little more than 'tinkering on the margins' and cannot effectively address the systemic problem.' (Diaz *et al.* 2013:72).

The fragmented literature gives strong indications that intensive farming is incompatible with a vibrant rural tourism economy. But what seems obvious to authors such as Shoard is continually denied over decades by the farming sector in popular destinations such as Brittany. This research contributes to this debate, specifically addressing the lack of similar work into the relations between intensive farming and tourism in the UK.

3.4.2 Smell

Turning to other ways of experiencing IPU in the countryside smell emerges as a major issue. Porteous, in his classic article on smellscape (1985), mentioned smells from factory farms having become a major source of rural pollution in the UK. Porteous highlighted habituation to smell; that local people become more accustomed to smell over time whereas non-residents or 'outsiders' will notice

smell more. Also, he asserted that unfamiliar smells are more likely to be experienced as unpleasant. Both these factors would help explain the imbalance in opinions about smell between farmers and others: *'This is a common experience of outsiders, such as tourists, inner-city visitors to farms, and urban newcomers to country living.'* (Porteous 1985:358). In contrast to the way one can visually frame a view, an individual has less control over how they experience a smell, as smells are usually invisible. Smells can generate strong (positive and negative) reactions: *'one is immersed in smellscape; it is immediately evocative, emotional and meaningful.'* (p360). Porteous emphasised the role memory can play with smell recall, for both pleasant and offensive odours. He quoted a passage in a novel in which the smell from a tannery reminded the narrator of the animal terror and pain involved, suggesting that odours can convey other meanings such as animal suffering, which is likely to be the case for some people smelling IPU. Porteous introduced a further angle when he made reference to unpleasant industrial smells *'smelling of money'* (p359).

The North American CAFO literature has multiple references to neighbours objecting to the smell of hog and poultry farms. Constance and Tuinstra (2005) identified smell as one of four main areas of conflict between poultry CAFOs and their neighbours in Texas and linked smell to two of the other issues; health impacts and property prices³¹. They acknowledged that smell is subjective and individuals' perceptions vary, however they identified four basic characteristics of odour: frequency, intensity, duration and offensiveness. One of the main findings of the research was the disconnect between the attitudes of the farmers and neighbours. Farmers acknowledged occasional days with bad smells but denied all other impacts. Neighbours found it hard to prove the levels of smell nuisance, impacts on their health³² or property values.

One study that focused solely on smell impacts of CAFOs was Carolan's work on hog farms in Iowa. Carolan commented that: *'the literature is surprisingly silent when it comes to providing a contextual understanding of how agricultural odors are negotiated 'on the ground'.'* (2008:1235). He argued that odour can only be properly understood within a socio-historical context; that odour perception is a

³¹ The other being water quality

³² Smell and wellbeing were also connected by Gorman (2017) researching therapeutic landscapes such as UK care farms. He found foul smells affected people's physical and mental health and reduced the therapeutic quality of a landscape, introducing stress.

social process. Perceptions are influenced by whether one considers the smell to be 'in place' or not. Agricultural smells are less unacceptable to farmers than to others. Livestock smells, because of the changes in the way they are farmed, are increasingly 'out of place' in the countryside. One respondent said:

“it's unrealistic to say we shouldn't have to smell it [manure] at all. I mean, manure and odors are a part of agriculture. But, honestly, how natural is having thousands of animals confined in a building. (...) That's not what agriculture should be about”. (Carolan 2008:1239).

Another 'transgression' is when people can smell CAFOs from inside their houses. Many of Carolan's respondents accepted the odours when outdoors but said the smell and accompanying flies became a problem when experienced lying in bed or at the dinner table. Carolan found residents' attitudes to the smells were affected by their social networks. When people are well integrated into the farming community they are less likely to perceive problems with the smells or complain about them (a finding backed up by Sharp and Tucker (2005) in Ohio). Those people who experienced serious problems with smell from the CAFOs often felt a sense of powerlessness. This revolved around the ineffectiveness of complaints and their inability to escape the smells or move away from the area. Carolan commented that as smell is invisible it is easily deniable. He concluded that the controversies over smells may essentially be over differing definitions of what nature or rural life should be, involving socio-historical factors around industrial farming, rural vitality, environmental sustainability and animal welfare.

3.4.3 Other sensory impacts: noise and taste

Sound is inherently complex: it may be one way to understand place and also be a significant contributor to the particular qualities of a place (Gallagher *et al.* 2017). Peace and tranquillity are some of the most highly rated characteristics of Herefordshire and Shropshire in past visitor surveys. This makes issues around noise pollution significant for visitors as well as local residents. Schafer's (1994) landmark text addressed the relationship between landscape and sound through the concept of 'soundscapes'. He deployed this normatively, contrasting aesthetically pleasing and displeasing sounds. Schafer recommended 'soundwalks' to study the sounds in an environment; linking with mobile methods. Similarly to smell, sounds can be considered in or out of place by different people. Matless (2005) emphasised the moral judgements involved and how rural, natural locations

are usually valued for their tranquillity³³. Most policy and research is aimed at controlling unwanted anthropogenic noise and preserving what are perceived as natural soundscapes. Matless argued that sonic geography should incorporate aesthetic, ecological and social aspects of noise. Noise is often simply treated as environmental pollution but may bring varied meanings to people as a form of annoyance, disturbance or moral transgression. There are also potential links to mental and physical health, for example if noise disturbs sleep. Noise is experienced through the ears but also through embodied vibrations such as the rumble of heavy goods vehicles, which will affect non-humans as well as people (Gallagher *et al.* 2017).

Again I have found little literature on this topic relating to ILUs specifically, so have incorporated a broad conceptualisation based on this sonic geography literature; using a '*sensitive ear*' to identify multiple dimensions of sound: pleasant, unpleasant and ambiguous (Prior 2017). It is also important to consider what meanings are attached to sounds and which actors, including nonhumans, may be affected.

Finally, it may seem odd to discuss taste in relation to the impacts of IPU, however there are several links. Eating and drinking are key elements of a holiday experience for many people and are closely associated with concepts of authenticity (Hughes 1995; Sims 2009, 2010). Meat may be promoted as a positive part of the distinctive cuisine of an area, as with Hereford beef. But industrially-reared meat is unlikely to be featured as a selling point. Might it become a negative association? I have not found literature that discusses visitor opinions or concerns about livestock raising or welfare concerns³⁴. Similarly there is little literature on whether visitors perceive a dissonance between the imagery and experience of locally produced food and the industrial animal units they may recognise in the landscape. Nevertheless, relations around food weave through this research from the physical cycle of raising and killing chickens through to what food visitors seek out. Many consumers are increasingly reflective about food choices and establish an aesthetic, even sensual, relationship with food (Murdoch and Miele 2004). Murdoch (2006) compared the industrialised, standardised food

³³ I myself researched how English and Welsh National Parks addressed noise issues in protected landscapes through policy and management mechanisms and the value judgements involved (Caffyn and Prosser 1998).

³⁴ Although there is a literature around visitor attitudes to the welfare of zoo animals and wildlife attractions.

space of McDonalds³⁵ with the Slow Food movement which celebrates diverse local practices of production and consumption, rooted in local culture and nature. The contradictions between such systems are becoming ever more pronounced, especially around issues of quality and environmental impacts. Little research has explored such dissonance between tourism, food and intensive livestock farming.

This review has assembled wide ranging literature relating to the research questions, giving an overview of research on intensive livestock farming and the puzzling lack of UK studies. It has identified useful findings about other rural planning contestations and explored rural relations around the three elements of values, knowledge and sensory experiences. I have uncovered several further gaps in knowledge which this research will begin to fill. The next chapter progresses to explain the methodology which emerged from the theoretical approach and the research methods chosen in light of the literature.

³⁵ Supplied by Cargill, now Avara, in Hereford.

Chapter 4 Methodology

The issues around IPU are complex and messy. I chose a set of methods which had the flexibility to explore the breadth of issues involved, while manageable for a single researcher. The methods also needed to have ‘depth’ and explore the details of the situation and localities involved in a grounded fashion. This chapter sets out my methodological approach to the research questions and discusses my methods in detail. The mixed methods flow from the theoretical approach and also are suited to the research topic and context. Different methods may offer only partial findings of the whole phenomenon as each method constructs different understandings. More methods are likely to produce a more rounded account, but not necessarily a perfect one (Crang and Cook 2007).

Section 4.1 gives a methodological overview and sets out the thinking behind my mixed methods approach; how I mobilised advice from ANT and pragmatism to focus on actors, their actions and narratives. Section 4.2 discusses my positionality. Section 4.3 includes an overview of methods in tabular format. The remainder of the chapter then presents each stage of the research methods: the initial desk-based phase, the interviews and finally the ethnographic elements.

4.1 Methodology overview and mixed methods approach

Planning contestations are particular to their localities, so I needed to pay detailed attention to the physical and social particularities of Herefordshire and Shropshire and the dynamics of the situated inter-relationships. I used some elements of situational analysis in my approach (Clarke et al. 2018), drawing up several versions of situational maps in the early stages of fieldwork. Clarke *et al*'s work is rooted in grounded theory (Corbin and Strauss 2015) and while I did not use this directly, I have tried to adopt an open and flexible approach allowing the results to emerge from the data.

Studying a particular situation in a specific location allows a diversity of data collection methods to produce detailed contextualised knowledge (Schram 2012). I have compiled spreadsheets of numeric data about the planning applications and also interviewed many people in depth. Elements of the research exploring the complex sets of interrelations between different actors are akin to ethnographic approaches (e.g. Crang and Cook 2007). My aim to explore how IPU are

experienced introduced multi-sensory elements and a need for attention to the materiality of the physical situations.

Figure 4.1 gives an overview of the methods used. The diagram implies a flow of tasks over time. In practice, meeting observations happened throughout the entire research period whenever the opportunity arose. Similarly, I did some solo walks early on when thinking through methods and scoping out certain locations and continued these periodically.

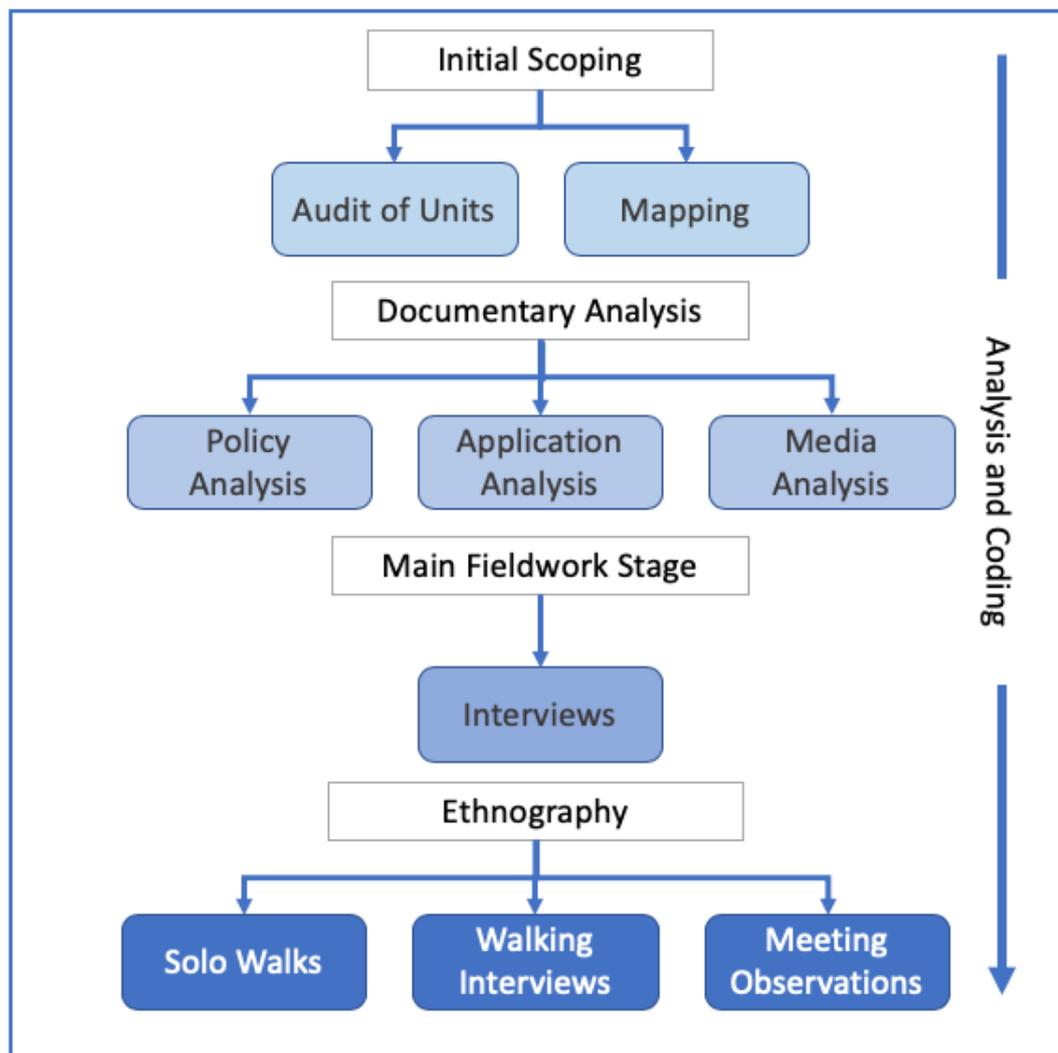


Figure 4.1 Overview of methods

It is useful to break each research question down further before working through the methodology, in order to more clearly demonstrate the purpose of each method. Figure 4.2 sets out the questions and sub-questions and how they are related.

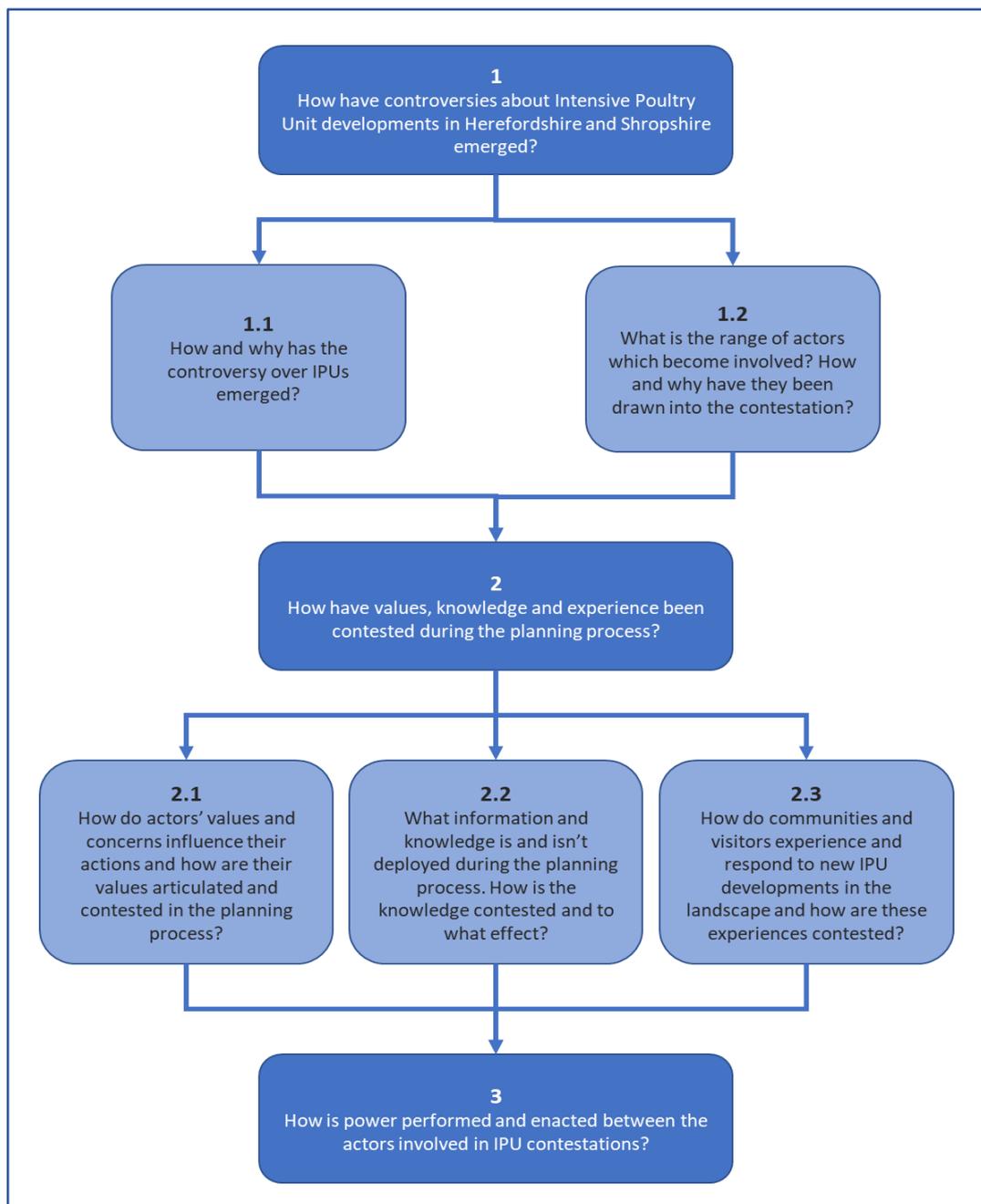


Figure 4.2 Research questions and sub-questions

Multi-method approaches are said to be particularly suitable for research in rural areas (Madsen and Adriansen 2004). Such research often concerns both physical land use and the practice and values of individual actors influencing the land use. Madsen and Adriansen stressed the need to study the situation and focus on the practice and values of individual actors in a grounded process. I have used various strategies for mixing methods, including different methods to corroborate

information and taking advantage of unexpected opportunities (Mason 2006). Overall, I have aimed towards what Mason calls a multi-dimensional strategy; pursuing several questions with intersecting methods to explore a multi-dimensional situation. This, Mason said, is one of the most challenging ways to work but holds out promise of producing particularly enriched research findings. The varied methods each have strengths which can work together in a creative dialogue. This mixed approach may result not in one integrated explanation but in more of a 'multi-nodal' account. Researchers have to create and sustain a 'creative tension' between the methods and questions.

Mason approached the issue from a practical and mainstream social science position. However much of what she said resonates with Law's more relational position on methods (Law 2004). Law advocated a looser, broader, 'quieter' approach to method which subverts and remakes traditional western methodologies. This open approach seems appropriate to tackle the sort of '*complex, diffuse and messy*' (p2) situations of my research topic. Law suggested that researchers need to unmake many methodological habits, including the desire for certainty and the expectation that we can arrive at stable conclusions about the way things really are. Law emphasised that two stories about a situation can be different but also both 'right'. Different actors may tell different stories representing their different realities. Law suggested there is a need for method assemblages which craft both complexity and simplifications, as opposed to conventional methods which tend to assume that there is only one reality and that there are general processes and laws which hold true. He used Foucault's metaphor of 'resonance'; that research methods should aim to detect patterns in a fluctuating world and it is important to make space for ambivalence and ambiguity within a research project. He advocated studying the materialities and shapes of possible presences including a wide range of texts, visual depictions, maps, human apprehensions, bodies, machines, ceremonies, demonstrations, conversations, allegories, performances and natural phenomena. This emphasises that it is an appropriate choice to work with a wide variety of materials and also to search for non-textual data, including people's corporeal and emotional responses and realities.

I heeded ANT scholars' advice to 'follow the actors' to the issues that concern them and to explore the values that shape their concerns and actions. I then followed what people did in response to these concerns, as they were drawn into the contestations. I listened to their stories about what had happened and how

they responded to events: 'A good ANT account is a narrative or a description or a proposition where all the actors do something and don't just sit there.' (Latour 2005:128). The ethnographic elements of the research involved observing actors in action, at meetings or committees. It also involved walking with certain actors through landscapes, experiencing IPU together. And it involved uncovering the stories of non-human actors drawn into contestations. Law (2004) explored how narratives can tell the multiple stories across the same territory and how narrative and landform are intertwined.

The planning documentation I studied also forms narratives; from applicants, objectors and decision makers. The particular 'account' that the planning officer assembles in their report is crucial. This is similar to accounts produced by the pollution inspectors and scientists Revill and Seymour (2000) researched. The inspectors had an operational knowledge articulated in story form; they acted as narrators, mediators and interpreters of knowledge. Flyvbjerg also stressed how in a planning context analysing narratives from documents, observations and interviews allows for stories, intersubjective meanings and experiences with power to be uncovered in ways other methods cannot (Flyvbjerg *et al.* 2012). Landman (2012) discussed how narratives reveal not only basic facts but also contextual details of a story, relationships, understandings and feelings. Ingold and Lee Vergunst (2008) made the link between narrative writing and walking. Both words and footsteps are 'discontinuous traces' which when linked together make a continuous arc of a narrative or walk (see also Wylie 2005; Lorimer 2011; Lund 2012).

In a planning context stories are told for a purpose, to put across a particular viewpoint and influence decisions (Eckstein 2003). Eckstein recommended paying attention to multiple voices, however coherent or incoherent they may be. She stressed the need to understand the narratives from the 'sidewalks' of cities (or rural footpaths), not just a map-based perspective of land change. I needed to be sensitive to the way stories are told and what lies behind the narratives as well as the words themselves. However, Eckstein warned that:

'If one listens to others' stories with ears tuned to how their stories will serve one's own story telling, how they will fit one's grander narrative, then one risks not hearing them at all.' (p16).

Any researcher needs to recognise unexpected findings, or information which suggests alternative answers. A similar cautionary note was made by Law (2004) who emphasised that methods can also help to create the reality that they seek to

understand; you may find what you're looking for because you're looking for it. I needed to guard against both of these tendencies within my research. The mixed methods chosen, although more difficult to handle, involved listening to diverse voices and helped reveal and understand the complexities and multiple understandings of a situation.

4.2 Positionality and reflexivity

I aimed to be self-reflexive while undertaking the research, analysis and writing up. I am not directly impacted by IPU greatly, but see and smell them and encounter chicken lorries on local roads. The issues around IPU first came to my attention in references to planning applications at Shropshire Hills AONB Partnership meetings³⁶. Then in 2015 I was commissioned to write an expert witness report for a planning inquiry into an IPU development just over the Welsh border. I spent several months preparing my report, which addressed only the tourism impacts of the proposed development. During that time I became much more sensitised to the issues, the lack of information about IPU impacts and the apparent inadequacies of the statutory planning and decision-making processes.

My positionality therefore includes having a prior interest in, and concern about, the issues and being involved in partnership work to conserve local landscapes through the AONB. I have opinions about farming, the countryside, wildlife, animal welfare and eating meat which may affect this research and which I need to acknowledge. These influences, presented in Table 4.1, are inter-related and difficult to disentangle.

Table 4.1 Aspects of positionality

1	Being a middle-aged white woman who has lived in the area for 25 years.
2	Having walked much of the local countryside and supported local conservation bodies and charities.
3	Having worked on multiple rural, economic, countryside, conservation, walking and tourism research and development projects in the local area as a freelance consultant.
4	Being familiar with farming and farmers in a general sense having had them as neighbours and met them through work, voluntary work and socially, but lacking detailed knowledge of farming.
5	Sourcing most of my food ethically (I am not vegetarian, although I didn't eat meat for 25 years at one stage).

³⁶ I have been a member of the Partnership for over ten years and was vice-chair for some years.

6	Understanding the perspectives of small rural tourism enterprises, having worked to support and encourage them in several previous jobs, including at South Shropshire District Council.
7	Towards the end of my writing-up phase my partner and I acquired five chickens to keep in our garden for eggs.

Woods discussed how positionality has particular dimensions in rural research including the: *‘dichotomies of insider/outside, rural/non-rural, farmer/non-farmer that position the researcher relative to the community and are drawn on in shaping the presentation of narratives.’* (Woods 2010:841). In these terms I would consider myself rural, borderline insider and a non-farmer. My positionality as a middle-aged, white woman who has lived locally for a long time provides significant advantages when engaging with people living and working in the area. All my interviewees, and those attending events and meetings I observed, were white and almost all were middle-aged or older. I am not ‘born and bred’ local and not from a farming background but could demonstrate good knowledge of the area. Being a female researching agriculture may have affected the dynamics of some interviews, as, while gender stereotypes are changing, they are perhaps only changing slowly in such rural areas.

My position as part of the local community and experience of working as a practitioner and research consultant has influenced my perspective. I have often worked as a problem solver, consulting with local communities to devise a plan of action to address and improve something. This links strongly with a pragmatist approach (Wills and Lake 2020). They commented:

‘While researchers are rarely funded to forge relationships, pursue conversations and slowly develop a feeling for the issues affecting a community of inquiry, pragmatic research requires an investment in such relationships before any ‘research’ can begin.’ (Wills and Lake 2020:26).

My position already embedded within the local area and with a network of existing relationships has given me some advantage in researching the local situation: I had already done some of the groundwork.

The main differential between myself and interviewees was around specialist knowledge. Interviewees were farmers, planners, consultants, agents, councillors, business owners and officers with specialist knowledge of the environment or

other topics³⁷. Even those interviewees who were 'just' local residents included some experts (e.g. barrister, lecturer, engineer) and others who had often become knowledgeable about certain aspects of IPU developments. They also knew their locality and community well. Most knew more about the issues that I was asking them about than I did. The residents I was researching with were not marginal in terms of social characteristics, other than that their views on applications had often been ignored and dismissed.

I positioned the research as academic, based at Cardiff University and funded by the ESRC. While this may not have meant much to many of the participants it locates it at a somewhat distant and academic level and may have affected how I was viewed. It gave me the advantage of a certain independence; not being a journalist or employed by a government agency or campaigning organisation. I mentioned my previous research consultancy work in my introductory letter and this may have given me credibility with some interviewees. I also expressed a willingness to share results with local authorities and agencies or other organisations which contributed to the research. There were eight interviewees who I knew, through my previous paid or voluntary work. There were others where I could make links or reference shared former contacts. I used some of these to gain access to speak to people but tried not to lean heavily on such common ground.

I am conscious that my research has the potential to impact on the area. There was, and continues to be, potential for the research to be picked up as a news story and thereby attract negative publicity for the area. Carolan (2013) suggested an openness to 'co-experimentation' in which the researcher is sensitive to the dynamics of the situation and how the research itself may begin to make things happen that otherwise might not have. I wanted to avoid this happening during the research period as it could impact on whether organisations will be willing to engage with my results. So, for example, I turned down a contact from the local press at one stage. A similar dilemma is at the core of the research as some tourism actors may want to attract publicity about what is happening, whilst they depend on the attractiveness of the area for their business and would not want to deter visitors. This will be an ongoing issue for me if I continue working on the topic longer term, as I will want to publicise my results and conclusions. I have not

³⁷ I am not a qualified planner; my bachelor degree was in geography and my masters was in tourism and leisure.

resolved the issue other than being reluctant to be the direct agent for the issue becoming newsworthy, for the time being.

What my interviewees thought about me is of course impossible to tell. I sustained a neutral position throughout all the interviews, even when questioned about this directly. However, there may be an assumption that anyone doing research on this topic is more likely to be concerned about the IPU's than mounting a defence of them. Also, as my research revealed, being female positioned me as more likely to be on the objector side of the fence than the agricultural. I have a simple consultancy website but sustained minimal social media activity during the research so as not to reveal much about myself or put people off speaking to me.

Fieldwork affects the researcher personally (Coffey 1999). It is also physical and emotional work. I needed to drive considerable distances, walk across muddy fields, and see, smell and hear upsetting things. I sometimes felt anxious about being monitored or confronted by landowners when walking near poultry units³⁸. I have heard the concerns, emotions and experiences of people impacted by IPU applications and developments. I have accompanied some on walks and experienced the materiality of the IPU's together with them. Chapter 9 focuses on sensory experiences and the final section of that addresses emotional responses to the IPU's and associated changes.

Coffey, among others, stressed the need to document decisions, reflections and my own reactions to my fieldwork and to what I experienced and found out. I wrote memos after every field visit and interview to capture this data. She made the point that in undertaking such a major research project there is a commitment both to the people and communities being researched but also to oneself. The following notes recorded during one solo (timeline) walk demonstrates some of these issues:

Got challenged by someone saying 'could they help me?' I didn't say anything and then he said 'It's your fourth visit isn't it?' which was slightly alarming... (...) As I climbed over the gate I glanced back - he's down the far end, where I was just a minute ago, standing with his hands in his pockets, glaring back at me. I'm some distance away but I'll keep the phone by me.

Back at the car I reflected further:

The 'fourth visit' comment was really scary. I approached from a different direction the first time and two times just walked one way

³⁸ I always kept to legal rights of way on all my walks and walking interviews.

past the sheds - to explore the footpaths further. The visits have been six weeks apart so they must be monitoring the CCTV closely. (...) Obviously he has every right to wonder who I am and what I'm doing. It's obvious I'm not a normal walker - the bridleway is blocked, I'm taking photos and I'm visiting periodically. Still, I don't fancy coming back on my own again. (Field notes, 4.2.18)

When I returned for a final visit I took a friend with me and approached from a different direction, avoiding the CCTV cameras.

4.3 Summary of methods

Table 4.2 gives more detail about each method, the type of data it produced and, where appropriate, the number (e.g. of meetings, interviewees). The research question numbers are used in the right-hand column to demonstrate how each method will help answer each research question/sub-question. Some methods answer only one question whereas others, such as interviews, will help address all the research questions. Each method is discussed in more detail below under three headings: initial research phase; interviews and ethnography.

Table 4.2 Summary of methods

Task	Type of data produced	Number	Answers research questions
1. Audit and mapping of poultry development planning applications			
1.1 Compile data on IPU developments - details, number, date, location, number of objections	Spreadsheets		1.1
1.2 Mapping of units over time	Maps		1.1
2. Document analysis			
2.1 Analysis of planning policy and other relevant policy context	Written analysis and key policies identified		2.2
2.2 Analysis of planning application documentation for one 'starter' case plus two further cases - consultee responses, consultant reports, objections, letters of support, officer reports, committee minutes	Written analysis and individual quotes	3	1.2, 2.1, 2.2, 3

Task	Type of data produced	Number	Answers research questions
2.3 Media analysis: <ul style="list-style-type: none"> Analysis of Hereford Times and Shropshire Star coverage National media coverage of the issue more generally (<i>ad hoc</i>) 	Trends in graphs, quotes and textual (and imagery) analysis		1.1, 1.2, 2.1, 3
3. Interviews of actors			
Identify and interview key informants including: <ul style="list-style-type: none"> local authority staff and councillors agency staff, consultants local groups and organisations farmers and tourism businesses national organisations 	Audio and transcripts, plus post interview memos	48 interviews with total 58 individuals (plus conference call with NE staff)	1.1, 1.2, 2.1, 2.2, 2.3, 3
4. Ethnography			
4.1 Walking interviews with local informants	Audio notes and transcripts, photos, memos	6 (included in above numbers)	1.2, 2.1, 2.2, 2.3, 3
4.2 Solo walks			
<ul style="list-style-type: none"> Timeline case study of site under construction Solo walks in areas impacted by poultry units or where applications being decided, plus several 'reccy trips' by car and foot 	Audio notes and transcripts, memos, photos	5 at one site 19 sites total	2.3
4.3 Observations of meetings			
Observations including: <ul style="list-style-type: none"> Workshop events/meetings Planning Committees Campaign group meetings Nutrient Management Board Parish Councils 	Observation notes from discussions, minutes, memos	28 total including: 6 4 10 6 2	1.2, 2.1, 2.2, 2.3, 3

4.4 Initial research phase

The first of the three main research phases involved finding out where and when IPU applications had been submitted across the two counties. I debated whether to take a particular geographical focus but decided upon an open approach to exploring cases. I familiarised myself with the policy context and documentation associated with the planning applications. Finally, as controversy and contestation are central, I traced the media coverage of particular cases and the wider issue both locally and nationally. Here each of these tasks is described in more detail alongside literature which has influenced the decisions I have taken.

4.4.1 Audit of IPU applications and developments

I compiled a spreadsheet of existing units and all planning applications across Herefordshire and Shropshire from the online planning portals of each county council. The data for Shropshire goes back to 1991 whereas in Herefordshire online records only go back to 2000³⁹. The information for cases more than ten years old is much less comprehensive than for more recent cases. Where objections and letters of support are stored it is possible to gauge how controversial each application was. The data can be presented as graphs over time, further discussed in chapter 5. Appendix 2 includes a list of the most controversial individual applications. I also compiled information on older pre-2000/1990 IPUs from EA records of environmental permits (IPUs with over 40,000 birds), fragmentary old planning records, maps and studying online satellite imagery. The resulting database provided a foundation for the remaining research methods. The mapping of the data for the two counties allows visual representation of the IPU developments over time and helps identify spatial patterns in their distribution.

4.4.2 Study area and approach

Initially I had envisaged researching one or several case study planning applications. I identified over 20 cases in the last five or six years which had proved controversial; some with several hundred objections. I drew up criteria to help choose the cases (Yin 2014): a site built 4-5 years ago, where there was both

³⁹ It might be possible to compile the records from earlier through manual searches at council offices however I decided I had sufficient data from the online search, which in itself had taken over a month.

a nearby right of way and several tourism businesses. In the event none of the shortlisted sites in either county was a perfect match for these criteria. It became clear that each site had specific issues and features which made it distinct from others and interesting for different reasons. So I decided to take a fluid approach exploring several cases in more detail and scanning the details of others initially, sometimes exploring those more fully at a later date.

I decided to focus the interviews largely in Herefordshire, having heard about delays with planning cases in Shropshire. I approached Herefordshire Council which, with some hesitation, agreed to co-operate with the research. This approval of a key 'gatekeeper' made recruiting further interviewees easier. Other advantages of choosing Herefordshire included the dominant position of the main poultry processor company (Cargill, later Avara) in Hereford which has a network of over 100 supplier farms. Despite this initial decision I continued to follow events across Shropshire and chose to interview certain actors from the county as they had specific knowledge and experience. I decided to follow interesting stories wherever they emerged, focusing the majority of interviews in Herefordshire but following up leads in Shropshire as well, such as my 'timeline' solo walks and the campaign group observations. During the period of the research events developed differently in each county and I was able to follow both stories.

I reframed the approach as researching a wider 'situation' involving multiple localities where an IPU application has been made but also the cumulative impacts of all the IPUs when built. Some of my interviewees were involved in just one application in their locality but others were involved with many cases or with the cumulative impacts across the wider area. This approach relates better to the reality on the ground where the situation is messy, varied and involves many different actors in each case. The flexible approach allows me to zoom in to explore certain locations or stories in detail and also to consider the wider-angle perspective as the cases have proliferated.

4.4.3 Document analysis

I analysed the Core Strategies for both Herefordshire and Shropshire, identified relevant policies within the National Planning Policy Framework and consulted a range of agricultural, environmental and rural development policy and planning documentation over the course of the research. The local scale is also relevant,

particularly in Herefordshire where multiple Neighbourhood Plans are now approved a few of which contain specific IPU policies.

I analysed in detail the planning application documentation for a 'starter' case at Penrhos, near Kington (the case described in the Introduction). I compiled and categorised the main arguments from the supporters and objectors and statutory consultees, applying standard advice from methods texts such as May (2011) and inspired by specific studies which traced controversy through documentary analysis such as Flyvbjerg (1998) and Reynolds (2013). I traced how the planning officer assembled the evidence into his committee report; how the arguments were weighed against each other and which got most purchase. I checked this against the committee minutes and the comments from several interviewees involved in the case, plus multiple newspaper articles. It was useful to follow the whole process through in detail, and I became familiar with the range of actors, the discourse used and standard formats of evidence presented. However, the exercise involved reading over 200 documents, maps, reports etc and it became clear that I could not do the equivalent work on many more applications. For most of the other controversial cases I restricted myself to reading planning officer reports, minutes and any particularly contested reports.

I compiled details of local media coverage of IPU applications from local newspaper websites; the Hereford Times and Shropshire Star. This allowed me to track media coverage over time and identify which cases raised particular concern. Several authors have traced how the press is drawn into controversies over planning issues (Flyvbjerg 1998; Leino and Laine 2011). I also noted national newspaper reports and TV programmes about the issues and added them to my data. Media coverage is an essential element of this research as it helps identify how the issue was made public. Leino and Laine (2011) drew on the work of Marres in their analysis of a transport planning situation in Finland and emphasised the importance of following the trajectory of the issue in the local press. I was able to follow the trajectory of how certain cases caught public attention and triggered letters and then more general articles about the wider situation. The media analysis helps answer how the contestations have emerged and how actors deploy discourse. It also includes additional accounts of how people have been impacted and what their concerns have been.

All this material, plus my research memos, have been coded using NVivo, alongside the interview transcripts. Clegg and Pitsis (2012) described analysis of

such documents as providing '*a history of the present*'. They urged researchers to explore the grounds for what passes for reason in any given situation and time. They suggested digging through such history buried in documentation and people's stories may unearth revealing concordances and dissonances. It has helped trace how the ways of thinking and conceptualising the world in my study area have become normalised.

4.5 Interviews

Interviews were my core research method. They provided material to answer all my research questions. Here I discuss how I selected and categorised interviewees and in the next section I discuss the interviewing process.

4.5.1 Interviewees

Initially I identified target people and organisations to interview from planning application documentation. These included applicants, their agents, statutory consultees, objectors and the bodies that frequently provide support to applicants such as the NFU and those that regularly object such as CPRE. I used my own knowledge of the tourism and walking sector to identify tourist actors such as county bodies, as they have rarely engaged with such planning applications. I maintained a prioritised list of target interviewees and added suggestions from those I spoke to; effectively supplementing the purposive approach with snowball sampling. It was useful to gain interviewees' perspectives on who was entangled in the contestations. Snowball sampling risks bias and omitting those not part of networks but is useful for reaching widely distributed and/or elusive participants. Stehlik (2004) used what she called '*rhizomatic sampling*' which helps identify networks of support between people sharing a common (perhaps emotional or traumatic) experience. She said this snowball-like approach could become a collective, '*living, dynamic process*' (p43) particularly in rural environments. Certainly, it was useful to have personal recommendations made between people involved in several campaign groups.

I tried to ensure a balance of views for, against and neutral on the IPU developments. I also allowed myself to pursue certain sub-issues which emerged and appeared significant, such as ammonia emissions, where I arranged an interview with the ecologists drafting new guidelines in Shropshire. Only in one

case did an organisation I viewed as essential prove impossible to interview⁴⁰. In that instance I was able to interview someone who had previously led the organisation and now worked in a related body. In several instances interviewees have pulled in additional colleagues (or spouses) to an interview, which boosted interviewee numbers and the range of experience and expertise I heard from⁴¹.

About ten people I contacted said they would rather not be interviewed. Some didn't want to comment on something they knew was controversial, others felt they didn't know much about the issue. The lead objector in the starter case refused an interview, explaining in a letter that their property was on the market and one sale had already fallen through when the purchasers learned about their campaign against the IPU. I also heard the experience had been traumatic and they did not wish to revisit it again. One farmer postponed several times and may have changed their mind about speaking as shortly after they submitted another planning application. Natural England (NE) withdrew from being interviewed and instead offered to answer written questions which I submitted and received useful responses to. I was then invited to participate in an hour's conference call with five NE officers addressing ammonia emissions nationally⁴².

Overall I secured 48 interviews with a total of 59 people, including walking interviews, discussed below. Standard advice is to keep doing more interviews while you are capturing new information and it is important to try to achieve the greatest possible range of replies (Baker and Edwards 2012). Whilst there were more people I would have liked to interview I assessed that I had a good spread and depth of contacts, more than sufficient for the current research. Most interviews were one to two hours long (several longer) and the task of transcribing and coding so much data was substantial. I had conversations with several additional actors and with some interviewees when I met them subsequently. These were memo-ed but I have not included these in my tally of interviews.

Figure 4.3 summarises how I categorised the interviewees and also how many fall into more than one category.

⁴⁰ After initially agreeing to meet me the two contacts both then failed to respond to multiple follow-up messages.

⁴¹ In one instance the lead campaigner's wife joined us and it became apparent that she was a former government poultry vet.

⁴² Odd; as it took more resources from NE than a single interview with one person. NE appeared to be having extensive internal conversations about nitrates and ammonia pollution over this period. I have counted the conference call as one participant.

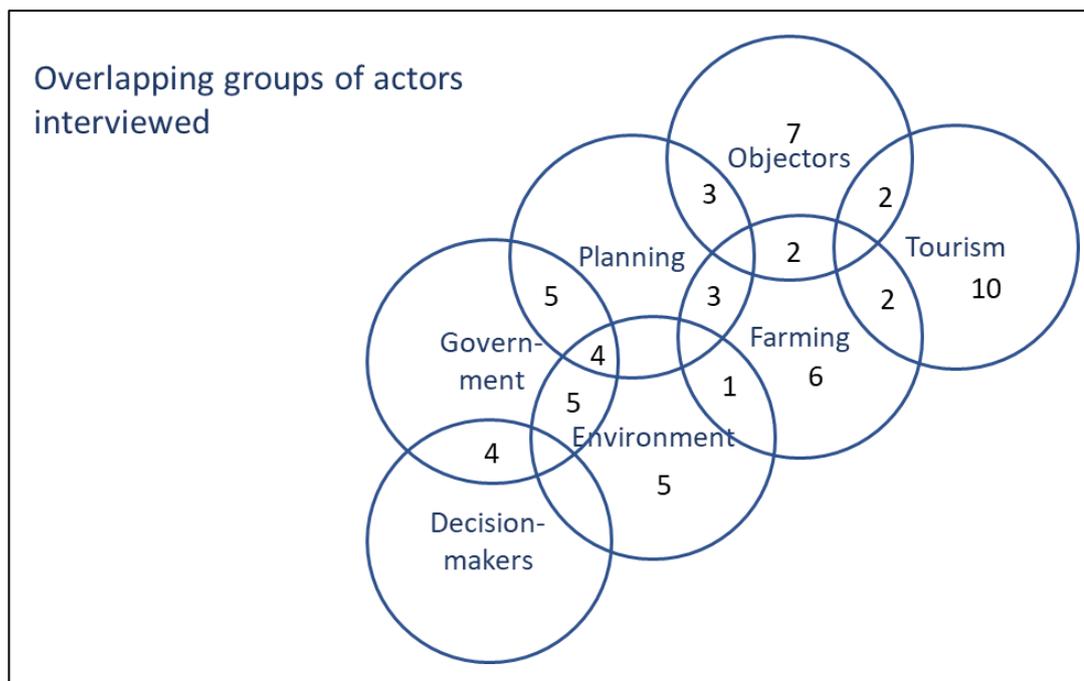


Figure 4.3 Groups of interviewees

Table 4.3 sets out the categories.

Table 4.3 Interviewee categories

Code	Category description	No.*
G	Government actors - who work for or represent official bodies - local authorities and environmental agencies	18
D	Decision makers - I have separated out the four county/parish councillors I spoke with	4
P	Planning actors - including the official local authority planners, several officers with both an environmental and planning remit and also private sector planning consultants and land agents	15
E	Environmental actors - which include the official environmental officers, but also some people working for environmental charities, and one farming/environment actor	15
O	Objectors - who included local people, several organisations campaigning against IPUs and some local tourism and farming businesses	14
F	Farming actors - which includes farmers, their agents (who overlap into the planning category), the processor company, farming organisations and some farmers who also had tourism interests.	14
T	Tourism actors - including those running tourism businesses, working for tourism organisations or in a tourism role for a government body	14

* This number includes the actors in multiple categories so should not be totalled.

Appendix 3 gives a full list of anonymised interviewees with the codes assigned to each individual, based on the above categories. The gender split of interviewees was 37 men and 22 women. A full third of the interviewees were official actors who play a role in the planning process and have given me an insight into how it operates. I identified several poultry farms which also run tourism operations and targeted these for interviews. I am comfortable with the split between pro and anti poultry unit actors; with a slight but significant weighting on the objector/tourism side of the debate. This side of the argument will provide more data on concerns about IPUs and how the units are experienced. These actors have also struggled to make their voices heard and it is therefore appropriate to spend longer listening to these narratives and concerns.

4.5.2 The interviewing process

Most actors were approached by email where I described my research and stressed the confidentiality of responses. Where I had no email address I wrote a letter. In all cases the interviewee chose the interview location and timing. All took place during the day on weekdays. Some were held in people's offices (8) or in a public space within their office building (13). Many people invited me to come to their home (11) or home office (2). I met others in cafes (7) and carried out phone interviews with several people who were either geographically distant or preferred to speak by phone (4). The six walking interviews are discussed separately below but three included a 'seated' interview followed by a walk later the same day (2) or on another day (1). At two farms I was driven to see the IPU nearby and at one was shown the inside of the chicken sheds and biomass plant.

Interview locations can be revealing in several ways. They provide contextual details about interviewees and their work or social life. They can also reveal something about power relations between the researcher and interviewee:

'The microgeographies of the interview reflect the relationships of the researcher with the interview participant, the participant with the site, and the site within a broader sociocultural context that affects both researcher and participant.' (Elwood and Martin 2000:650).

I was aware of four or five interviewees possibly reinforcing a power differential between them and myself; particularly those who hosted me in their office and remained seated behind their desks throughout the interview. Most chose to relocate to a more relaxed or neutral location within their office. As a mature

researcher with experience of public offices and rural homes/farms I did not find the interview environments uncomfortable or intimidating. Most locations worked well, even the noisy cafes did not prevent accurate audio transcription. I absorbed many contextual details en-route to and during the interviews. For example, the contrast between the large 'swish' offices of two land agents and the cramped home offices of consultants working for the objectors.

Interviewees all signed a consent form, modelled on an ESRC format (Appendix 4) before the interview commenced. I recorded all interviews using a digital audio recorder. I suspect the recording impacted on several interviews with people not being as forthcoming as perhaps they might have been otherwise. On several occasions people made reference to the recorder while making particularly sensitive, indiscreet or controversial comments. Most, however, were not worried about confidentiality. They had usually already gone on record about their views during a planning application or did not have strong views and were therefore not so concerned.

There is much general advice about conducting qualitative interviews (Crang and Cook 2007; Hennink et al. 2011; May 2011; Brinkmann and Kvale 2015) which I drew upon for the semi-structured interviews. I prepared a standard interview guide, structured to address all my research questions. Some interviews focused more on some sections than others, depending on the person's role and involvement in one or multiple IPU cases. In practice I prepared for each interview individually, reading background information and thinking through which questions would be most relevant in advance, including attempts to corroborate specific information.

The most challenging interviews were those where there was the most ground to cover, which simply took a long time. I also often had to prioritise which areas to discuss. I tried not to over-control the interviews, but to let the conversation flow more naturally where possible. Interviewees' free-flowing accounts provided some of the most interesting content. Simple follow-up probes or silence often elicited more detail and revelations (Brinkmann and Kvale 2015). On several occasions the interviewee plunged into a long, sometimes angry, account about IPUs right at the start of the interview and I allowed this to flow, worrying less about covering things in a set order. I asked interviewees whether they had anything else to add at the end and this elicited several thoughtful reflections and additional points.

I used visual elicitation methods with some interviewees; showing my graphs, maps and, on occasion, photographs of poultry units to prompt conversation, taking care to present data in a neutral way; letting the material speak for itself. Harper (2002) discussed how photo elicitation can be used to both 'bridge' worlds between the interviewer and interviewee and also to 'break the frame' of normal standpoints or opinions. With 'official' interviewees it felt appropriate to share data as a way of establishing my credentials: bridging. I also used it in interviews where people were not so familiar with IPU's or perhaps doubted there was much of an issue: breaking the frame. This included most of the tourism bodies for example.

In my role as interviewer I steered away from the 'interviewer as objective miner of information' model and spent time in interviews co-constructing information (Brinkmann and Kvale 2015). I aimed to travel (sometimes literally when walking) with my actors through their worlds of knowledge and experience and invite their narratives of how they see the issues and situations. England (1994) talked of the interviewer as 'suppliant' seeking the knowledge the interviewee possesses. This subtle relationship ensures much of the power remains with the interviewee. This unthreatening role can help elicit information that might have been withheld from a more assertive or domineering approach. Certainly, there were times in interviews when people indicated that they probably shouldn't tell me something, but did so anyway. I was fairly passive and non-challenging; trying to probe where possible but backing off if I appeared to be treading on uncomfortable ground. Rice (2010) discussed how power relationships can place researchers:

'in the difficult position of having to maintain positive relations with those they are studying whilst developing critical perspectives from the empirical material they have maintained.'(p74).

Keeping the interviewee 'onside' is partly an ethical stance but also pragmatic; so as to complete the interview, cover as much ground as possible and facilitate any follow up I might want to pursue.

Returning to power differentials, there were instances of people telling me about their position, role and experience as if to position me in a subservient position as we talked. This was sometimes when I asked a question they were trying to evade. I was perhaps being reminded of my position and that they were willing to talk, but on their own terms. Dunn (2007) likened decision makers and managers to pufferfish who inflate themselves to seem more intimidating to the perceived threat of a researcher. They may also give convenient 'ex post facto' accounts of

how decisions were made, rearranging the facts to justify the decisions and omitting the alternative routes which could have been taken. Dunn referred to improvised decisions, informal agreements and even illegal decision-making. When I was told about such instances I tried to triangulate the information by asking others about the case. I have highlighted in my results when evidence is impossible to prove but where a number of sources have said the same thing. Czarniawska-Joerges (2007) supported this strategy of interviewing several people who played a part in the decision-making. She said the shared element of their accounts is important, as well as where accounts vary.

My interviewees were not marginal or vulnerable groups, but I needed to be mindful in some instances that the research interview is essentially an intrusive process (England 1994). Some actors had been through stressful and emotional experiences during the course of an often long, drawn out planning application process. I was asking some people to relive quite traumatic periods of conflict in their lives, particularly in cases where objectors had been unsuccessful in halting a development. In my role I was able to escape the situation whereas some interviewees, the 'losers' in the case, were having to live with new IPUs and their impacts close by. I was conscious of the potentially exploitative nature of research and gave such interviewees space to talk without pressing too hard for more detail.

I downloaded the audio-recordings of the interviews immediately and wrote short memos, often dictating these on the drive home, to capture my thoughts and impressions. The memo-taking was helpful in identifying key narratives, new perspectives, things to check and snowballing suggestions. The memos were analysed alongside the interview transcripts using NVivo. It is normally recommended to transcribe audio oneself (e.g. Pink 2015), however this proved challenging given the number and length of the interviews. I used professional transcription for about 20 interviews and listened to, read and corrected every transcript.

4.6 Ethnography

I brought sensory ethnography into the research to focus on people's perceptions and how they sense the changing landscape to supplement more conventional information from interviews and written text. Dicks described it as '*casting a differently-angled light on more established social research methods.*'

(2014:671). The ethnographic methods help answer research question 2.3, exploring experiential responses to IPU and how these vary and are sometimes contested. I wanted to experience the materiality and multisensory nature of localities:

'Ethnographer and participants continue to be active participants in their environments, using their whole bodies, all their senses, available props and the ground under their feet, to narrate, perform, communicate and represent their experiences.' (Pink 2015:78).

This section discusses the walking interviews, then my solo walks and finally meeting observations, which enabled me to listen to live discussions and arguments about many aspects of the research between actors.

4.6.1 Walking interviews

To research how people experience IPU I collected data on the move through 'walking interviews', or 'go-along' interviews (Kusenbach 2003), and recorded discussions, literally in the field. I heard polarised views on whether walking past IPU would affect people and it felt important to test this out in practice, exploring experiences in real time. When I sensed a walking interview might be an option, I raised it with the interviewee to see if they would be willing, either in advance or during the interview. I had initial offers of over ten walking interviews but only six were completed. People dropped out for workload and health/fitness reasons⁴³. I also sensed discomfort from one person; they had been happy to speak in a café with me but perhaps the idea of an hour or two's walk made them uncomfortable. It is more of a commitment from the interviewee.

The six completed walking interviews were with two officers, two walking/tourism interests and two with objectors⁴⁴. The walks with objectors were along routes around the IPU site or proposed site. In the other cases I asked the interviewee to nominate a route of their choice involving an IPU. Jones *et al.* (2008) discussed the advantages of asking people to suggest the routes taken, which gives the participant more autonomy. In two cases, I suggested a choice of several locations and the interviewee chose the one they preferred. My priority was to follow the lead of each actor. I wanted to focus on the narrative they developed with me and

⁴³ In some cases I walked the route as a solo walk

⁴⁴ On the penultimate interview I walked with two objectors - i.e. seven individuals in total

the language they used to speak of their embodied and sensory experiences and emotions about the landscape they were walking through.

There is an extensive literature on mobile methods and walking interviews to draw upon; (Dicks *et al.* 2006; Evans and Jones 2011; Spinney 2011; Moles and Saunders 2015; Bates and Rhys-Taylor 2017; Clark 2017; Gallagher and Prior 2017; Holgersson 2017). Walking interviews bring the locality, the lived geography, more into the discussion: '*At their best we have felt these walks to be three-way conversations, with interviewee, interviewer and locality engaged in an exchange of ideas*' (Hall *et al.* 2006:3). On familiar routes, particular sites may prompt memories, people comment on the changes that have taken place and a route may give a structure to a story someone is telling. On unfamiliar routes it is possible to capture first impressions and responses to particular localities. Half the routes were familiar to the walkers and half were new, so I have captured examples of both⁴⁵. Anderson (2004:260) talked of generating a '*collage of collaborative knowledge*' during '*talking whilst walking*'. He described how place can act as a trigger for knowledge recollection and production, revealing people's relationships with places and how place is sometimes part of their identity, particularly relevant for my local resident objectors and perhaps also officers who feel a particular affinity with the area they are working to conserve or promote.

Hall *et al.* (2006) suggested that taking people out of the office/home is likely to even-out power differentials. With the objectors I felt it gave them more scope to point out how their local environment was or would be impacted and to articulate what mattered most to them. Elwood and Martin (2000) noticed that taking employees and managers away from their workplace encouraged them to speak as individuals, not just giving the 'official' line. I observed this with the two officers; we discussed a wider range of issues and in a more informal, lively and multisensory way than during a standard interview.

Clark (2017) used group walks to research neighbourhoods. He considered the walks as performances: '*In telling their tales the participants were conscious that they were delivering a particular performance.*' (p95). I sensed this with several interviewees, possibly because they were being audio recorded as we walked. On the whole people seemed to forget they were 'wired up' to a microphone on their lapel but at times it was clear someone wanted to make a particular point and

⁴⁵ I was not familiar with any of the routes myself

have it put on record. I found being able to capture people's responses to unexpected encounters, sudden viewpoints and experiencing smells and sounds was particularly valuable (Thompson and Reynolds 2019).

I felt the walking interviews had particular value when walking with objectors who had (or were currently) fighting a development which threatened the landscape we were walking through. Anderson (2004) noted that walking interviews may have more significance in politicised environments such as protest sites. I would have liked to have done more of these at sites where an IPU had been recently built but only a few had suitable rights of way plus a fit, healthy and amenable objector. Cases where objectors have 'lost' are particularly sensitive. People are facing the materiality of the dreaded development which they may have fought over an extended period.

I took photographs during the walks, mainly focusing on the things that were discussed and encountered en-route. I also trialled video during the walking interviews and some solo walks. Using a video camera proved too cumbersome and created additional anxiety both from trying to deal with the technical issues and also the context. It became apparent it would compromise interviews, affecting conversation with the interviewee. Filming near an IPU posed specific challenges as routes may not be clear and there are usually warning notices and CCTV. Walkers become anxious and may be concerned whether anyone is watching them and whether a farmer will accost them. I also trialled a chest mounted action camera which was less obvious to observers. It can be set running at a comfortable distance from the IPU. In the event I captured chest camera video from four walks⁴⁶. However, I have chosen not to integrate any analysis of the film in this thesis. I found what was said and captured on audio was the most useful data. The visual data from the video footage would reveal more nuanced interpretations of the experience of encountering the IPUs; perhaps the look of disgust on someone's face at a smell. But in my view, this would be better as a specific research project with those objectives. The audio captured emotion and responses to smell, touch, taste and visual impacts effectively enough for my purposes. It is possible that the action camera may have affected the interviewees when I did use it⁴⁷.

⁴⁶ In practice it was only on certain stretches of the walk as battery life was also an issue.

⁴⁷ In fact during the final walk I decided not to use the camera as I felt it might intimidate the particular interviewee.

I used a truncated interview guide, easily stowed in my pocket, which also included prompts about sensory aspects: noise (Stevenson and Holloway 2017), smell (Low 2005) and air quality. I remained alert to physical/touch type impacts including changes to the ground surface, mud, vibrations from traffic etc. The topic of food and taste cropped up in several interviews as well. Both Pink (2015) and Ingold (2010) prefer to talk of ‘multisensoriality’ rather than focusing on one or two sensory experiences in isolation of others. Ingold described the senses as ‘inter-twined’. He also emphasised the need to factor in the weather; the wind, cold, quality of the light, feel of sunshine etc.

The walking interviews produced a wealth of useful data that I would not have found had I not been willing to take to the fields with people: *‘the knowledge produced is importantly different: atmospheres, emotions, reflections and beliefs can be accessed, as well as intellects, rationales and ideologies.’* (Anderson 2004:260).

4.6.2 Solo walks

I visited 19 IPU sites on my own, some as early reconnoitre visits by car and walking past several on footpaths. I wanted to acquaint myself with a range of sites. This helped me understand how similar the sites are, the relatively standard construction and provided valuable background for the research. It was helpful to understand references to the features of a particular site, for example the narrowness of the access road, or the way the site sits in the landscape.

I also wanted to explore my own experiences and responses as a contribution to answering research question 2.3. I made audio recordings of my walks and the timeline case study and took photos and video clips on my phone. I wrote memos after each solo walk. My reflections relate to noise, smell and the physical and emotional experience of walking to/past the site. My timeline case study involved a series of five visits every six-eight weeks (Figure 4.4).

October 2017



November 2017



December 2017



February 2018



May 2018



Figure 4.4 Timeline case Neenton, Shropshire

This method was opportunistic when I realised the IPU was being built. I was interested to see the physical transformation materialise during the building process. In some ways this method does not easily answer any of the research questions, but in doing multiple visits to one site I gained something more akin to a local's perspective; someone who periodically walks a local route through the course of a year, experiencing the walk in variable weather and ground conditions, a little like Wylie's 2002 account of a series of walks up Glastonbury Tor. I also had encounters during these walks with noisy machinery, an angry farmer, a hare, CCTV cameras, several pheasants, blocked rights of way, a shooting party, a fake CCTV camera; only some of which would have been witnessed in a single visit. I witnessed impacts of the construction including uprooted trees, soil runoff into the brook below, hedgerow loss and the creation of a new access road.

In my photos I tried to capture each site's setting, scale and nature. I also attempted to capture rights of way obstacles, wildlife and some of the less obvious aspects of the developments such as signage and approach roads. Photos will sometimes reveal patterns not noticed otherwise (Rose 2016). Photos may also be ways of identifying non-human narratives and perspectives, or at least of illustrating the non-human actors involved such as lichen or orchids, oak trees and hedgerows: *'With our ear cocked in the right direction, it would seem, we should surely be able to hear the sound of nature talking back.'* (Robbins 2007:59).

4.6.3 Meeting observations

Early in my research there was a flurry of events relating to IPUs and farming/landscape issues which I attended in late 2016 and early 2017. These were organised by CPRW⁴⁸, CPRE(2) and the Shropshire Hills AONB and included a number of speakers from government agencies, campaign groups, farmers and researchers. I also attended several AONB meetings⁴⁹ which provided relevant and useful information e.g. on Landscape Character Assessment methods. I attended only four planning committee meetings, fewer than anticipated, as from late 2017 many IPU applications were delayed substantially. Some remained so through to 2020. I audio recorded and transcribed these planning committees, writing memos immediately afterwards as official minutes are generally just brief summaries. I

⁴⁸ Campaign to Protect Rural Wales

⁴⁹ In my role as a Partnership member

also watched a video of one 2017 Herefordshire case which had been posted online by objectors. I attended two parish council meetings where IPU applications were being discussed which gave me a perspective on how the issues were contested amongst parish actors.

I was fortunate in being invited to a meeting in south Shropshire where a campaign was emerging against a specific IPU proposal. I attended and observed seven meetings of this group during the course of 2018 until the application went to committee in early 2019. My role was as a non-participant observer (Hennink *et al.* 2011). The group met once a month with eight to 20 attendees, to be updated on progress and preparing objections. Observing the meetings was particularly valuable to see how campaigners individually and collectively got to grips with the process and the technical reports. I also saw how group members became more knowledgeable and politically aware. I accompanied the group on a visit to a nearby wildflower meadow SSSI (Figure 4.5). The discussion during the walk included the IPU development and what could be done to fight it, but also the special wildlife of the area, how it had changed over recent decades and the impacts of ammonia on wildflowers.



Figure 4.5 Walk at wildflower meadow SSSI with campaign group

The SSSI landowners initiated a network of Shropshire opposition groups which met twice during 2019. I was invited to observe these meetings, which brought together campaigners from five Shropshire sites, plus several CPRE/W representatives and planning experts. This gave the opportunity to observe embryonic discussions sharing information about several ongoing judicial reviews

and court cases⁵⁰. There were also discussions about how to influence the Council, generate publicity and campaign more widely⁵¹.

Finally, I became aware of the Nutrient Management Plan for the Rivers Wye and Lugg as part of my policy analysis and discussions with interviewees. The Plan aims to reduce nutrient pollution across the catchment and is implemented through a Board which meets twice a year when members of the public are able to attend. I attended six meetings between 2018 and 2020.

4.7 Analysis

The mixed methods generated a large volume of research material to be analysed; interview transcripts, observation notes, documents, media reports, photos and research memos. The textual materials were uploaded to NVivo software and coded (Ryan and Bernard 2003; Crang and Cook 2007; Schiellerup 2008). I allowed codes to emerge from the data, first using a small cross section of interviews to establish thematic headings and sub themes and coding the remaining data making adjustments as additional codes emerged. I explored the data in multiple ways whilst coding, following up thoughts that emerged and checking some data against others. This is similar to what Brinkmann and Kvale (2015) advocated; an *ad hoc* 'bricolage' approach to bring out connections and structures which may be hidden at first. While coding I annotated the transcripts, for example commenting on the implications of certain statements or linking something two people said. I added these notes to the original memos and was able to see if my thoughts needed to be amended on a closer reading of the transcript. While analysing the data I tried to be alert for repetitions, the use of metaphors or analogies, similarities and differences and missing data; things that were avoided, glossed over or omitted (Ryan and Bernard 2003).

The final stage of identifying resonance between my themes and theory took longer: the volume and breadth of the material was challenging. Schiellerup (2008) discussed the challenges of balancing themes emerging from the data with the initial narratives identified from the literature review. She warned against

⁵⁰ Three of the court cases or JRs were subsequently won or the Council ceded the cases.

⁵¹ I also planned to attend a 'national' meeting called by anti ILU campaigners in Cornwall in late 2019 but the event was cancelled due to poor prospective turnout, probably due to the remote location and possibly the odd attitude of the organisers. Many of my local contacts decided not to attend.

becoming bogged down in the data and of the need to know when to stop analysis. I shifted to use NVivo to compile key results into embryonic chapters around my research questions. These still included extensive interviewee quotes but enabled me to organise the data and ensure key stories were included.

These analyses have been condensed into my main empirical chapters (5-9). I found the process of choosing which quotes to include, which to paraphrase and which to omit challenging. As England (1994) pointed out: *'it is the researcher who ultimately chooses which quotes (and, therefore, whose "voices") to include.'* (p250). I am conscious that some interviewees are heard more loudly and more often in their own voice in the research than others. I have tried not to exclude the less articulate voices but to focus on what they were trying to say. To reduce quote length I have edited many down and indicate missing words using bracketed ellipses (...). I have been careful to ensure this does not change the meaning or emphasis of what was said. I use a similar device to indicate where people trailed off saying something... as there is often an unsaid implication. In chapter 9 I present several longer chains of quotes from a walking interview or solo walk in the form of vignettes (Crang and Cook 2007). This has enabled me to focus on particular, sensory experiences and how they shift over the course of a walk.

This hybrid methodology incorporating data and documentary analysis, interviews and ethnography complements the composite theoretical approach. I hope the flexible approach and choice of multiple methods has produced robust and reliable findings. The thesis now turns to present the situation and its background in more detail and then the empirical results produced by this methodology.

Chapter 5 The emerging controversy

Intensive livestock farming tends to remain hidden metaphorically and physically. Most people don't want to know how meat is raised (Jackson 2010). The moral questions raised are shunted into society's collective unconsciousness (Safran Foer 2009; Evans and Miele 2012; Weis 2013). Meat production facilities have usually been 'sequestered' in remote areas (Chiles 2016) partly to conceal the processes so that consumers can continue to avoid thinking about it. It is in the interests of the poultry industry to keep its presence and impacts low profile, to avoid the contestation and controversy that wider awareness may trigger. For many it is only when it arrives on their doorstep, almost literally, in the form of a planning application that they turn to face the issue and try to find out more.

This chapter sets out how the poultry industry developed in 'remote' Herefordshire and Shropshire and how it became much more visible over the last ten years. The media analysis demonstrates how and when the controversy emerged. The chapter then begins to draw on interviews and other data to explore the motivations behind farmers' decisions to develop IPUs and the varied farming situations that can be found. More actors from the farming sector are introduced and the relations amongst the actors explored. By the end of the chapter the reader should understand the context and how the contested situation this research is exploring has come about.

5.1 The poultry industry in Herefordshire and Shropshire

This section presents the data from my analysis of poultry planning applications and coverage of the issue in the local media in Herefordshire and Shropshire. I examine how this part of the UK came to have such a concentration of IPUs and to investigate when people began to notice the proliferation and became concerned. The background to the current controversies and how they emerged during the early 2010s is traced. Further contextual details about the UK intensive poultry industry production and processors are given in Appendix 1.

Herefordshire and Shropshire companies were some of the earliest poultry businesses in the UK. In Shropshire J.P. Wood emerged from game and poultry dealing families in the nineteenth century, establishing multiple shops and a large processing plant in Craven Arms (Figure 5.1). It grew to become one of the largest

food production companies in the world when it was purchased by Unilever in 1968.

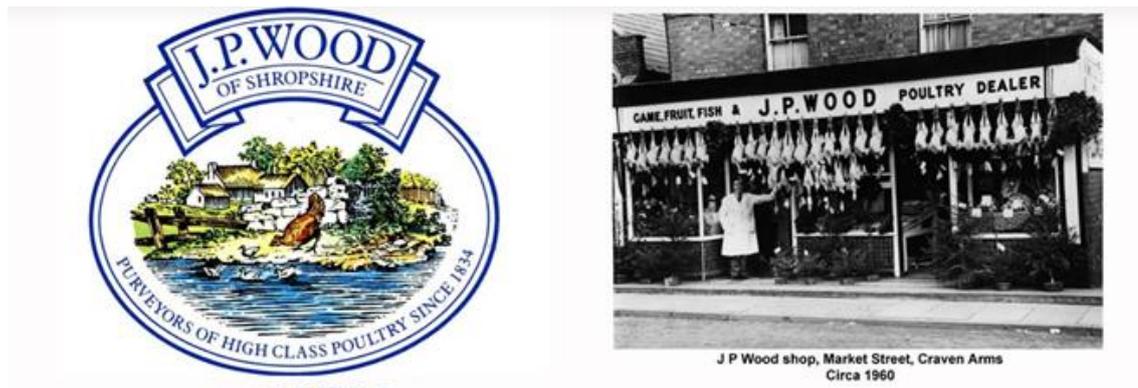


Figure 5.1 JP Wood, Craven Arms⁵²

The company had its own brand; ‘Chukie Chickens’ (Figure 5.2). By 1979 the company employed 1,500 people, owned 100 poultry farms with over 3m birds ‘on the floor’ at any one time⁵³. In 1990 the main plant was relocated elsewhere and the company was subsequently sold several times.



Figure 5.2 JP Wood and Chukie Chickens images⁵⁴

The history of Herefordshire’s poultry industry links with Shropshire’s story, but the Hereford processor has survived and continued to expand. Poultry farming

⁵² From panel at Land of Lost Content Museum, Craven Arms

⁵³ This suggests an average of around 30,000 birds per farm, compared to 160-200,000 currently.

⁵⁴ Chukie chicken was the best! Facebook group <https://www.facebook.com/groups/334319497994>

became established during the 1950s. In 1960 Colonel Corbett⁵⁵, who originally bred chicks in NW Herefordshire for J.P. Wood, established Sun Valley Foods in Hereford, a co-operative company with other local poultry farms. Sun Valley produced, processed and marketed their own chickens, building processing plants in Hereford and a feed mill at Allensmore a little further south. In 1980 the company was bought by Cargill, the American multinational. In 1994 weekly production was 600,000 birds, which increased as the plant expanded to reach 1m by 2008 (The Poultry Site 2008). That year the company was rebranded as Cargill Meats Europe (Figure 5.3) and acquired Freemans of Newent (nearby in Gloucestershire) adding another 320,000 bird capacity, and free-range and halal businesses.



Figure 5.3 Sun Valley, Cargill and Avara⁵⁶ logos

These periodic expansions in capacity have required additional poultry farms to supply the chickens:

'They tend to be cyclical so then you'll have a spate of X number of units and then maybe Cargill Foods, Sun Valley, maybe lies dormant for a bit, it has enough land developed or banked to do what it needs. And then somebody over in America decides, in the case of Cargill, yeah we want to get more money from this (...) and then it will kick start again.' (GP1).

Several interviewees remembered a growth in IPU applications in the 1990s especially in the old Leominster District area⁵⁷. This may have been due to growth in chicken consumption following the BSE outbreak when beef consumption fell

⁵⁵ He was at various times: Conservative MP for Ludlow from 1945-51, chair of the British Turkey Federation, president of the British Poultry Federation, president of the Three Counties Agricultural Society, was awarded a CBE for his services to the industry and was joint master of the Radnor and West Hereford Hunt (obituary Hereford Times 12.9.05).

⁵⁶ Cargill and Faccenda formed Avara as a joint venture company in 2018 see below. Logos sourced from Cargill/Avara websites

⁵⁷ Herefordshire Council dates from 1998 when the former Hereford and Worcester County Council was restructured and a unitary local authority established and district councils removed.

significantly. One local government officer remembered that Leominster District Council had developed supplementary planning guidance for poultry units⁵⁸.

Another remembered having to deal with complaints about smell from IPUs and that informal discussions had been held with Sun Valley and ADAS⁵⁹ farm advisors about cumulative impacts.

Complaints, about smell in particular, are obviously not a new phenomenon. A number of interviewees reminisced about old chicken farms, built on former war-time army camps, and how smelly and dirty they were. However, levels of contestation over applications during this period were not high and planning permission was rarely problematic. One farmer recalled their father building three additional sheds in 1992 and planning not being a particular issue.

5.2 IPU Proliferation

My analysis of planning data enables the annual numbers of planning applications to be traced (Figures 5.4 and 5.5). The vertical bars represent the number of 'sheds' applied for each year, rather than farms, giving a more detailed picture as some applications are for just one shed whereas others are for four or six. I have not used bird numbers as these were rarely mentioned on older planning documentation. In Shropshire it is possible to see the surge in applications in the mid 1990s because online records go back ten years further than Herefordshire. It is impossible to tell how controversial those were as only basic information is retained online.

⁵⁸ I did request this document from both the Planning Department and County Archives but neither was able to make it available.

⁵⁹ The former Agricultural Development Advisory Service

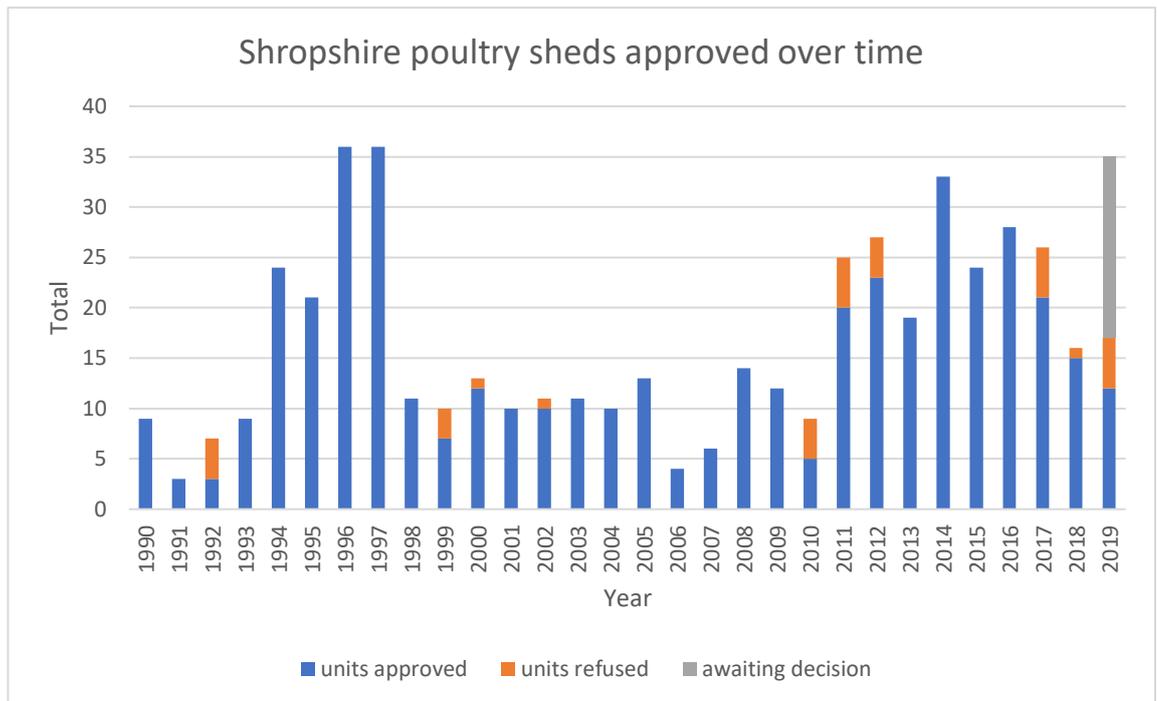


Figure 5.4 Poultry sheds approved in Shropshire over time⁶⁰

1998-2010 was a period of slow but steady poultry developments; Shropshire averaged ten a year, with few refused. Herefordshire (Figure 5.5) averaged eight new shed applications a year. The majority of applications were for one or two sheds with only two applications in each county for four units or more. Both graphs show the increase in applications in the early 2010s, peaking in 2014.

⁶⁰ Data from online county planning records <https://pa.shropshire.gov.uk/online-applications/>

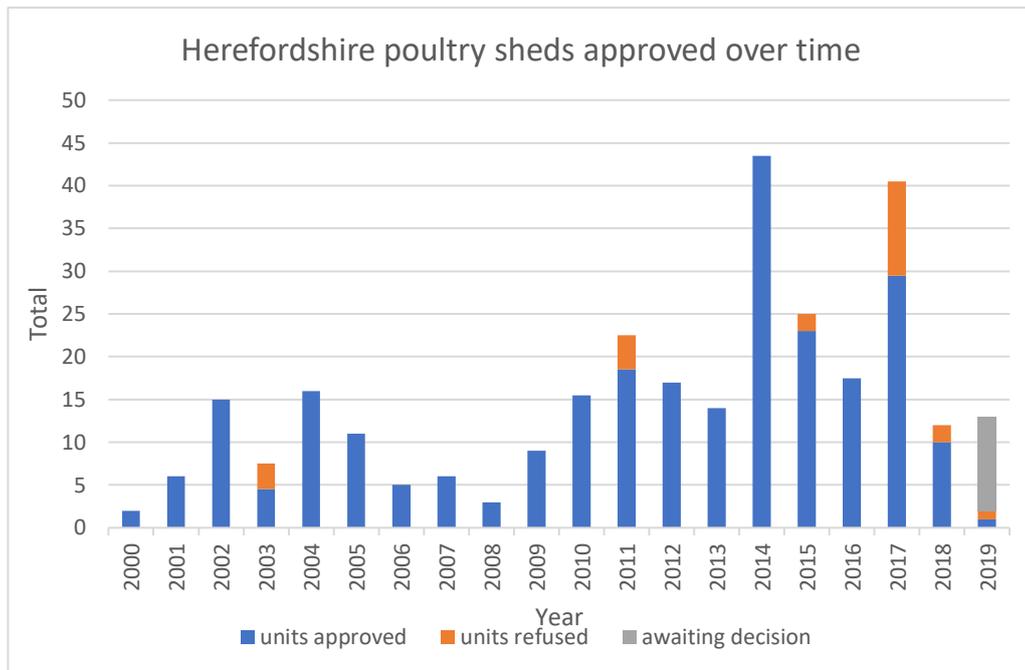


Figure 5.5 Poultry sheds approved in Herefordshire over time⁶¹

The reasons for the reduction of approvals from 2018 and number awaiting decision will become apparent later in this thesis.

Figure 5.6 shows the cumulative trends in sheds built across the two counties and the slow and steady increases of the 2000s accelerating into a steeper curve in the period 2010-2014. In the twenty years since 1999 the number of sheds has increased in Herefordshire by 75% and in Shropshire by 115%. If Herefordshire had around 200 sheds in 1990 the collective increase will have been from around 300 sheds in 1990 to 1150 today: a nearly fourfold increase. Importantly, newer sheds are much larger than older ones⁶² so the growth in bird numbers was significantly greater, increasing from 7-8 million in 1990 to what I estimate to be approximately 38 million in 2020⁶³.

⁶¹ Data from online county planning records
https://www.herefordshire.gov.uk/info/200142/planning_services/planning_application_search

⁶² In the 1990s sheds held about 25,000 birds, in the late 2000s they were normally 40,000 and in the last few years they can hold 50-55,000 birds

⁶³ The number of individual birds per year will be around 250 million given that broiler sheds (but not egg units) have 8 crops a year.

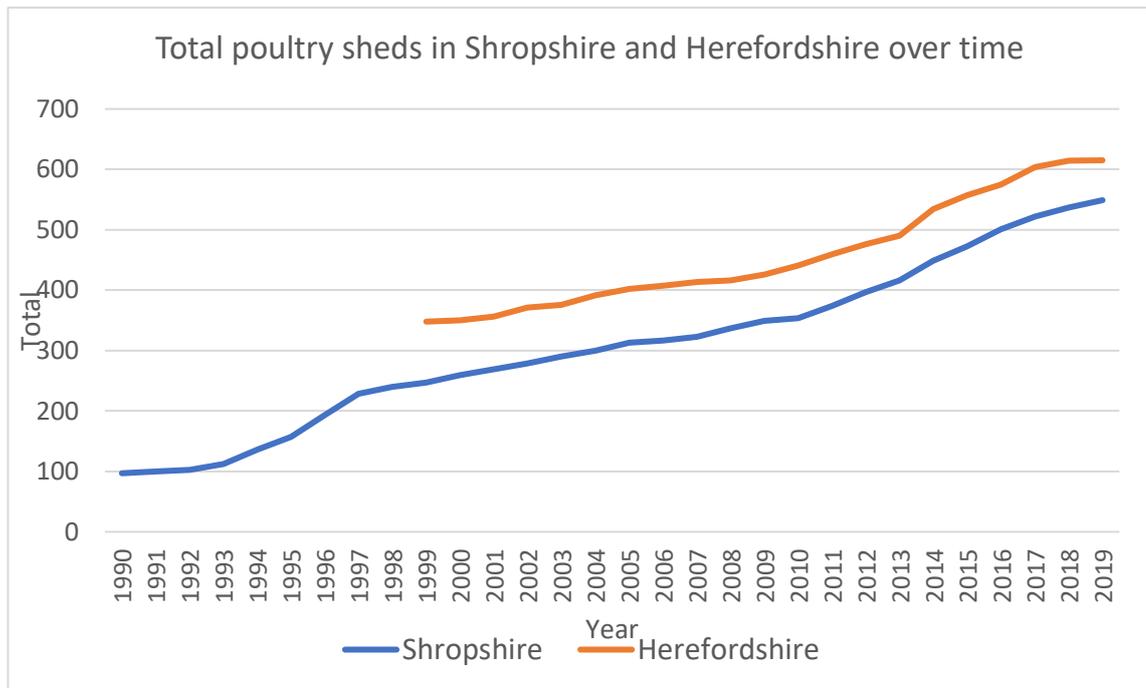


Figure 5.6 Total poultry units in Shropshire and Herefordshire over time

The peak in 2014 was caused, at least in Herefordshire, by a £35m expansion of capacity at the Cargill plant in Hereford in 2014⁶⁴. The planning application for the plant redevelopment gave few details but was approved under delegated powers in January 2014. The improvements appear to have included a new ‘line’ to carry the birds (Figure 5.7). Cargill’s website in 2017 gave the number of chickens processed in Hereford as 1.6m a week, plus 400,000 at the Newent plant. That totals 2m a week or over 100m a year.

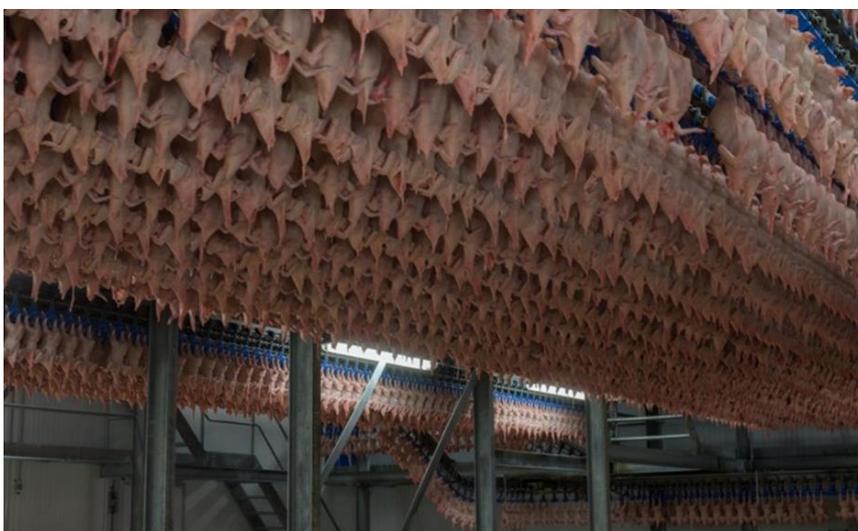


Figure 5.7 Cargill plant, Hereford; still from BBC TV film 16.9.15 (Gregory-Kumar 2015)

⁶⁴ www.cargill.co.uk, accessed 2017

The way this redevelopment was implemented and the speed at which new farms were recruited lies at the root of much of the controversy and contestation this research is exploring. The company required 90 additional IPU sheds within a few years to fulfil a new contract with Tesco supermarket. The processor reported intense interest from local farmers to become suppliers and build new or additional sheds which resulted in the relatively sudden increase in planning applications:

'I said we needed approximately 90 poultry houses (...) and within one week we had expressions of interest for 300... That's never happened to me in my (XX) years of being in the poultry industry. (...) But that was the level of interest which did surprise me and it is a reflection of the economics in agriculture. And so obviously out of that we were able to fairly quickly select a group of potential farms. It was going to be over a four-five year time plan.' (F4).

The reference to four-five years was contradicted by a land agent who mentioned a target period of two years. The agent reflected on the impacts of this expansion:

'Aah... I think we've all created a monster (...) Cargills took on that big expansion for Tescos in 2013 and there was one point in 2014 where I think I had 11 live broiler applications just in Herefordshire' (FP3).

Other interviewees confirmed this strategy was the main factor in triggering the levels of controversy within a short time frame and it was no longer possible to remain 'below the radar'. Cargill were successful in recruiting the required suppliers: the interviewee said they were '*just about there*' when we spoke in 2018. My data suggest 93 sheds have been given permission in Herefordshire since 2013. Some supply other processors, but there will be others built in neighbouring counties to supply Hereford. Several applications are still in the planning process. Figures 5.8 and 5.9 show Shropshire planning application data mapped over time to demonstrate the proliferation and intensification of IPUs between 2000 and 2017. Different colours represent the types of poultry production and the size of 'blobs' represents how many sheds are in each location.

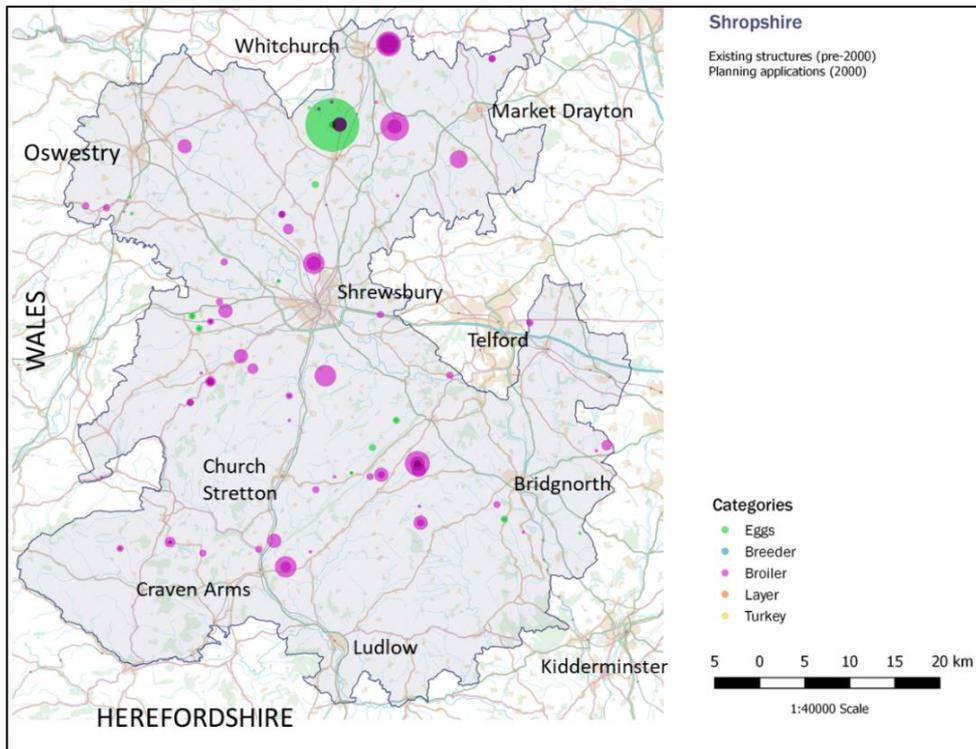


Figure 5.8 Distribution of poultry units across Shropshire 2000 (with geographical labels)

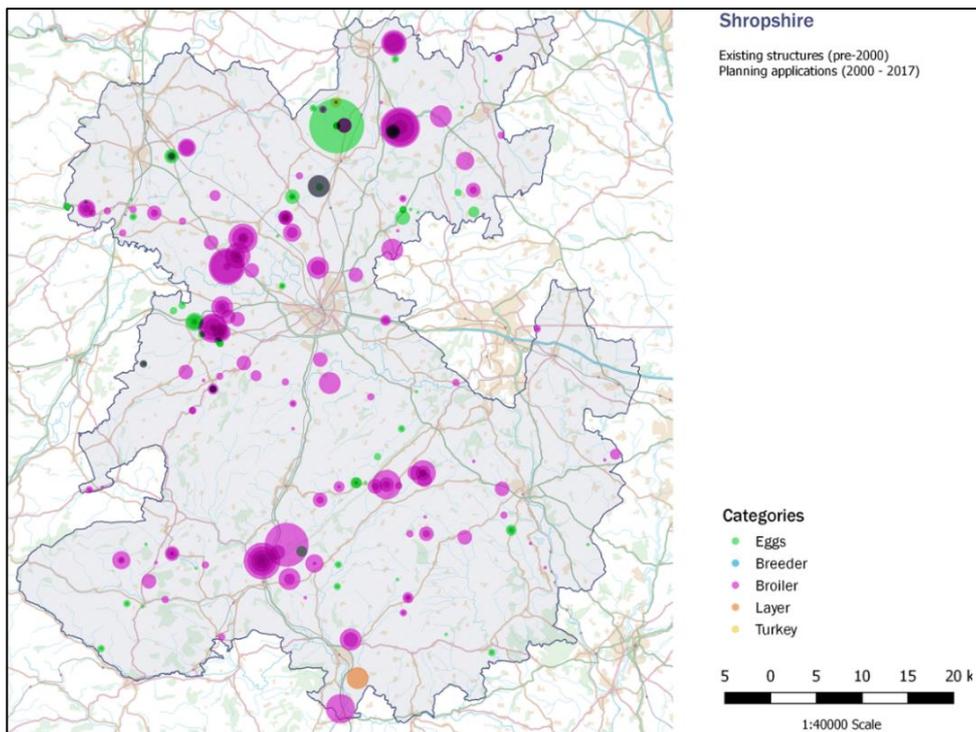


Figure 5.9 Distribution of poultry units across Shropshire 2017

In both counties applications were predominantly for broiler production. Only occasional egg, turkey or breeding units were proposed, although there has been an increasing trend for free-range egg units in recent years, mirrored in neighbouring Powys where there have been 300 applications for free-range egg units in the upland landscape of Mid Wales in the last 10 years. There was significant growth throughout Shropshire, despite the Area of Outstanding Natural Beauty (AONB) designation which covers most of the south of the county and the many SSSIs around the Meres and Mosses in north Shropshire. In Shropshire some new IPUs supply Cargill, particularly in the south. However, further north farms tend to supply alternative processors in Derbyshire, Cheshire, Wales or Lincolnshire which were also likely to have been expanding capacity. The large Griffiths egg production unit north of Shrewsbury stands out (Figure 5.10).



Figure 5.10 'Griffiths Family Farm' North Shropshire⁶⁵

In Herefordshire (Figures 5.11 and 5.12) the only area unaffected to date is the Golden Valley, along the border with Wales and the Brecon Beacons National Park, although one controversial application there was refused three times. There are major clusters in NW Herefordshire between Leominster and the Welsh border and also south of Hereford, close to the Cargill Feed Mill.

⁶⁵ <https://www.griffithsfarms.co.uk/> accessed 2020. This business houses over two million hens.

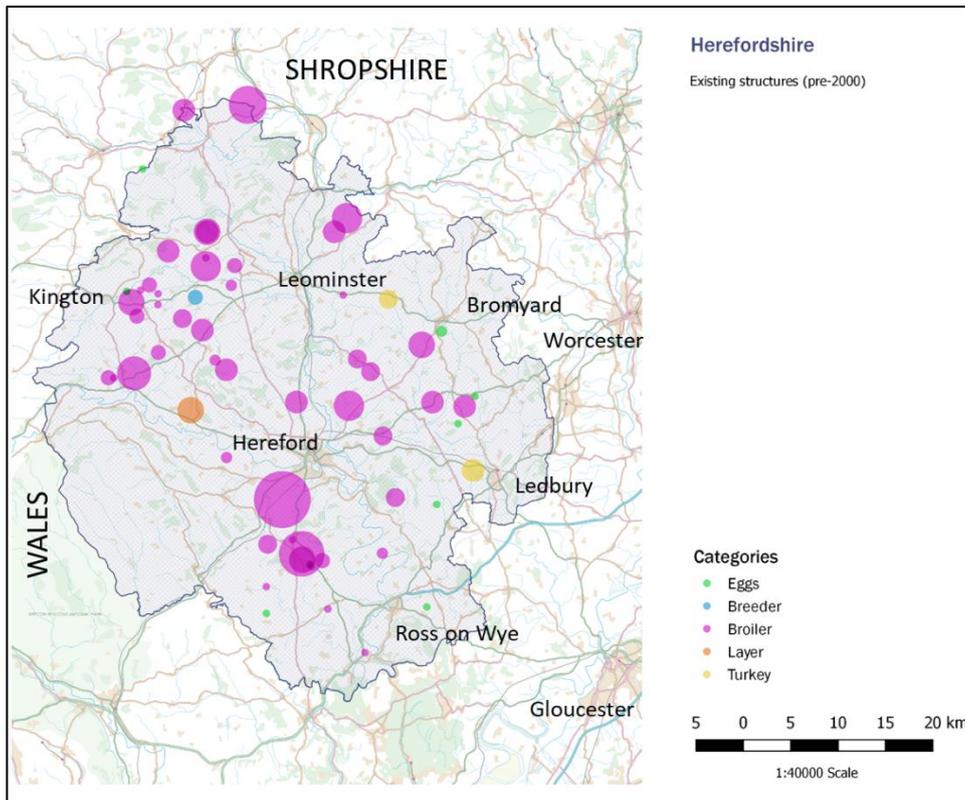


Figure 5.11 Distribution of poultry units across Herefordshire 2000 (with geographical labels)

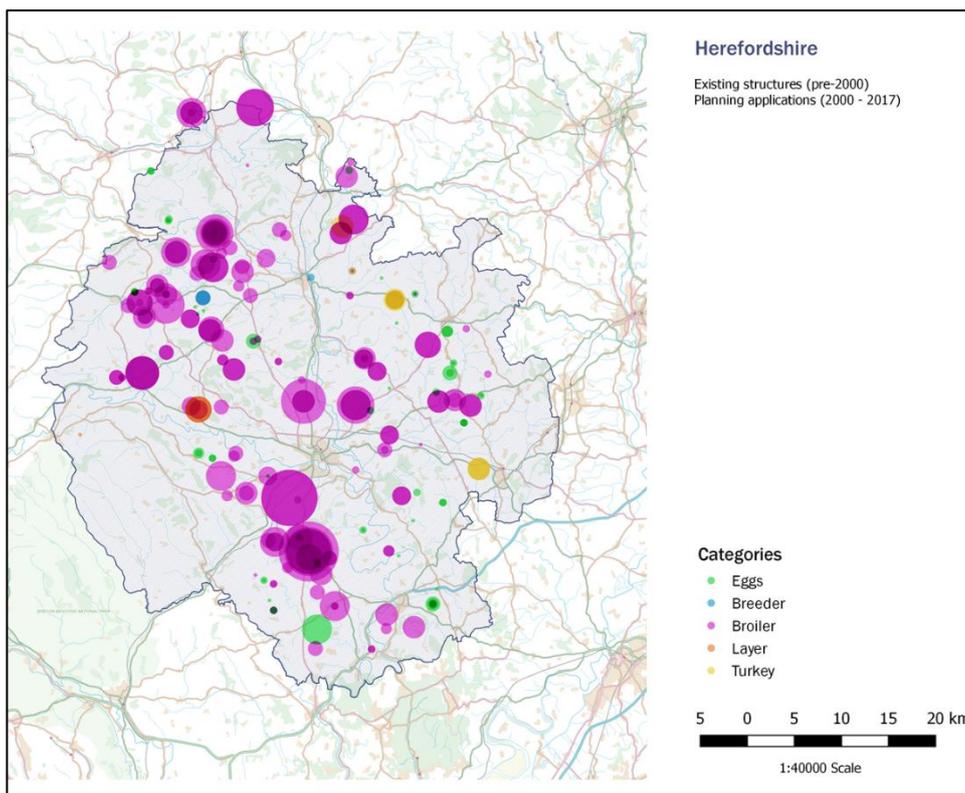


Figure 5.12 Distribution of IPUs across Herefordshire 2017

5.3 Controversy emerges

My analysis of local media coverage supports the picture of relatively uncontroversial developments through the 2000s. The Hereford Times, published weekly, featured very few articles or letters on the subject of poultry until 2013 (Figure 5.13).

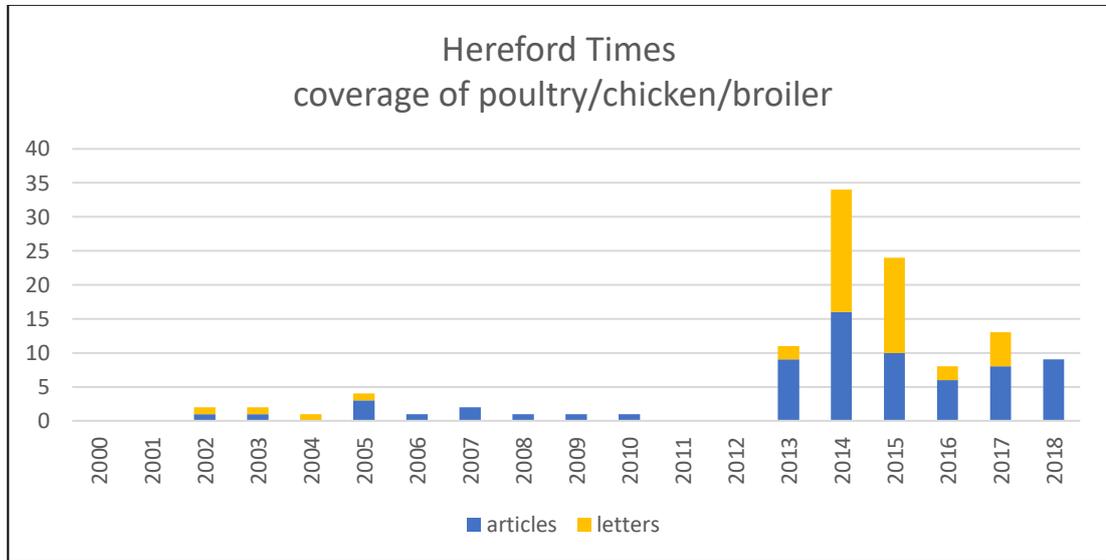


Figure 5.13 Articles and letters in the Hereford Times about poultry each year

The Shropshire Star, published daily, shows a similar pattern (Figure 5.14)⁶⁶.

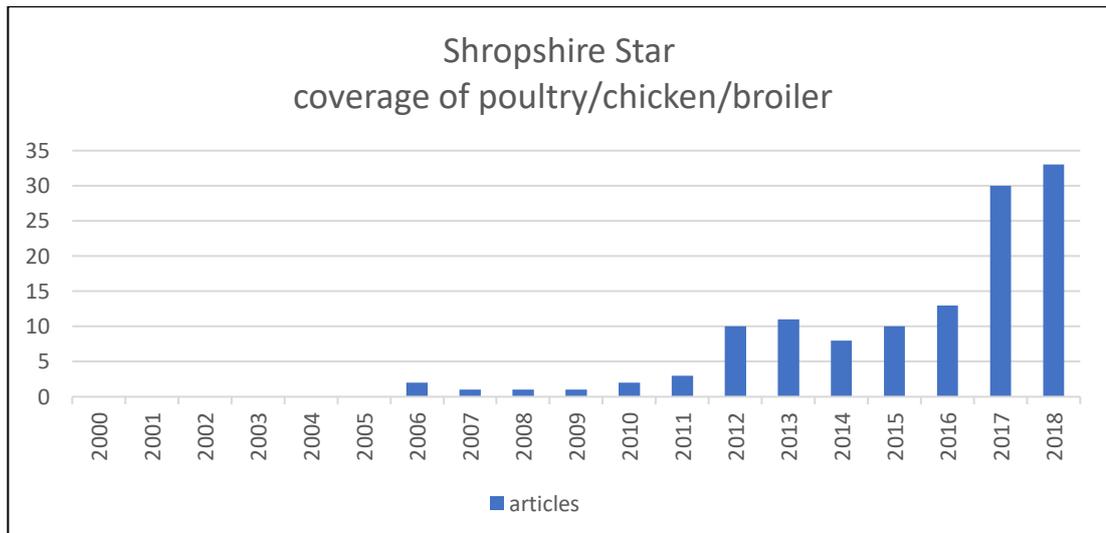


Figure 5.14 Articles in the Shropshire Star about poultry each year

⁶⁶ Figure 5.14 shows articles only: it is not possible to search the Star's letters pages online. Also the Star's search facility limits the number of articles retrieved and therefore it may be there were more earlier articles than were found, whereas the search engine for the Times reliably shows all articles back to 2000.

Table 5.1 Key controversial planning applications Shropshire 2009-2012

Location	Dates of application	Sheds and decision	No. of objections	Details
Great Ness (Figure 5.17) North Shropshire	2009 2010 2013	4 refused 4 approved 3 approved	59 30 13	Initially turned down but total of 7 sheds approved as resistance waned
Little Ness (Figures 5.18-20) North Shropshire	2009 2012 2014 2016	5 refused 3 approved 3 approved 2 approved	63 49 6 5	Within two miles of Great Ness. Now a total of 8 sheds.
Acton Pigot Central/south Shropshire	2011	4 refused	148	Refused and went to appeal and public inquiry where it was dismissed on the grounds of landscape and traffic issues in remote rural location.
Bletchley (Figure 5.16) North Shropshire	2012	6 approved	206	Initially refused, went to appeal and public inquiry where it was approved.



Figure 5.16 Poultry units at Bletchley, North Shropshire

These four cases collectively generated at least 21 stories in the Shropshire Star over five years (Table 5.2). They were not the only applications going through the planning system in this period, but generated considerable levels of objection.

Table 5.2 Selected Shropshire Star stories about IPU applications 2009-2014

Date	Headline	Case
25.8.09	Criticism of poultry sheds plan	Great Ness
28.5.10	Chicken shed plans thrown out	G & L Ness

1.7.11	Little Ness poultry firm's expansion plans rejected	Little Ness
20.1.12	Villagers raise cash to oppose poultry farm plan	Acton Pigot
16.4.12	150,000-bird chicken farm scheme is lodged	Little Ness
19.5.12	Hundreds of objections to Market Drayton poultry units	Bletchley
8.6.12	Great Ness councillors reject giant poultry units plan	Little Ness
24.8.12	Fury over Little Ness poultry sheds decision	Little Ness
19.9.12	Fears raised over Bletchley poultry units scheme	Bletchley
11.12.12	Bletchley villagers in final broiler unit battle	Bletchley
11.2.13	Five-day inquiry over Shropshire poultry plan	Acton Pigot
19.3.13	Inquiry date for Shropshire 180,000-chickens shed bid	Acton Pigot
17.4.13	Huge Little Ness poultry sheds start to take shape	Little Ness
9.5.13	Clash as Acton Pigot poultry sheds planning inquiry starts	Acton Pigot
15.5.13	Poultry farms 'vital' to Shropshire	Acton Pigot
16.5.13	Cons outweigh pros in Shropshire poultry farms bid, inquiry told	Acton Pigot
20.11.13	Inquiry over 300,000-bird chicken farm near Market Drayton	Bletchley
7.2.14	Decision soon on huge Market Drayton broiler unit	Bletchley
26.3.14	Inquiry hears Shropshire poultry units would bring in £4 million	Bletchley
23.5.14	350,000 bird poultry farm near Shrewsbury would be larger than nearby village	Great Ness
1.8.14	Go-ahead for poultry units near Market Drayton	Bletchley



Figure 5.17 Poultry units at Great Ness, North Shropshire

The location at Little Ness is shown before and after the development in Figures 5.16 and 5.17. Note the much older poultry sheds bottom left which I believe are still in operation. This shows how the scale of sheds has increased over time: the new sheds are 113m long and 25m wide. The buildings on the left in the new development make up a biodigester or AD unit⁶⁸ with its distinctive dome shape (Fig 5.18). The brown rectangular shape on the right is a large attenuation pond for holding dirty run-off water from the unit.

⁶⁸ Anaerobic Digestors or biodigestors - I use the term AD units as that is how most actors refer to them



Figure 5.18 Poultry site at Little Ness, Shropshire - old Google Earth image⁶⁹



Figure 5.19 Poultry site at Little Ness, Shropshire - Google Earth 2019



Figure 5.20 The AD unit at Little Ness, Shropshire 2017⁷⁰

⁶⁹ From around 2010, accessed 2017

⁷⁰ In the second satellite image from 2019 a large barn with a pale roof appears to have been built behind the AD unit since I took this photo in 2017, and the oak tree has gone.

In Herefordshire contestation emerged slightly later. 2010 and 2011 saw a steady stream of applications for one, two and sometimes three shed units. In 2012/13 there were fewer but larger applications including five for four sheds. There was also one controversial case (Upton Snodsbury) just over the border in Worcestershire which received 600 objections. The first Herefordshire application where objections reached double figures was at Kingsland, near Leominster, in October 2013. Here 13 objections were lodged to an application for six sheds, later revised to five, on the flood plain of the River Lugg (Figure 5.21). The objections reveal a community waking up rather too late to the scale of the proposals⁷¹. The application was approved under delegated powers, i.e. it wasn't called in to be decided at the planning committee.



Figure 5.21 Poultry units at Kingsland, Herefordshire

This was the last time a development of this scale went relatively unchallenged in Herefordshire. Table 5.3 lists headlines of articles about key cases.

Table 5.3 Selected headlines in the Hereford Times 2013-15

Date	Headline	Case
16.5.13	Huge farm for poultry sparks fury	Upton Snodsbury
17.5.13	Villagers unite to fight planned chicken farm	Upton Snodsbury
14.6.13	Please don't let farm for 80,000 chickens spoil our childhood	Upton Snodsbury
30.6.13	Petition against chicken farm plan	Upton Snodsbury
1.8.13	Worry as chicken farm bid back on the agenda	Upton Snodsbury
9.10.13	Vegetarians cry 'foul' over chicken farm plan	Upton Snodsbury
11.10.13	Protesters mass to fight 'terrible' chicken farm	Upton Snodsbury

⁷¹ This was about the time that Herefordshire Council stopped notifying nearby properties about planning applications and relied on displaying planning notices. There were complaints that these had not been very visible and local people had had little time to object.

22.1.14	Broiler plans for Knapton Green	Garnstone
16.2.14	Industrial farms are a slap in the face for tourism near Kington	Penrhos
15.5.14	Industrial chicken sheds given ok despite Bush Bank fears over smell	Garnstone
20.5.14	Chicken farm plans will create "farmageddon", say worried villagers	Upton Snodsbury
21.5.14	"Closed doors" council planning decision overturned at High Court	Penrhos
28.5.14	Fear of appeal saw major planning decision made behind closed doors	Penrhos
9.6.14	Thousands join PETA in opposing chicken factory farm expansion	Upton Snodsbury
26.6.14	We will soon be living in a concrete jungle... They get the loot, we get the pain	Penrhos
18.7.14	Face masks for us all?	Penrhos
3.9.14	Plans for a 'chicken city' recommended for approval	Upton Snodsbury
27.9.14	MP Luff backs residents in giant chicken plant row	Upton Snodsbury
4.11.14	Furious villagers pack meeting about chicken farm	Chance's Pitch
10.11.14	Residents object to broiler unit plan	Chance's Pitch
27.11.14	Chicken farm plans on display in Dorstone this Sunday	Bage
17.12.14	Broiler unit plan withdrawn	Chance's Pitch
12.1.15	Golden Valley broiler farm bid creates big stink	Bage
14.1.15	Delight as appeal for 160,000 chicken farm dismissed	Upton Snodsbury
8.7.15	Chicken broiler plans are re-submitted	Chance's Pitch
3.8.15	Broiler unit debate - chicken waste will not pass through Ledbury	Chance's Pitch
7.8.15	County planners have rejected a scheme for six new poultry houses	Moreton on Lugg
13.10.15	Poultry scheme at Hopton Heath is refused	Hopton Heath

From this point onwards most Herefordshire applications, other than a few expansions, attracted considerable levels of protest. Table 5.4 lists the most controversial cases from this period (Appendix 2 has a full list of controversial cases). Several things can be noted from the details including growing levels of objections but also a new phenomenon (not seen in Shropshire) of significant numbers of supporters submitting comments. In three cases objectors launched judicial reviews (JR), two won the JR (showing the Council had made an error in the planning process) but lost when the application was redetermined. The Bage case made national headlines (Figure 5.22), being in a particularly sensitive scenic location and the Council held firm on its decision to refuse that case. The final

two cases were refused by Herefordshire Council but won on appeal, with costs awarded against the Council.

Table 5.4 Controversial early cases in Herefordshire

Location	Dates of application	Sheds and decision	No. of objections	No. supporting	Details
Kingsland	2013	5 approved	13	0	Approved under delegated powers
Knapton Green	2013	6 approved	50	1	Approved. Not built. Later application for 4 shed barn egg unit went ahead instead
Penrhos Lyonshall	2013	4 approved	85	77	Approved. Judicial review Approved when redetermined
Mansell Lacy	2014	4 approved	47	1	Approved. Judicial review. Approved when redetermined. Second judicial review failed.
Chance's Pitch Ledbury	2014	4 withdrawn	600	29	Withdrawn resubmitted withdrawn
Bage, Golden Valley	2014 2016 2017	2 refused 1 refused 1 refused	290 125 146	55 3 15	All three applications were lost on appeal on landscape grounds
Moreton on Lugg	2014	6 won on appeal	37	0	6 units in addition to 6 existing. Refused but won on appeal
Bush Bank	2015	2 won on appeal	40	0	Refused but won on appeal. JR failed.



Figure 5.22 Independent features the Bage application (Bawden 2015)

Poultry units had become controversial and there were serious levels of contestation about individual planning applications. A land agent who dealt with a number of the applications reflected:

'there was just far too many and it wasn't managed properly. What they (Cargill) agreed to do for Tesco's created a bit of a PR disaster' (FP3).

They said the other processing companies they worked with usually took a more gradual approach.

As mentioned, Cargill is not the only chicken meat processing company that Herefordshire and Shropshire growers supply. There are also egg producing companies which conventional and free-range egg units supply. However, it is useful to examine one dominant company in detail and its role in the network of actors. The company is part of the Cargill commodity multinational based in Minnesota, the largest private company in the world with turnover of over \$100 billion and profits of \$2.8 billion in 2019⁷².

In 2018 Cargill Meats Europe merged with another major processor, Faccenda, to form a joint venture, Avara⁷³. The deal was approved by the Competition and

⁷² www.statista.com/statistics/274778/revenue-and-profit-of-cargill-agricultural-company

⁷³ Most interviewees referred to the company as Cargill still, many were not aware of the merger when I spoke to them. I continue to use Cargill in much of the research as it is

Market Authority and announced as a 50/50 shared ownership venture, employing 6,000 people (Boyce 2018)⁷⁴. The company said there were no implications for existing farmers or suppliers and that the processing plants in Hereford would continue as presently.

Cargill is regularly referred to as the biggest private sector employer in Herefordshire. *'They employ a lot of people and frankly we could not afford to lose them.'* (GD3). As this suggests this gives the company considerable influence with the local authority over planning and economic development issues. One councillor said it was the number of jobs at the processor and in the wider supply chain which swung decisions at the planning committee. Actual job numbers at Cargill are relatively vague: interviewees and newspaper articles referenced around 2,000 at the processing plants, feed-mill and offices. This may include lorry drivers and staff employed in servicing poultry units. The investment at Hereford in 2014 involved mechanising the processing line and few additional staff were required.

Everyone I spoke to was aware of a general economic *'dependency'* on Cargill and that this translated into influence in the county:

'Herefordshire city population is something like 70,000. What's the working age population out of that? 40,000, 50,000? If 2,000 out of 40,000 work at one company, imagine the clout they've got with the council.'(O1).

Some people commented that about two thirds of employees at the processing plants were from Eastern Europe. For some it undermined the argument about the industry providing valuable jobs for local people. There seemed to be an understanding that the jobs are permanent posts unlike seasonal fruit picking⁷⁵.

Several people said the company had *'shifted gear'* in the last ten years and that this might be one reason for increased levels of contestation. Cargill were perceived by some to now have a global reach and to have expanded their

mainly reflecting on what has happened before 2018 but I use the name Avara when looking to current or future events.

⁷⁴ Kneen (2002) described how Cargill has often set up joint ventures globally, sometimes as a 'beachhead' before taking a bigger share of a commodity market in a country.

⁷⁵ Strawberry picking in particular has been controversial in Herefordshire for employing Eastern European workers on seasonal, short term contracts and in poor conditions, in addition to the impact of the polytunnels, particularly in the south of the county (Evans 2013)

strategy from their Sun Valley days when it was seen as a local company ‘*tootling on for decades*’ (T3). Another interviewee commented:

‘I think there’s a change of perception, that it has become an industry, rather than farmers down the road with their chicken sheds. (...) but it suddenly has become something other maybe.’ (GT1).

So increased contestation levels may partly reflect this shift from a generally tolerated farming operation into ‘*something other*’ that local communities were not willing to put up with any longer.

5.4 Farmer motivations

‘the poultry for everybody who’s gone into it has been a marvellous thing - people have been making a lot of money from it. It’s been a saviour for lots of farms. (...) You can tell any farm that’s got a poultry shed because it’s introduced a lot more capital into their business’ (OF1).

This section moves on to explore why farmers and landowners decide to move into or expand poultry operations and how their motivations are framed in arguments which then emerge. Every planning application is unique because each locality is different, as are applicants, their background, financial position and objectives, but common themes can be identified.

Farmers are the actors who choose to put themselves in a situation where a contestation may arise by submitting a planning application. Acquiring permission is expensive; I was quoted figures of £50–75,000. There are application fees⁷⁶, environmental permit application fees⁷⁷ (for sites over 40,000 birds), fees for the planning agent to co-ordinate the process and fees for individual reports to support the application such as architect’s drawings, drainage plans, landscape, odour, noise, ammonia, ecology and traffic impact reports:

‘Broilers there’s a big capital entry cost (...) which will put the vast majority of people off. If you’ve got to write a cheque to Herefordshire Council for 50 thousand quid then that’s... and that’s just gambling - are we gonna get it, are we not?... And then you’ve got all your assessments on top. So planning applications for broilers could cost 75 thousand just to put it in. So most of the broiler customers are bigger farming businesses, or we get a lot of big estates.’ (FP3).

⁷⁶ The rough application fee for a development covering 10,000 sq m - approx. four sheds - is £30-33,000. Application fees went up 20% in Jan 2018.

⁷⁷ Permit fees increased from about £3,500 to about £8,000 in April 2018

That is before building costs which have been estimated by interviewees as approximately £2.5m for a four shed broiler unit or £1.1m for a 32,000 free-range egg unit. If the planning application meets resistance, there will be costs for additional reports and work by their agent, particularly if they take a refusal to appeal⁷⁸. There have been cases where multiple applications were submitted and costs mounted in tandem. So what motivates farmers and landowners to make such an investment?

Poultry has proved the most profitable UK farming operation in recent years. Figures 5.23 and 5.24 show UK government figures for farm business income, demonstrating average income from poultry above £100,000 a year.

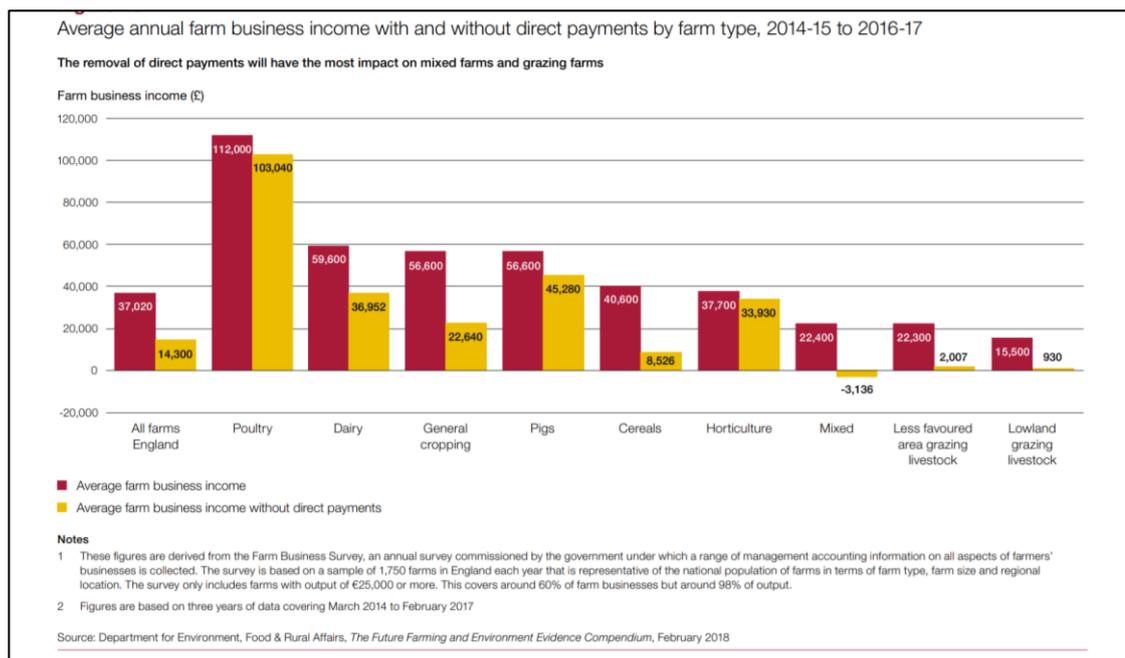


Figure 5.23 UK Farm Business Income by type 2014/15-2016/17 (NAO 2019)

This data demonstrates poultry is more profitable and less dependent on subsidy than other farm types. Poultry business income often includes renewable energy schemes such as biomass boilers and solar panels to heat the sheds and AD biodigestors using poultry manure, all of which receive public subsidies through the UK Government's Renewable Heat Incentive scheme.

⁷⁸ Legal costs can sometimes be reclaimed if the planning inspector awards costs against the local authority for making an unreasonable decision or an error in the procedures used.

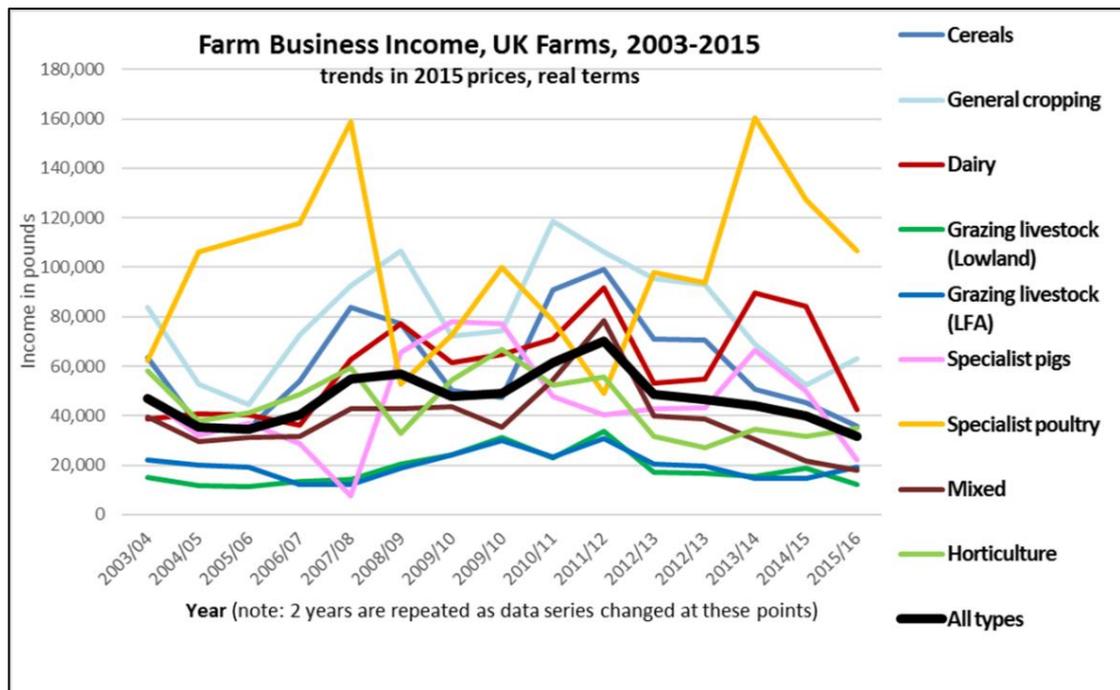


Figure 5.24 Trends in UK Farm Business Income 2003-15 (Dwyer 2018)

Figure 5.24 shows that poultry profits have varied, but between 2003 and 2015 poultry income was only below average in one year. Research sources suggested larger IPUs generate profits of around one million pounds annually and the figure of £100,000 a shed (free-range or broiler) was mentioned frequently.

In Wales there have been government grants to support investment in new agricultural ventures such as poultry units. Nobody mentioned these being available in England. However, at times there have been incentives from processing companies.

‘Several people went into broilers 15 or 20 years ago and then in about the last eight years it just took off. There were grants available from some of the processors, incentives and some people looking ahead at potential changes in subsidy, volatility in other farming enterprise, thought, “Well, broilers looks fabulous. Let’s get into it!” I’ve never spoken to anybody that’s gone into poultry and regretted it’ (FP1).

There was limited evidence of financial support from Cargill to farmers, although one farmer mentioned a bonus when they built new poultry sheds for them. One interviewee explained other processors had offered financial incentives some years ago to boost their supply. Several people claimed Cargill probably helped with some upfront costs and in the form of support and advice. One farmer described how Cargill arranged for their son to work on another unit to see a crop process right through, before building their sheds:

'That was a huge help. We kept them involved all the way along the line, really. I'm really pleased we did because we needed all the help we could get. Because we didn't know anything about chickens when we started. They were good.' (F6).

Several people said most farmers would be able to pay off their initial investment in 10-15 years. This time period would substantially reduce if they installed renewable energy systems. Many energy projects not only saved electricity, and reduced manure disposal costs in the case of AD, but generated significant income.

A key factor is that poultry is an unsubsidised sector. Farmers and landowners need to finance it with loans or investment. Interviewees perceived it provides a good return on investment if you could afford the upfront costs. Major investments are obviously long-term decisions and there were frequent references to the viability and sustainability of the farm or resilience of the business. This resilience included reducing dependence on subsidies and developing a more viable long-term business model:

'We have some clients that have had poultry for quite a long time, and therefore they seek to expand it. Clearly, the poultry has been a successful business for them. Others want to get into poultry because they want to diversify their business and find something that is viable.' (FP2).

In most cases it is an additional enterprise on the farm, sometimes for the next generation of the family to manage.

Farmers dependent on subsidies were sometimes viewed as passive and un-businesslike. One farmer used a Herefordshire perspective and explained that most local farmers had developed a more entrepreneurial attitude with their businesses:

'because there's no money in Hereford cattle, because there's no money in traditional sheep. (...) horticulture and poultry are the two unsubsidised sectors. They have been enormously taken up in Herefordshire specifically, which is why we have polytunnels and why we have chicken houses.' (F5).

These two sectors, which have both generated controversy (Evans 2013), are seen as the only two profitable enterprises. Income from poultry is more predictable with a set contract and regular payments per crop cycle. One agent stressed this gave the farmers more 'certainty'. This regular income has been said to have saved many family farms in the area and enabled the next generation to stay on the farm:

'The poultry farms, because they do pay and they're consistent, they've saved a lot of family farms without a doubt. You've got 100-acre farms, 150-acre small farms, struggle, struggle with beef and sheep, but they put two or three chicken houses on that farm and you've suddenly got a viable farm.' (F6).

One farm I visited had previously been an organic dairy and vegetable operation supplying national supermarkets. But they faced significant challenges after the 2007/8 financial crisis when the organic market dropped away. The farmer explained how their children who were about to take on the farm considered their options:

'they looked at various things, but poultry came very close to doing what they wanted so we could expand the business. It was pretty tried and tested. It was a way of getting what they wanted when added to the dairy unit that we'd got.' (F6).

The references to *'getting what they wanted'* and *'expand the business'* are key here, plus feed-in tariffs for the new AD unit, as this farm now supports three families plus their retired parents, rather than just one family. Some interviewees made reference to new farming generations having increased income expectations. One or two farmers were reportedly taking the decision with reluctance:

'they don't want to ruin the countryside they simply - it's you lose your farm or we go intensive. I've met several who have reached that point and said I don't really want to do this but what else do I do? I want my farm to go through my children...' (OP3).

One suggestion was that poultry was a good option for poorly managed arable enterprises with soil fertility problems and declining yields as the manure would help improve soil structure. Others suggested that poultry farms were easier to run than traditional farming, especially upland farming:

'One of those units on a sheep farm, that's £100,000 a year straight off. And no more chasing up the bloody slopes for some stupid woolly animal that won't come down!' (E4).

Highly automated poultry operations can be run from an office, checking on the birds via web-cam and computerised monitoring systems that send alarms to mobile phones. With broilers the catching, cleaning and re-stocking is handled by the processor or contractors and the heating, food and water supplies are automated.

In contrast, one agent when asked what the motivation was for farmers to go into poultry said simply *'Desperation!'*. They explained this was with reference to free-range egg units in upland areas where beef and sheep had become increasingly

financially unviable. The egg businesses helped subsidise the other livestock, whereas: ‘*Broilers is big investment, big returns.*’ (FP3). Many free-range egg units (such as most of those in Powys; Bound 2019) are supporting possibly otherwise unviable marginal farms, whereas broiler farms are significant businesses.

The land/planning agents are important actors: advising farmers about their development options; liaising with local authorities and statutory agencies about policies; and project managing the planning application process, from pre-application advice through to appeal should the application be refused. Farmers themselves may not know much about the technical details of the planning application. It is all assembled by the agent who sub-contracts the technical reports. Agents often have good relations with local authority officers. They advise farmers about tactics and timing, decide the level of detail of the accompanying documentation and often appear on the farmer’s behalf at public meetings such as parish councils and the planning committee.

5.5 IPU typology

Farms go into poultry seeking a predictable, stable and substantial income. However, they vary considerably in terms of location, size, landscape, family situation and objectives. A typology of poultry farms is suggested (Table 5.5), as yet untested in other areas.

Table 5.5 Different types of poultry operation identified in study area

	Types of poultry operation
1.	Older, large, well-established broiler operations
2.	Upland hill farms seeking to diversify, usually into (small) free-range egg units
3.	Large mixed farms diversifying into poultry to help support other farm enterprises
4.	Large estates developing poultry as a new venture
5.	Speculative land purchases for new poultry operations

Type 1 operations include those owned and run by processor companies and other large and intensive units, including major conventional egg producers. Figure 5.25 shows a large site with 15 sheds.



Figure 5.25 Haywood Callow, Herefordshire (Bing maps)

Many of these IPUs appear more factory than farm, with limited land to accept the manure. Figure 5.26 shows a 10 shed unit, housing over 300,000 birds on a ‘farm’ with reportedly just 50 acres.

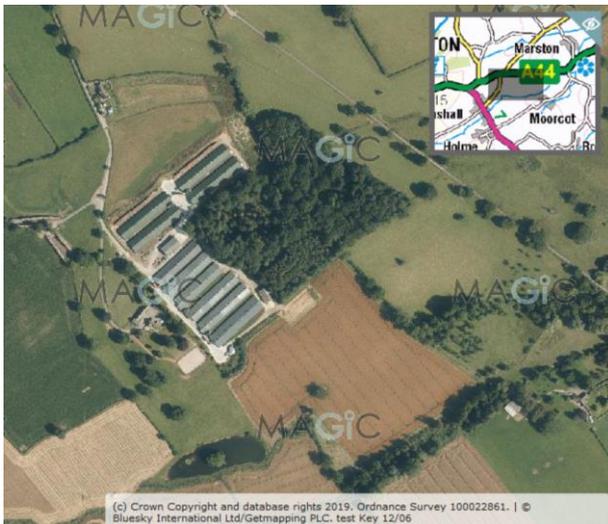


Figure 5.26 IPU near Lyonshall Herefordshire (MAGiC maps)

There appear to be numerous sites which are increasingly intensifying like this. This type of IPU is not popular with local people: they may be in older sheds, with less effective technology and were often described as ‘smelly’. Nevertheless, they have generated less recent contestation, being long-standing. Planning applications have been for occasional extra or replacement sheds, increasing capacity and are unlikely to be rejected by planning authorities. Figure 5.27 shows

Wistanstow in Shropshire, a village of about 300 people, where there were five planning applications between 1997 and 2013; each for two broiler sheds, getting larger with each application. The ten sheds now house about 380,000 chickens at a time; three million a year. There were few objections to the applications.



Figure 5.27 Wistanstow, Shropshire Hills AONB (Google maps)

This category could potentially be sub-divided if ownership, holding size and other agricultural activities could be identified.

Type 2 are upland farms with smaller IPUs, normally for free-range eggs. Such smaller IPUs have proliferated in neighbouring Powys and there have been numerous similar proposals on the English side of the border. There is often some sympathy for the farmer's motivations as there may be few viable agricultural options currently: the 'desperation' factor. However, by their nature upland sites are more sensitive in landscape terms, may have tiny rural lanes for access and are likely to cause concern in terms of water supply (boreholes), water pollution (run-off from hen ranging areas into streams) and tourism impacts. In these cases, even if the application is for a relatively small number of birds, the proposals can be heavily contested.

A recent example in Herefordshire is at Willey; located at over 1,000 feet, close to the Welsh border and Offa's Dyke Path, where a free-range egg unit (67m long and 19.5m wide) was approved in 2018 (Figure 5.28). Figure 5.29 shows the unit in 2020 (with almost no ranging area). A scoping application for a further unit was submitted in August 2020.



Figure 5.28 Willey: wider setting, North Herefordshire November 2017



Figure 5.29 Willey: IPU close-up August 2020

The type 3 developments were the most common planning applications in the 2010s; large farms setting up a 4-8 shed IPU as a diversification investment. Here the level of contestation generated depends on a number of factors including locality and scale but also the farmer's motivations, actions and how well integrated they are into the local community. Some such applications were approved without much objection, particularly before 2013; others have caused major objections:

'One applicant was on the parish council, was a volunteer fireman, and was a governor on the school. He didn't do those to try and get any brownie points he was a genuinely decent bloke. (...) And when the application went in there wasn't a single objection. (...) It went to committee and it was an absolute breeze.' (FP1).

One farmer who had had few objections commented: *'I think some people tend to just try to steamroller it through. It's the worst thing you can do.'* (F6). Some put objections down to jealousy about the profit farmers and landowners may make

from multiple developments, agricultural and housing, on their land. One agent said the farmer's track record was important:

'If they're cavalier people that build stuff and make a mess, and don't show any respect to the local people they're going to get a bumpier ride. Certain people seem to attract... resistance.' (FP1).

Trust, motivations, tactics and reputation all play a part in levels of contestation, as well as the make-up and dynamics of the local community.

Type 4 IPU's are similar but on large estates across both counties which have decided to invest in a poultry operation. Here the dynamics among actor networks are different. The IPU is likely to be a business investment, run by a tenant, away from the estate owner's own residence and parkland. A good example of this is at Mansell Lacy in Herefordshire, where the estate applied for four broiler sheds: *'on the furthest reach of their land - and stuff the neighbours'* (OP1). This type of landed estate situation may generate only limited contestation as many local people may not be in a position to object, being tenants and/or workers on the estate, or in some way obligated to the landowners⁷⁹: *'they own 90 houses. So anybody who lives in a house or has any connection to the estate wouldn't object or say anything'* (OF1).

The research identified a further type (Type 5) in several recent planning applications where applicants have bought relatively small parcels of land speculatively, aiming to set up a new poultry unit. One individual has built IPU's in at least four counties. In a recent case in Shropshire the applicant bought a 35 acre field with no existing road access and applied for permission for a 32,000 bird free-range egg unit. Local people objected vociferously pointing out it was not farm diversification. The application was approved in 2020. Such proposals generated considerable opposition, particularly if the applicant had few links to the area. This category (or an additional one) might include land owned and operated by land management companies as large-scale agricultural businesses. No operation of this type has yet been identified in the two counties but this is a common trend in some farming sectors elsewhere in the UK.

One increasing trend is for IPU sheds to be built at a distance from the farmhouse and original farm buildings, sometimes in a location several miles away. In these situations, an application for a poultry manager's house on site has often followed

⁷⁹ This issue of people who do not object to applications is discussed in more detail in chapter 6.

a year or two later. Objectors have recently speculated that in several cases farmers are investing in the poultry units primarily to use the manure in their AD units which are more profitable than the poultry meat itself.

'Our whole understanding of it is they've got the chicken farm to create chicken poo to go in the biodigester. [Company with local links] gives investment to farmers to produce that sort of energy from biodigesters. (...) I just feel like they're doing it as a money generating thing. It's not about the chickens, it's about this biodigester and it just doesn't feel quite right to me.' (TO1).

Environmental permit data reveals about 30 AD units across the two counties, plus over ten licensed 'mobile spreading units'. AD units generate another set of uncertainties in that they create digestate (liquid and solids) which like the manure itself can be a valuable fertiliser but is more concentrated and potentially toxic. There are also contestations about energy crops grown for the units; many farms with AD units grow extensive maize crops⁸⁰. Maize is unpopular with people trying to follow footpaths, displaces food crops and creates more soil runoff than other crops and hence more sediment and phosphate pollution in the rivers. Figure 5.30 illustrates this where a new five shed IPU in North Herefordshire, with tall biomass boiler building and an AD unit, just seen on the right, is surrounded by manure heaps and maize.



Figure 5.30 IPU Shobdon, North Herefordshire

⁸⁰ AD units require a mixture of materials to operate efficiently and so, in addition to poultry manure, operators will need to source crops such as maize, beet or grass.

Planning discourses around the units tend to emphasise the need for food security, the diversification and survival of family farms and the economic benefits to the local economy. However, as this chapter has identified, financial profitability is the main underlying motivation. As one farming sector interviewee said: *'the golden goose is broilers'* (FP3).

5.6 Wider farming networks

'Farming is our raison d'être - we all want to support farmers (...) farming is what Herefordshire is all about.' (GD4).

The farming and landowning sector is strong and well networked. Poultry is a specialised sub-sector but tends to be viewed as part of this mainstream farming culture. The feeling that Herefordshire (and to a lesser extent Shropshire) is defined by farming is strongly felt throughout much of the local community.

A network of companies has grown up to service and supply the poultry farms and processing plants. Some build the poultry sheds, others specialise in financing and building AD units. One company offers poultry shed cleaning services, removing the manure, disinfecting sheds and selling manure on if necessary. Another collects dead livestock from farms across the area. There are several large feed mills and animal feed manufacturers, plus haulage companies which service the sector, although processors provide their own chicken lorries. There are specialist agri-tech companies and agricultural research units for example at Harper Adams University, Shropshire⁸¹. Food packaging is also a specialist sector in the area.

The NFU and CLA have strong presences with networks of local branches and are embedded in local governance systems. For example, they have seats on organisations such as AONBs and rural economic or environmental boards/meetings. They network with national industry organisations and with the farming media. The NFU and CLA are strongly supportive of poultry farming and provide letters of support for planning applications. I was told that when a planning officer in Herefordshire recommended refusing several applications the NFU got: *'very cross about this and was lobbying the council, and probably Cargill too. And so he's been taken off these cases'* (OP1). Shropshire officers too mentioned that sometimes the NFU lobby them. Some council officers referred to meetings with the NFU and agents to discuss and *'negotiate'* planning issues and

⁸¹ Poultry processors have financed studentships and major investments at Harper Adams University; the student centre is called Faccenda, for example.

concerns such as ammonia emissions. The organisation is proactive in trying to help shape policy at county and national levels. Other opportunities for farmers to network include agricultural clubs, markets, workshops, agricultural events and shows. Support networks include farm advisers such as the government funded Catchment Sensitive Farming (CSF) initiative, land agent companies and county based 'Rural Hubs' which circulate information about agricultural and rural support schemes, training and grants. In Herefordshire the Farm Herefordshire network brings together agricultural and rural organisations to support farmers, particularly in moving towards less environmentally harmful practices and better soil management. Some Farm Herefordshire partners are concerned about the environmental impacts of poultry farming. But the network has a policy that if one partner organisation does not agree then the network will not take a stance on an issue, and its farming sector partners ensure it does not raise the environmental impacts of IPU applications or comment on individual planning applications.

Another significant actor in this area is the Wye and Usk Foundation (WUF), a registered charity and the largest of the network of Rivers Trusts⁸². It states its purposes as being: '*concerned with ecology and more specifically, restoring the habitat, water quality and fisheries of the rivers Wye and Usk*' (www.wyeuskfoundation.org 2019). WUF administers the 'fishing passport' for the catchment and runs a number of projects to install fish ladders, improve river habitats and work directly with farmers to reduce nutrient runoff and sediment. It has taken on responsibility for CSF officers and has attracted significant grant funding to improve water quality and carry out research. In 2015 WUF was seen to take a stand against increases in poultry farming in the catchment by submitting a letter to the Planning Inspector reviewing the Herefordshire Core Strategy at the time. Since then it has taken a neutral line on the issue, publishing a policy position statement and avoiding commenting on any particular applications. One objector (O1) described WUF as '*compromised*' due to their funding and work for government agencies and said that although their field officers know IPU applications are '*really bad news*', they didn't want to upset their relationships with farmers. Another objector was more forthright:

'They're hopeless! They will tell you that they are doing everything to stop it. I have no time for them. They've had millions of pounds of

⁸² There is also the Severn Rivers Trust which covers the huge Severn catchment, including the rivers Teme, Corve, Clun, which includes most of Shropshire.

money. They have never shown how effective what they're doing is in any quantitative terms. At the individual farm level they're fine - they go in and tell people they should clean their yards up and they should look after the riverbank - fine. (...) But they are useless in dealing with the Environment Agency (...) I'm sorry, but I'm really, really fed up with them. They get masses of public money.' (OP2).

Other objectors suggested I check the trustees of WUF and I found not only a number of investment bankers, stockbrokers and landowners but also the chair of the CLA and the chair of the Rural Payments Agency. Most appear to be fishing enthusiasts and owners of fishing rights, but there are few trustees with any obvious environmental credentials. Many of these bodies come together in the Nutrient Management Board for the Wye and Lugg catchment which I discuss in chapter 8.

Intensive farming is normalised by farming networks. The rhetoric around farmer motivations implies that there is no alternative for farmers but to choose intensive methods, particularly for poultry production. The farming lobby reinforces this message, talking down suggestions about alternative rearing models and arguing that consumer demand and supermarkets are driving the process. This network of actors is well established and has rehearsed its arguments in public many times. It has strong networks of support and advice. In recent years farmers have often encouraged their networks to mobilise in support of their planning applications. In some cases supporters have actually outnumbered objectors⁸³.

Not all farmers support intensive poultry farming, but few are willing to go on the record against it.

'I was on a hillside working with farmers. (...) mostly they stay tight-lipped about a lot of stuff. But I was standing looking at a poultry shed with a farmer, and he said, "That's not farming."' (GEP3).

One of my interviewees was a farmer who objected to an application on land adjoining theirs and several landowners have become involved in objection campaigns, but it can be difficult for farmers who are part of an extended farming community to go public with their objections. In one case the planning application was resubmitted several times over 4-5 years and this may be why farmers did in the end put their objections in writing:

'Absolutely none of them were in favour of it. Can you get any of them to actually express that publicly? Answer - no.... initially. As time has gone on, they have. Quite a number of local farmers have actually

⁸³ At Stagbatch, Leominster the 2017 planning application for two broiler sheds received 60 objections and 131 letters of support; it remains undecided in 2020.

written off to the council and said, "This is terrible." One or two of them have been on a bit of a rant saying, "Why should he do this if I can't pay my feed bill in the winter?" (O4).

This interviewee explained livestock farmers were most likely to object, compared to arable farmers, who use poultry manure on their land. So in rare instances farmers are beginning to break the strong farming community bonds which tend to suppress public criticism.

5.7 Processor relations

The processor plays a significant role in the farming sector networks. Focusing on Cargill again, perceptions of the company varied: everyone knew it was a big player in Herefordshire but only some were aware of the global scale of the parent company and how tiny the UK poultry business is in its overall activities⁸⁴ (Kneen 2002; Phillips 2011; Murphy et al. 2012; Feedback 2020; Feedback Global 2020). Perceptions were heavily influenced by the outside activities of the company: its charitable work, sponsorships and coverage in the local paper⁸⁵. A search of the Hereford Times revealed multiple articles featuring the company's activities (Table 5.6).

Table 5.6 Selected articles about Cargill in Hereford Times 2010-2018

Year	Headline
2018	Chicken company pledges support to pantomime
2017	Cargill supports county's food banks
2017	Cargill provides funding for Jamie's Farm at Rowlestone
2017	Cargill commits to providing free fresh chicken to an organisation tackling hunger in the UK
2017	Cargill and Heineken employees give up their Saturday to help litter-pick
2015	Cargill supports city scooters
2013	Thousands turn out for Flavours of Herefordshire Festival
2011	Ashperton Primary School shine in tag rugby competition
2011	Hereford United relaunch junior supporters club
2010	Cargill extend Hereford United shirt sponsorship deal

⁸⁴ Avara, the new joint venture, made pre tax profits of £14 million in 2018-19 (annual report and accounts available from Companies House).

⁸⁵ Anecdotally I have heard several people over the years refer to the Hereford Times as the Cargill Times.

Cargill sponsored the events and activities identified above and is quoted in the articles, if not in every headline. Articles were often illustrated by a photograph featuring the company's logo (Figure 5.31).



Figure 5.31 Photos from Hereford Times articles about Cargill sponsorships

There was a particular flurry of articles in 2017; a year when the company was facing considerable backlash over the impacts of their expansion. This range of activity means coverage of the company's 'good deeds' will have reached a high proportion of local people. For some actors this added to the company's significance and the potential threat if they were to leave the county. I also traced links between Cargill and local bodies with strong farming and landowner links such as an amateur rugby club and private schools.

Of particular interest to this research are Cargill's relations with Herefordshire Council. Objectors were outspoken in their opinions:

'Herefordshire Council is all over itself in licking the feet of Cargill all the time. Cargill sponsors this that and the other - the Food Fair, believe it or not, in Hereford is sponsored by Cargills... seriously!'(OP2).

One interviewee drew attention to the fact that Herefordshire Council awarded Cargill the first 'Diamond County' award in 2013. The fact that there was a relationship and that Cargill was seen as extremely important by the Council was mentioned openly by both parties themselves. The Cargill interviewee mentioned having to 'remind' planners about the company's impact locally. They went on to spell out the wider picture, also mentioned by others, that Herefordshire Council is in a serious financial situation with the national withdrawal of central government funding and a very low population of council tax and business rate payers: *'And if you took our business out and the impact that has - who is going to pay the bill?'* (F4). Several people also pointed out that the planning application fees paid by farmers are an important income stream for the council.

Several questions emerged: whether there had been discussions between Herefordshire Council and Cargill about the implications of expanding the Hereford processing plant and the requirement for an additional 90 or more poultry sheds to supply it. Had the Council given tacit approval for the large number of planning applications which would inevitably follow? Had they even agreed to facilitate the processing of such applications? All the planning officers and councillors I spoke with denied any knowledge of such discussions; officers tended to say something like *'that's above my pay grade.'* However, several other sources confirmed there had been dialogue, possibly even encouragement:

'And in answer to the question I think you're asking, yes Herefordshire Council would have been party to that, but the planning service wouldn't have been.'(GP1).

In fact it became clear that Cargill has conversations with the council on an ongoing basis, as one of the county's top 25 firms⁸⁶. Meetings with such businesses involved:

'a director, maybe one of the councillors, local councillors, people from the [economic development] team or if they've got planning issues a senior planner might go along' (GT1).

This interviewee went on more specifically about Cargill: *'It was about £74 million⁸⁷. It was a massive amount of money and we were talking with them quite a lot at that point...'* (GT1).

My conclusion would be similar to the objector who said:

'They must have approached Herefordshire Council for their potential reaction before they made the investment (...) There's no way you'd make a capital investment without knowing that your source of supply is readily available or would be readily available. (...) it's obvious isn't it.' (TO2).

Cargill is influential throughout Herefordshire. As well as the Council they have ongoing relationships with the Local Enterprise Partnership (LEP), Business Board and Chamber of Commerce. Their interviewee described their networking as a

⁸⁶ Herefordshire Council confirmed Cargill, now Avara, were on what they call the 'Major Company Engagement Programme (or top 25 business engagement)'. The programme 'was set up to reach out to the key strategic companies to listen to their needs and offer assistance in removing obstacles to their continued presence or expansion.' (Freedom of Information response 13.6.19). The list of 25 companies includes mainly manufacturing businesses: food, drink, engineering, etc.

⁸⁷ I'm not sure if the £74 million was a mistake, slip of the tongue or whether perhaps the wider scale of investment had been calculated including the farmer investment and the figure increased from £34 million from Cargill to £74 million across the whole county.

‘two-way’ relationship with such bodies implying that the company expects something in return.

Some objectors suspect that there are wider business links and networks which are not in public view. They think some agents are closely linked with processing companies and that some of the specialist consultancy companies may also have links or even be part of some larger conglomerate; ‘*you never see Cargill’s name at the top*’ (OP3). I heard several rumours that agents are paid a substantial bonus by the processor for each successful planning permission granted. One agent talked openly about attending meetings with Avara and discussing tactics on recruiting new poultry growers. Avara’s demand for new supplies from 2018 is at the former Faccenda plant in Brackley, Northamptonshire. One agent confirmed:

‘they’re looking at Brackley. So we are looking... so they’ve put their feelers out and they’re looking for farmers around the Northamptonshire, Warwickshire, Bedfordshire that kind of area and we’re working on new sites over there.’ (FP3).

The agent in the quote above refers to ‘we’ and ‘they’ rather fluidly; there is obviously a close working relationship and network of relations in seeking sites for new poultry units.

In Shropshire, farms have a number of processors they could supply including a new plant at Wrexham⁸⁸ which won an appeal in 2019 to expand its processing capacity from 400,000 birds a week to 1 million. So even if the number of broiler applications in Herefordshire stalls, the demand in Shropshire and counties such as Cheshire and North Wales may accelerate over the next few years.

5.8 Conclusion

This chapter has set the scene for the contestation and given an overview of how events have unfolded. The context is the massive growth in the poultry industry over the last 50 years, the enormous increases in chicken consumption and global reach of the multinational corporations that drive the industry. In Herefordshire and Shropshire the industry expanded post war and grew to become a significant part of the rural economy. Periodic expansions at processor companies, particularly Sun Valley/Cargill in Hereford, have required increased production on farms. My data gives evidence of the nearly fourfold increase in the number of

⁸⁸ The Maelor plant received a £3.15m grant from the Welsh Government’s food business investment scheme in 2017.

sheds since 1990. The media analysis shows how local controversy took off in 2012/13 in response to the speed and scale of the industry's expansion and proliferation. Indeed the controversy has continued throughout the period of this research (Figure 5.32).

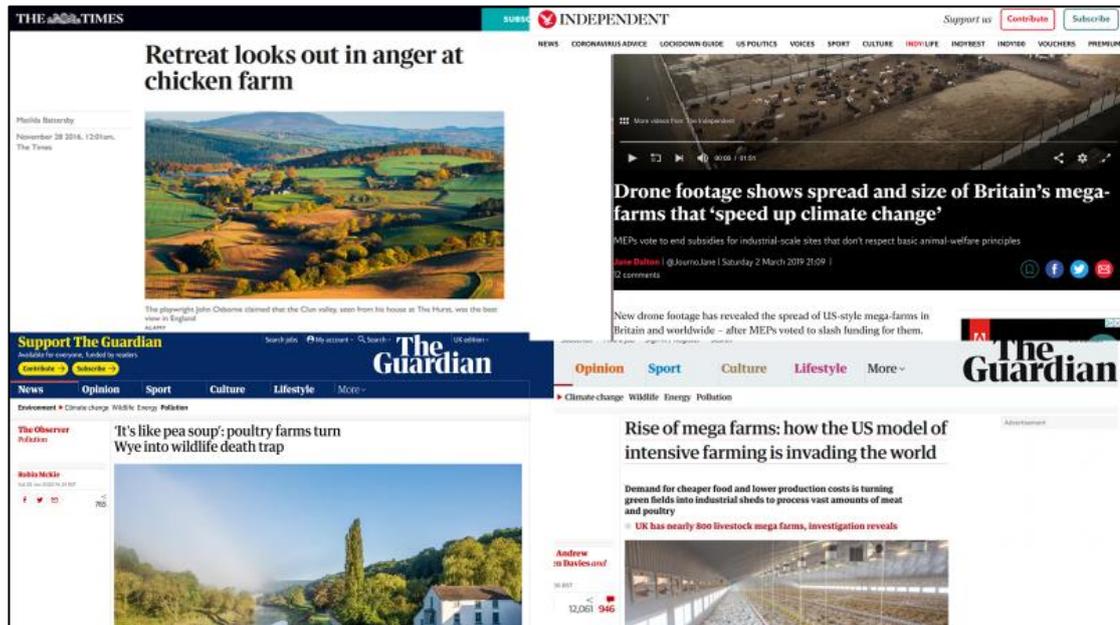


Figure 5.32 Selected national newspaper headlines 2016-2020

This has answered much of the first research question about how contestations have emerged and in particular sub question 1.1 which asked how and why (and in effect when and where) the controversy emerged. The chapter has also started to answer sub question 1.2 about which actors have been involved, and question 2.1 about their values, by introducing the farmers and landowners, their agents, the wider farming sector and processing company. The motivations which prompt farmers to decide to invest in new poultry ventures are largely financial perhaps prompted by succession planning. Poultry provides farmers with a more certain and resilient income and significant profits.

I have traced some of the relations within the farming networks and the sustained company PR maintaining a high profile in the minds of local people across a wide range of community activity from sport, arts, food and charity. This type of corporate social responsibility activity in the meat industry was identified by Neo and Emel (2017). The situation has many similarities with the power relations that Bell described in the West Virginia coal industry (Bell 2016) which worked hard to maintain the profile of the industry. Bell found the PR, sporting links and

charitable support all emphasised an economic dependence on the coal industry and reinforced the long-standing cultural ties with the sector, particularly targeting young people and male sports. She identified a specific strategy of peer pressure on local men to prevent them speaking out against coal. The Herefordshire equivalent would be the Cargill sponsorship of football and rugby.

Cargill has operated in a similar way in Herefordshire, sustaining a feeling of dependency; the fear of losing one of the only big economic players loomed large in politicians' (and officers') minds. I did not find evidence of direct public sector financial support for the Cargill expansion. However, my findings suggest that discussions took place and political assurances will probably have been made. Murphy *et al.* described the tactics of the four largest global commodity corporations, which include Cargill, and how they exert considerable influence over agri-food trade and regulation through lobbying and tactics such as staff placements:

'They are circumspect about this influence, but are strategic in their aims.' (Murphy *et al.* 2012:14).

Processor companies aim to continually lower production costs and increase profits (Emel and Neo 2011). In some countries there are direct incentives paid to agribusiness companies such as Cargill to locate in particular places. Constance and Bonnano (1999) studied how state legislatures across the southern United States tried to attract a major hog processor with incentives and how local resistance successfully opposed the development in some states which shifted their position to tighten up restrictions and impose moratoria (see also Williams 2006). The transnational corporation's expansion plans were delayed but it eventually exerted its influence to steer decisions in its favour:

'in the end, it returned to Texas, where state support existed and after the CAFO rules were re-regulated in terms favorable to the CAFO corporations - terms that minimized the ability of anti-CAFO forces to substantively restrict corporate activities.' (Constance and Bonnano 1999:80).

It may be that the UK is now at a similar point that the US was in the late 1990s. Local opposition is mobilising and local authorities are having to consider whether to act to prevent further escalation of ILUs. The local councils in Herefordshire and Shropshire are now having to face the dilemma and handle the consequences of their previous tacit support for the poultry industry.

This chapter has covered much ground exploring the situation and how the IPU controversies emerged. The drivers for individual farmers and the poultry industry as a whole are clear. The speed at which IPU development accelerated is part of the reason for the controversy and contestation and the next chapter switches to look at the networks of objectors that have emerged to fight the developments; how they are drawn into the contestations and their motivations. This will balance the answers to the research questions 1.2 and 2.1; who has become involved in the contestations, how are they influenced by their values and concerns and how these values are articulated and contested in the planning process.

Chapter 6 Contested values and concerns

'this is the problem zone. (...) this is where all the issues are. (...) All the applications I've had go to judicial review have all been in Shropshire or Herefordshire. No other county in the UK.' (FP3).

The previous chapter identified how controversial IPU planning applications became in the 'problem zones': Herefordshire and Shropshire. Here I dig deeper to find how the issue became more contested in this area than elsewhere. The focus switches to the other side in the contestation: objectors and the new publics that have been sparked into being by the contestation (Marres 2005). I explore the values and concerns of local residents, consultants and organisations which drew them into IPU contestations. Multiple matters of concern emerge (Latour 2005) as the new public takes an inventory of what is at stake and begins to form alliances to resist the development (Callon *et al.* 2001). I also explore non-human actors whose presence (or absence) may be an issue in contestations, may be drawn into the debates by other actors and may change what or how things happen (Whatmore and Thorne 2000; Rose 2011). There are also actors who want to object but stay silent for various reasons (Bell 2016) and the tourism sector which goes largely unheard.

6.1 The objectors: a new public emerges

I interviewed 14 objectors of whom two were tourism operators and two farmers. There were also several people in other categories such as environment and tourism who had been involved in objections to at least one planning application. Objectors had been actively involved either with one specific case or had been involved in numerous cases on a professional (planning or landscape consultant) or voluntary basis.

6.1.1 Objector mobilisation

People living close to the proposed sites found out about the applications in various ways including community websites, leaflets, chance conversations or a local meeting. One objector described quite an alarming experience:

'we were sitting outside and this large gentleman stepped over the fence from the field (...) and walked up our garden! And he had with him another man. And so we said "Excuse me what are you doing?" And he said "Oh I'm [name] and this chap here [ecologist] is come to look

at your pond....” and then he said “I want to put up a chicken thing, I’m putting plans in.” And we said “What!”” (O7).

The quote also reveals the farmer’s attitude to his neighbours and letting them know about his plans.

Some objectors were previously unaware of IPU’s but others already knew of the issue or had experience of nearby IPU’s:

‘hardly a week would go by when I wasn’t reading something about it in the Hereford Times. I was aware that lots of rural communities were up in arms about a proposal (...) long before I knew one was heading our way.’ (O3).

The dynamics depend on the characteristics of the local community. In some localities such as Penrhos no actual ‘group’ formed to co-ordinate objections. There and in Mansell Lacy there were several local objectors who tried to engage more support and brought in professional advice. There will have been meetings but no group as such. In other communities a campaign or action group was set up:

‘It was in the community centre ... there was probably about 20 people there. (...) a few of us agreed to meet again at a private home - that’s when the action group formed. (...) you’re only allowed three weeks. We’d probably used one week just forming. So we only had two weeks left to get something in.’ (O3).

This highlights one challenge objectors face, the timescale people have to submit their objections: usually three weeks⁸⁹. In reality, applications like IPU’s require considerably longer to go through the planning process but objectors are usually scrambling to understand what is proposed, share opinions and decide how to respond within a very short time frame. In one case the Parish Council co-ordinated the objections, following a public meeting attended by most village residents: *‘spitting blood, you might say. It was quite obvious (...) there was a total and utter unanimous objection to the proposal.’ (O4).*

Groups recruited members using leaflets, parish magazines and sometimes social media. The group where I observed meetings positioned themselves not as an ‘action group’ but as a village environmental group. No formal structure was established although the lead objectors (who lived beside the proposed site) tended to steer meetings. No minutes were produced, and people volunteered to follow up action on an *ad hoc* basis. The group did discuss its role, but it was left

⁸⁹ From 2017, Environmental Impact Assessment cases (over 85,000 birds) now have a minimum of 30 days

rather up in the air. The age range was around 45 to 70 with several retired professionals plus long-standing residents with good knowledge of the local countryside and history. Others were newer to the area but appeared keen to tackle environmental issues. Across the area there were incomers amongst the objectors, such as people who had moved to work or retire, but there were also many locally born objectors. The objectors I interviewed were mostly over 55 and six were retired.

Each contested case is different, depending on the location, population and dynamics. With some cases the group's aim is simply to generate as many objections as possible, but some groups realise there are other things they can do and organise to achieve them. These include researching impacts, lobbying their parish council and county councillors, monitoring and rebutting further planning documentation, organising PR campaigns, letters to newspapers, social media groups and, in a few cases, demonstrations (Figure 6.1). As contestation mounts and evidence is challenged and resubmitted, the cases take longer to go through the system and objectors have more time to organise and act.



Figure 6.1 Tasley campaign group's protests on site, TV and social media⁹⁰

Some groups have contacted others seeking advice about tactics. During 2019 there was increased communication between objectors, particularly those groups pursuing judicial reviews. An embryonic Shropshire opposition network developed involving five cases. They planned to expose Council malpractice and subsequent

⁹⁰ The group's activities were featured on BBC regional news and posted on their facebook page <https://www.facebook.com/tasleychickenfarmactiongroup/>

legal costs. In parallel, CPRW Brecon and Radnor⁹¹ and CPRE Shropshire and Herefordshire worked together to pool data and publish maps of poultry units across the three counties, planning to use these to lobby Councils, politicians and government agencies (Figure 6.2).

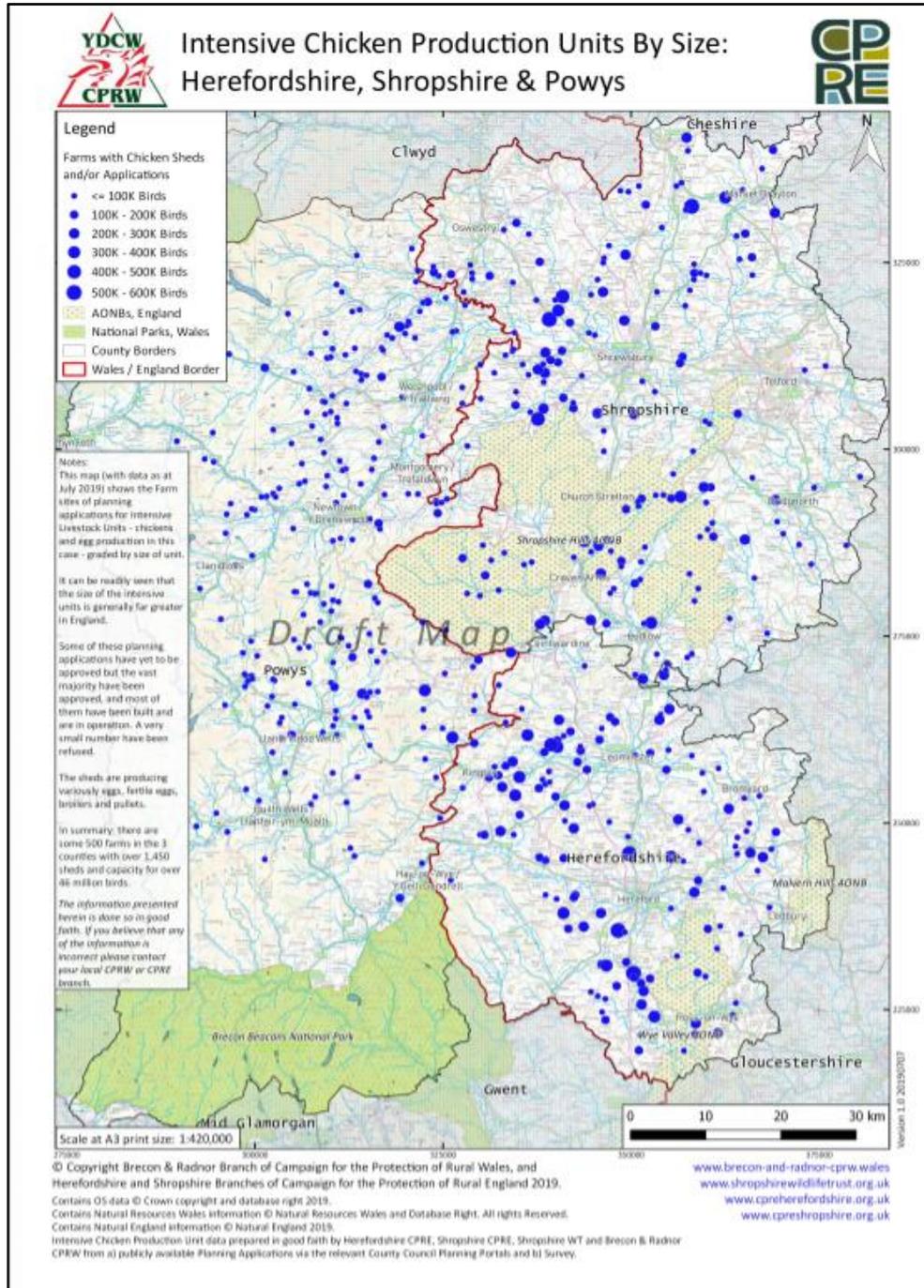


Figure 6.2 IPU across Herefordshire, Shropshire and Powys⁹² 2019

⁹¹ Which covers the much of the new county of Powys

⁹² CPRW Brecon and Radnorshire www.brecon-and-radnor-cprw.wales/?page_id=1513

Several consultant objectors had previously discussed forming a national network and setting up a database of information which local groups could use when facing an application. This appears to have stalled, possibly due the volume of data and the particular nature of each case, but the situation is still developing.

6.1.2 Other objector actors

Some groups commissioned planning and/or landscape consultants to help prepare objection reports and challenge the applicant's evidence. There were accusations from the farming sector that these individuals were profiteering from the rising levels of objection and indeed acting to drive objections and escalate contestation for their own financial gain: *'there are consultants... anecdotally it's been suggested that they will contact objectors to say, "I can represent you."* (FP2).

The phrase *'professional objectors'* was used several times. In contrast the motivations or profits of land agents putting in applications were rarely referenced. Objectors were appreciative of professional support, where used, whether successful or not. In fact, the professionals themselves expressed a wish to reduce their work on poultry cases; as cases were stressful, frustrating and rarely successful. But they also showed personal commitment to fighting what they perceived as injustices being done to local communities and environments.

The network of organisations which take an interest in poultry unit planning applications and which may lodge objections or provide support for local objectors is limited. A Herefordshire CPRE volunteer monitors planning applications and submits objections on what they deem the 'worst' cases⁹³. Both CPRW and CPRE held public seminars/workshops about poultry units⁹⁴. Herefordshire and Shropshire Wildlife Trusts have both raised concerns in the media about poultry unit proliferation and cumulative impacts. Members often draw the Trusts' attention to planning applications, but rarely do they have resources to comment,

⁹³ In Shropshire it is only in the last few years that the CPRE branch has taken a proactive interest. CPRW Brecon and Radnorshire have been active for over five years in monitoring and objecting to applications in Powys.

⁹⁴ The first (2016 in Powys) focused on water quality issues, bringing together environmental concerns, with planners and farming advisors. The second (2017 in Herefordshire) aimed to up-skill local objectors about poultry planning applications and how best to object to them.

unless there is a specific threat to wildlife. They try to focus on the cumulative impacts and action to address these.

Three AONBs cover parts of the two counties. In addition to the Shropshire Hills there are the Malvern Hills and Wye Valley which straddle Herefordshire's borders. All three bodies have objected to poultry unit planning applications within or close to their areas. The organisations are relatively small with stretched resources. Although national legislation gives AONBs the same level of protection as National Parks, AONB Partnerships are not statutory planning consultees⁹⁵ and often their comments are side-lined. AONBs need to tread carefully as they are partnership organisations and have farming and local authority members. Nevertheless, I observed the SHAONB lobbying to increase its influence over planning decisions on ILUs. The AONB strengthened its Management Plan policies to address perceived threats, staff also attempted to better hold NE and EA to account over cumulative impacts and most recently a specific Development Plan for the AONB has been proposed.

6.2 The issues of concern

'Obviously some people just don't like the concept of a large shed with tens of thousands of birds in it.' (FP2).

I discussed objectors' motivations with all interviewees and found a range of views about what concerns people most. Near neighbours often focused on smell, noise, light pollution and whether their views are affected; while those living further away are more likely to worry about traffic impacts and safety, water and air pollution and views from local rights of way. Members of campaign groups often each researched a specific topic to harness data for their objections.

Once people explored the details of the application further, they became aware of a much wider range of issues and their sense of outrage grew. The issues vary from one case to another depending on the location, nature of the landscape, road access etc. Table 6.1 presents my analysis of objections to three proposed IPU, totalling 290 written submissions about multiple issues. The top five issues in each case are highlighted in red.

⁹⁵ The 2019 Glover Review of National Parks and AONBs recommended that AONBs should be made statutory consultees for major applications such as these. Note National Parks are the planning authority for their areas and make the decisions themselves.

Table 6.1 Objection issues for three planning applications

Objection topic	Penrhos		Hopton Heath ⁹⁶		Aston Munslow	
	No.	%	No.	%	No.	%
Total objections	84		133		64	
Smell/odour impacts	57	68%	54	41%	37	58%
Traffic impacts - volume, noise and safety	50	59%	67	50%	43	67%
Visual impacts on the landscape and views	36	43%	41	31%	21	33%
Water, drainage, pollution of local rivers	30	36%	25	19%	25	39%
Impacts on the local tourism economy	22	26%	56	42%	34	53%
Noise impacts	17	20%	69	52%	13	20%
Proximity to residential properties	14	17%	4	3%	4	6%
Proliferation of intensive poultry units	12	14%	16	12%	6	9%
Air pollution, dust and ammonia impacts	10	12%	17	13%	20	31%
Impacts on property values	10	12%	3	2%	6	9%
Animal welfare concerns	7	8%	5	4%	5	8%
The scale of the development	5	6%	32	24%	12	19%
The financial gain of one individual farmer	2	2%	16	12%	14	22%
Light pollution	2	2%	17	13%	7	11%
Lack of jobs created	2	2%	21	16%	18	28%
Location away from farmstead			18	14%	14	22%
Negative social impacts for locals			22	17%	20	31%
Waste and manure management			17	13%	12	19%
Visual impacts from rights of way, footpaths etc			18	14%	7	11%
Biodiversity			42	32%	13	20%
Impacts on heritage assets/setting			1	1%	12	19%
Impacts on AONB					36	56%
Cumulative impacts					4	6%

The comparison reflects a possible widening of concerns about potential impacts between Penrhos in 2014 and the other two applications in 2017/18. But it is possible to see differences between concerns at Hopton Heath and Aston Munslow. Ammonia was less of an issue in Hopton Heath as the applicant proposed installing ammonia scrubbers. Hopton Heath had 42 objections which mentioned that the

⁹⁶ These objections were to the third planning application in 2018 for four broiler units and involved at least two rounds of consultation when additional information was submitted.

IPU threatened the Special Area of Conservation (SAC) on the River Clun and its colony of protected freshwater pearl mussels which is only a mile away (section 6.4 below). This location is on smaller, quieter roads which may be why noise was more of an issue. In Aston Munslow the traffic concerns were more around road safety. That site is on the boundary of the Shropshire Hills AONB so many objections mentioned this and there was a heritage concern about the impact on the 40-50 listed buildings in the parish.

What is striking is the wide range of matters of concern expressed by objectors. They appeared to feel 'exposed' on multiple fronts (Alaimo 2016). My own NVivo analysis of concerns raised during interviews, meeting observations and documentation generated a similar list of issues, the most common of which were water pollution, tourism concerns, air pollution (and ammonia emissions), biodiversity impacts, smell and traffic. In my analysis animal welfare concerns were also quite high, more than in planning objections. This seems to reflect that people know it is not a material reason for objecting, but it still concerns them. Objectors may put a single sentence into their objection to register that they are unhappy about industrial farming. Farming actors also talked about animal welfare; either to dismiss concerns or to suggest it was a key motivating factor for objectors. It is interesting that this topic is officially labelled not an issue and yet obviously occupies the minds of many actors.

Objectors often complained about the planning process, including faulty procedures, inaccurate documentation and concerns about how planning conditions would be monitored. At times they complained about the applicant's existing farm operation, their tactics and financial motivations. They critiqued the supposed 'need' for more chicken, arguing that the proposals were unsustainable and that few local jobs would be created. The overall impression was that people didn't want an IPU near them; it was viewed as a factory, generating pollution and traffic and seen as inappropriate in beautiful countryside. Some objectors said they wouldn't be against intensive farming units if they were located in more appropriate or 'industrial' locations. Others were against such units in principle because of their negative impacts and some for animal welfare reasons.

During one walking interview with two objectors I listened to them discuss a range of issues about the application in their village. They expressed concern that someone would be killed when slow moving lorries pulled out onto the 60mph road on a bad bend. They discussed the unpleasant nature of chicken manure. One of

them had breathing problems and expressed concern about the particulates the plant would emit. The other recounted their GP's concern about antimicrobial resistance connected to IPU's. Their daily dog walks might need to be rerouted when the unit smelt bad and they expressed concern on behalf of several local tourism businesses. They also had emotional responses and financial concerns as this extended quote demonstrates:

'Well it's gone on for so long. Initially I was very upset. Obviously.'
(O6)

'You said you would move if they went up didn't you?' (O5)

'We were going to spend the rest of our lives here cos we like [village] (...) but now it depends... on whether we can sell the property - we discussed it with an estate agent, who said "It does impact on the price of your property." So my property will be worth less than it should be.' (O6)

'The Council doesn't care, the government don't care; the fact that our house... you know you work for it, you pour your money into it and then its devalued by what somebody else does - we're not going to get any compensation.' (O5).

They felt a sense of injustice and frustration that the development was permitted without compensation to the community. There is no community payback with industrial agriculture applications; unlike many energy projects where sometimes a community fund is established or housing developments where Section 106 or Community Infrastructure Levy payments fund community facilities⁹⁷. Also, as agricultural installations, no business rates are paid on IPU's. The conversation demonstrates how individuals have multiple concerns; for themselves, their family, health and finances, but also for the community, other people and businesses, plus concerns about procedures, democracy and justice.

When objectors voice these multiple concerns however, it can be interpreted negatively:

'I have observed that people tend to do the dartboard approach. They throw as many darts at the board and hope that one will land.' (GP5).

An agent said something similar: *'there's a lot of "let's throw as much as we can and hope something sticks"'* (FP3). I mentioned the dartboard analogy to an objector, who responded: *'But... Who knows what the target is?'* (O2). They explained their group had felt they needed to cover all potential arguments in

⁹⁷ Community Infrastructure Levy is charged by some local authorities on agricultural developments but not Herefordshire or Shropshire

case the planning inspector chose to focus on a particular one. In practice, objections to most cases range from quite short letters mentioning two or three issues through to detailed reports submitted by a campaign group or lead objector. Sometimes this has been compiled by a professional consultant. In some cases, the objections voiced will have been influenced by a coordinated approach. I had the impression reading through the Hopton Heath objections, for example, that although they did not use a duplicate letter they may have followed a set of objection points circulated by the Parish Council. A planning officer had spotted the same thing: *'I suspect there's been lots of group think.'* (GP5). There were also references to objector groups *'whipping up'* objections via social media. In some cases, officers referenced thousands of objections generated via animal rights organisations such as PETA⁹⁸. I am only aware of two cases in the study area where social media was used to any great extent (Tasley: 500 objections and Betton: 300 objections), although cases in other counties have had such petitions.

6.2.1 Framing objectors and their concerns

There was a consistent view from the farming sector, and to some extent the local authorities, that the most contentious applications were those where one or two *'ring leaders'* rally the wider community to object to the proposals by exaggerating the threats:

'an individual somewhere nearby who generally is a professional, well-educated person - like a solicitor, a barrister or somebody - and they have the knowledge to drive the objection through. And then they rally an amount of support around it.' (F4).

Objectors were seen as articulate and assertive: *'Those people who do object are powerful, they're good at proselytizing and they are pushy and posh.'* (GP5)⁹⁹.

Objectors were regularly accused of exaggerating:

'you get this argument about industrial farming and it goes on and on and on and (...) we hear "well you know the village nearby is going to get a toxic cloud descend on them, they're all going to die..." we almost get to those sort of extremes.' (F4).

In addition, the objectors were regularly characterised as incomers who don't understand farming, the countryside and *'how things are'* in rural counties such as

⁹⁸ People for the Ethical Treatment of Animals - international animal rights organisation with 6.5 million members and supporters.

⁹⁹ I suspect this related to one particular case. Most of the lead objectors I met did not fit this description.

Herefordshire and Shropshire. Incomers were differentiated from ‘*Herefordians*’ and people who had grown up in the countryside who understand agriculture and put up with seasonal disruption such as at harvest. Several farming sector interviewees talked of people moving to expensive houses in the area thinking it’s quiet and idyllic and being shocked by farming activities:

‘they find out actually, it is an industrial estate. (...) farming is a business. We don’t articulate that to people that are moving to the countryside to retire. This field is a business; we need to drive a profit.’ (F5).

The reference to an industrial estate is striking, as that is exactly one concern many objectors voiced, saying that planning permission would not be granted were the application for an industrial estate. The point about farming being a business and local people having to understand and put up with some disruption was repeated many times:

‘There are gonna be times where it smells, (...) where my corn dryer is making a noise (...) it’s just trying to get everybody to understand that this is the country and it is a business, not God’s waiting room’ (F2).

The reference to ‘God’s waiting room’ refers to retirees moving to the area. Real ‘locals’ were said to have seen the countryside change in the past and be reconciled to the inconveniences of an agricultural area. In contrast incomers were said to resist change; having an idyllic image of the countryside and not wanting to see that changed or modernised. In many cases they were characterised as romantics and NIMBYs who don’t understand the realities of the countryside. Many letters/comments to local newspapers also referenced incomers and NIMBYs. I asked one interviewee about whether objectors were often incomers and heard a more nuanced view:

‘if you’re in the community, it doesn’t matter whether if you’re an incomer, or whether you have been there for a long time; you’re both affected. (...) sometimes the incomers are the ones that’ve got the vitality and the passion for conserving what’s special about where they live.’ (GEP3).

Farming and planning actors highlighted that some objections come from people who do not live locally and used this to undermine the objections. These included objections from friends and relatives of residents, and at Hopton Heath owners of homes in the holiday home park close to the site. One planner was particularly exercised about perceived unrepresentative objections to a particular application, including many non-local objectors. When I checked the figures they gave me, I

found almost half of households in the parish had objected, which gave me the opposite impression.

6.2.2 Objector impact

Objectors have had some impact on IPU planning processes in both counties. In Herefordshire applications were increasingly challenged and thus more seriously interrogated by planning officers and councillors with several refused (and appealed). Four cases went to judicial review, but they have all been won by the applicants and the developments have gone ahead or are likely to do so soon. The loss of several experienced planning officers in 2019 may affect the situation but there was also a political change in the administration that year. Overall, my sense is that Cargill have succeeded in having the required number of new sheds built and farmers may back off applying over the next few years¹⁰⁰.

In Shropshire I would have predicted applications would continue to be approved as officers seemed convinced there was little problem and few councillors were prepared to argue or vote against. The expansion of the processing plant in Wrexham has created a new source of demand from the north. However, objectors have dug in over several applications, despite them being approved at committee, and pursued the applicants and council through the courts. This demonstrates the levels of contestation have continued to rise. Objectors' frustration and anger has built up and they are mobilising and organising increasingly effectively to challenge both evidence and procedures, calling the local authority and politicians to account.

There is perhaps a shift in power relations as government struggles to be effective, and local people take more responsibility for interrogating evidence and ensuring a fair process, at least where they have the capacity. Campaign groups are also widening their focus from environmental concerns to raise social, economic and health issues, drawing on their situated knowledges and lived experiences. They are having to fund-raise to afford professional advice and legal fees. Many are driven by a desire for environmental and social justice. Several interviewees became involved in local politics or environmental groups as a result of their campaigning activity.

¹⁰⁰ A planning moratorium was also introduced in North Herefordshire in 2019, discussed in chapter 8.

6.3 Contested framings and increasing resistance

The ‘overflows’ or externalities from the IPU developments are minimised in the planning application documentation and by the farming sector (Callon *et al.* 2001). The agricultural hegemony deploys a set of framings or narratives (collated in Table 6.2) to attack or criticise the objectors to IPU proposals.

Table 6.2 Narratives used to attack and criticise objectors to IPUs

Objectors are incomers to the area who don’t understand farming, some are just anti-farming.
Objectors are NIMBYs.
Objectors have irrational fears about technological innovation and focus on emotional arguments.
Most objectors are older people retiring to an imaginary idyllic countryside which no longer exists.
Local true Herefordians don’t criticise farming, they understand the county relies on agriculture, it’s what Herefordshire is all about.
Most objector groups are whipped up by one or two educated, retired professional people.
Some objectors live many miles away.
A lot of objectors are just extreme animal rights campaigners.
There are one or two professional consultants who tout for business in objecting to poultry applications and make money out of the objection campaigns.
Objectors are envious of farmers’ and landowners’ landholding/wealth (power?).
Agriculture (feeding people) is more important than tourism (people having fun). Primary sector production versus tertiary sector consumption.
Tourism businesses aren’t serious or proper businesses - they’re often lifestyle businesses, run by women, some are just seasonal.
The views of walkers are irrelevant; they are ignorant townies who leave gates open and let their dogs chase sheep.

These narratives tend to challenge objectors’ credibility, motivations and rationality. There is an extensive planning literature about how developers often accuse objectors of being NIMBYs (e.g. Wolsink 2006). This argument that residents’ concerns are selfish or ‘parochial’ is used to discredit their objections by questioning their motivations. Van der Horst (2007) found that some local people are reluctant to get involved in campaigns against developments precisely because they don’t want to be viewed as NIMBYs. In cases concerning energy

projects parochial community concerns are pitted against a more abstract concept of national 'energy security' (Selfa *et al.* 2015; Everingham *et al.* 2016; Beebejaun 2017). Similarly, with IPU's the issue of 'food security' is often used to dismiss local scale arguments. The label NIMBY serves to obscure multiple concerns that local people have and bundle them under one simplistic label. There is no doubt that residents may fear change, but they may also be anxious about risks to their health and wellbeing about which there is considerable uncertainty. Scott (1985) called such labelling '*small arms fire in the class war*' (p1) and suggested stereotypical terms such as NIMBY or 'incomer' should be understood as propaganda. Such labels have some truth, but they are deployed to maintain the status quo and to undermine alternative perspectives and arguments. People know what they are supposed to think when they hear certain words, particularly if they are repeated enough.

Characterising objectors as incomers is a tactic incorporating several threads. Incomers are perceived as not understanding farming and the countryside, as urban 'others'. Incomers are viewed as more mobile; if they moved to the area, they could always move away if they don't like the farming they encounter. There are echoes of Bell's (2016) findings in Appalachia where some objectors were labelled '*outsider extremists*' (p251); othered both by their origin but also undermined as troublemakers with 'extreme' environmentalist views. Thompson (1995:88) described common farming antagonism towards environmentalists who are viewed as rich, urban, idle '*tree hugging dilettantes*'.

Narratives about incomers and people who have retired to the country harness the rural idyll. While much literature in recent decades argued the concept was increasingly being used against farmers, I found more evidence of what Shucksmith (2016) suggested, where the idyll is used against incomers. The narratives emphasise incomers' ability and means to choose to move to the area (the term 'middle class' was regularly attached to the word 'incomer') but also to suggest naivety and utopianism. The idyll is a useful caricature that is easy to dismiss and thus continues to serve the interests of rural elites.

Objectors' experience from previous cases has shown them that it is not always the most predictable issues which halt a development; hence their 'dartboard' counter-arguments testing which gain purchase. Agricultural interests can take advantage of how protestors may be divided about which issues to prioritise, contesting issues individually and avoiding cumulative and combined impacts.

Also, the range of arguments used by objector campaigns tends to expand as the contestation continues, as they learn more about the wider range of potential impacts and as more consultants' reports are submitted and exposed to criticism. One might term this 'objection drift', not necessarily in a critical sense but recognising the situation is fluid and that the emphasis will shift over time. This is akin to Callon's 'inventory' of what is at stake; the objectors research identifies new areas of ignorance and uncertainty (Callon *et al.* 2001) and the list of issues becomes longer as seen in Table 6.1. Many individuals experience a broadening of their concerns from the particular locality to the wider national or global issues around climate change or loss of species (Beebeejaun 2019).

Local residents are often alarmed at the proposed rapid and dramatic change; they may feel anxious, 'exposed' and vulnerable (Alaimo 2016). Beck (1986) described how citizens can suffer a double shock of both hearing news about a particular risk, such as an IPU, and not having control over how the dangers may be assessed. Alaimo sees the resistance of objectors as an entanglement of ethics and politics with both personal and public dimensions. A key question objectors are asking is 'what is good and for whom?'. Objectors are concerned about how IPUs will affect them personally and affect things, places, humans and non-humans they care about, but also about who benefits and how is it decided. Some of these ethical values and political aspects are reflected in the range of 'attack' arguments objectors use against applicants (Table 6.3).

Table 6.3 Examples of objector 'attack' narratives

Farmers will make a large profit while causing local people distress and inconvenience.
There is no community benefit, no Section 106 or Community Levy type contribution, as there would be from other types of development.
IPUs are industrial developments not agricultural.
IPUs are not real farming it's all automated and the farmers just sit behind their desks at home.
IPUs are unsustainable forms of farming and will increase climate change impacts.
Cargills and most other processors are massive multinational corporations which don't care about Herefordshire or Shropshire.
IPUs source feed from endangered environments such as soya from South America.
IPUs are cruel and many of the birds are in pain and poor health.
The process is undemocratic; we are given little time to comment and our arguments are not heard.

Farmers and landowners have large resources to pay for applications, expensive agents and planning appeals, unlike local people who are objecting.

Most of the councillors on the planning committee are farmers or Conservatives with farming sympathies.

While these arguments have some validity, none are material planning grounds for objection under the current system. Unlike the applicants' attack narratives few of these are ever heard at a planning committee. Most are easily defused, ignored or turned against objectors. These concerns and values may contribute to exacerbating levels of controversy and draw more people into the contestations but there is a risk of undermining objections.

Identifying common framings is helpful in demonstrating the stereotyped arguments actors often call upon. But untangling the feelings and motivations behind individuals and communities mobilising against the perceived threats of an IPU development needs to go beyond this. The multiple matters of concern that leave people feeling exposed, vulnerable and angry involve their personal attachments to their locality and the many qualities it offers them, including aspects of their own identities (Marres 2007). Marres saw 'attachments' as a combination of 'dependency on' and 'commitment to' something, which is then endangered and becomes a controversial issue. Objectors' attachments may be to the tranquillity of their local area, the local countryside which offers them uplifting walks and good air quality, all of which may have come under threat. Their attachment is to the place they walk through and how it changes over the seasons; wildlife they see on walks and emotions that the experience creates within them. This may be a communal attachment shared with a companion or companion animal and that companionship is also part of what is threatened. Their regular walking and attachment to locality is part of their identity and all this is entangled in their concerns in response to a perceived threat and why they resist.

Some objectors fall into the categories the farming lobby identify: retired, well-educated incomers, but many do not. Some bridge the categories perhaps having moved from elsewhere originally but have lived locally for many years and consider themselves 'local'. Occasionally farmers and several large landowners have joined objector networks. These may be braver individuals, or those with less to lose socially. Increasing levels of protest may reflect a gradual shift in the rural communities and a weakening of the hegemonic power of the farming

community. Incomers and those who have retired are certainly freer to challenge proposals as they are usually less socially integrated through family and work ties. It may also reflect more women exerting their views which previously may have been more easily suppressed. Bell (2016) found women in Appalachia were disproportionately represented in the resistance as men may find it difficult to challenge local hegemonic masculinity. Many rural networks where power circulates are predominantly populated by men: sports clubs, agricultural societies, rotary clubs, freemasons, even pubs or young farmers groups (Heley 2010).

Objectors also 'perform' resistance at times. They have staged protests with placards outside meetings or put up protest posters around villages. At the planning committee a very specific performance is required: a three-minute speech by one individual articulating the objectors' case. If the speech is to gain purchase with the planning committee it must be performed in a polite, organised and rational way, under pressure. There is no place for emotion, politics or raising those wider issues entangled with objectors' concerns and attachments.

Resistance has sometimes escalated to reach the courts as objectors have mounted judicial review (JR) proceedings (Allmendinger 2016). The fact that there have been so many (four in Herefordshire and five in Shropshire) is evidence that planning procedures have gone awry¹⁰¹. Shropshire Council has ceded several cases before reaching court which also proves that processes have failed. In 2020 there were about seven cases officially undetermined some dating back to 2016 and 2017 that are tied up in objections and legal issues (Appendix 2). Nevertheless, for objectors it can be daunting, venturing into unfamiliar and costly territory, normally with only modest hope of success. Agents and consultants are becoming more familiar with the process. The legal costs to the councils have mounted; one ongoing case has cost Shropshire Council over £100,000 in legal fees¹⁰². In times of austerity this has raised the stakes substantially.

There is evidence of objectors reaching out to other groups to collaborate more widely. They may be seeking advice about scientific data or about tactics or contacts. It is usually when a case extends over a considerable time that they may

¹⁰¹ The initial step involves a ruling about whether there is a case to answer, this prevents too many vexatious cases reaching court.

¹⁰² Submission to planning application 17/01033/EIA Footbridge Farm, Tasley Jan 2020, following campaigners' Freedom of Information request.

consider collaboratively campaigning about the wider issue. Longer term collective campaigning is not easy. Objectors against each individual application may give up (or celebrate) when the case is decided and be unwilling to prolong the unpleasant experience of objecting. Mobilising a sustained campaign across a wider area would entail major challenges.

6.4 The non-human actors

Non-human actors have emerged throughout my research, making themselves known in various ways. Some, like a hare, pheasants, buzzards, red kites, ancient trees and hedgerow flowers, I encountered during research walks. Other actors are identified in reports and documentation or in arguments at meetings. Protected species such as bats, dormice and great crested newts must be taken into account during planning processes but tend to act to increase levels of mitigation required, rather than stop the development altogether. Mitigation for bats, for example, includes adjustments to lighting design and retention of large trees where they roost. Campaigners often considered whether such wildlife might be effective allies in their fight and at times enrolled them into their objector networks.

Other possible actors range in size from major rivers, the Severn and the Wye, to the microscopic algae that bloom in the rivers revealing water quality problems. These rivers currently fail to meet European legal standards meaning local authorities and agencies are required to improve water quality:

'Because they do start getting really sick, nasty algal blooms, and start getting dead zones and there's dead fish (...) And look at it, "It's the country's favourite river and look at the state of it."' (O1) ¹⁰³.

The rivers and their tributaries connect many other actors including salmon and anglers. But there are also protected river species such as otters, eels, crayfish and in particular the freshwater pearl mussel (FWPM) (Figure 6.3) which have emerged as significant actors in this research. Pearl mussels were raised as a crucial issue in two contentious south Shropshire IPU cases and are emblematic of the wider water quality issues.

¹⁰³ The River Wye was voted the UK's favourite river in a one-off poll in 2010. BBC news website 17.11.10



Figure 6.3 Freshwater pearl mussels¹⁰⁴

The River Clun, a tributary of the Teme and Severn, runs from Shropshire into Herefordshire. Close to the county boundary is one of two remaining communities of FWPM in England¹⁰⁵. The mussels have been in decline for several decades as water quality has been deteriorating with high levels of nutrients, sediment and algae: *'If you're a pearl mussel, you need very, very high-quality water. (...) phosphates and nitrates have to be at natural levels.'* (GEP3). Figure 6.4 shows the River Teme at the confluence with the River Clun. The mussels are located slightly further upstream. Note the eutrophic weed growth in the foreground. This is also a popular local swimming spot.

¹⁰⁴ Photo published in Shropshire Star 17.4.15
<https://www.shropshirestar.com/news/2015/04/17/360000-plan-launched-in-shropshire-to-save-endangered-mussels/>

¹⁰⁵ Geographically the mussels are unfortunate to fall into a spatial lacuna; being on the river Clun and part of the River Teme and Severn catchment which takes in most of Shropshire. However the key site is actually in Herefordshire the tiny fragment of the county which is not in the Wye and Lugg catchment. Being so close to the county and catchment boundaries means agencies need to collaborate if they are to save the mussels.



Figure 6.4 River Teme/Clun confluence, Herefordshire

Several factors interrelate to stress mussels; the loss of alders along riverbanks due to disease and climate change reduces shade and increases water temperatures. Increased development of houses and poor sewage treatment plants increase nutrient levels. But poor land management, spreading of excess manure and high soil and nutrient run-off are crucial. It is the connection between this ‘diffuse’ agricultural pollution and IPU which is contested¹⁰⁶. IPU generate excess manure, which farmers may spread at times and in locations where it will wash into rivers. There are other links, such as increased maize acreage to feed the AD units. Maize is notoriously poor for soil retention. Also, there are concerns about how liquid and solid digestates from AD units are used.

The stretch of the river Clun which holds the FWPMs is an SAC, the highest level of environmental designation currently in the UK. Over the last 15 years publicly funded projects have worked with landowners and farmers in the catchment to modify land management practices, fence more riverbanks and reduce applications of fertiliser to reduce phosphates and sediment in the river. At one time there was a moratorium on housing development in the catchment¹⁰⁷: *‘There was quite a bit of controversy over that (...) the pearl mussel got the blame for it*

¹⁰⁶ Another factor is livestock being allowed to access rivers directly, generating excess sediment and manure pollution - many stretches of river have been fenced in recent years to prevent this.

¹⁰⁷ To prevent additional sewage volumes

a little bit' (GEP3). The mussels prompted the SAC designation and act as an indicator of the river's diminishing water quality. The population of mussels is thought to be below 1,000 individuals now and in critical condition (Figure 6.5): they are likely to die out in the next five-ten years.

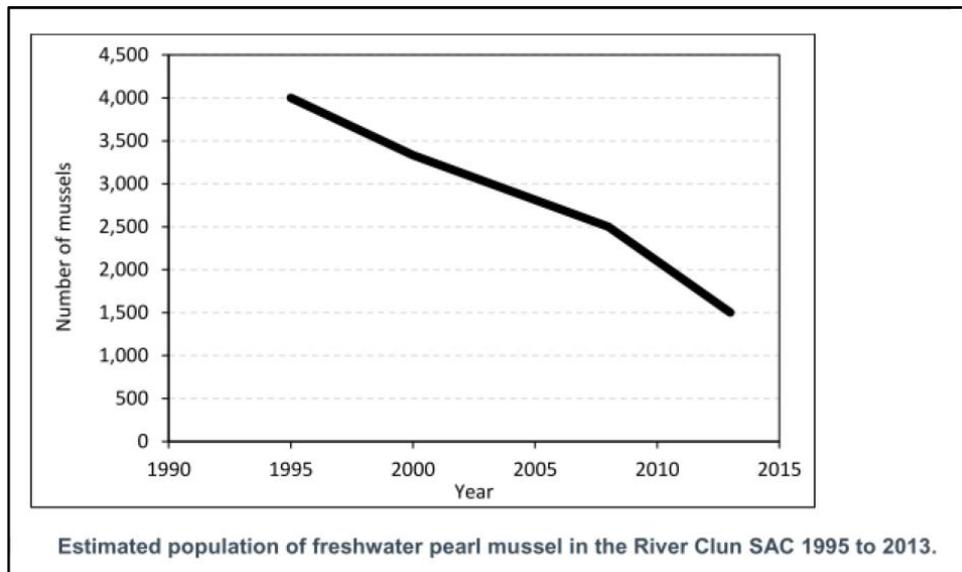


Figure 6.5 Estimated population of River Clun freshwater pearl mussel 1995-2013 (EA and NE 2014)

Other actors which have emerged are ammonia sensitive species and habitats. Ammonia pollution from poultry units boosts the growth of plants such as nettles, ivy and holly but damages other plants especially lichens and bryophytes (mosses and liverworts), certain trees and vulnerable habitats such as upland heaths and meadows. It is designated locations such as SSSIs or ancient woodlands that concern ecologists most. Rare lichens were cited in an objection from the National Trust to an IPU application close to Walcot Wood, Shropshire, in 2015. The lichens in the woodland, managed by the Trust, are nationally significant. The wood is the only British location for one species (*Arthonia byssacea*) which is internationally endangered. The application was approved nevertheless. Mitigation included a field being taken out of arable production which the Council treated as an ecological 'net gain'.

In England many rare lichens have already disappeared so the baseline is unknown, whereas many Welsh woodlands still have important lichen habitats. Two conservation experts explained it was already too late to monitor many species in England as they have been lost. They referenced the *Shropshire Flora* volumes,

published periodically since 1890, which list all plants found in the county and speculated that a large proportion of losses are due to ‘enrichment’ from intensive agriculture¹⁰⁸. They suggested this has knock on impacts on insect life. It may be IPU emissions over the last 70 years that are partly to blame. IPUs have only proliferated in mid Wales in the last 5-10 years¹⁰⁹.

Wildflower meadows (Figure 6.6) were raised as a particular issue during the Aston Munslow case: *‘it is alarming, here we have Marked Ash Meadows, which is a really, really cracking SSSI, that is surrounded by poultry units.’* (GEP3). The visit to the meadows organised by the campaign group could be interpreted as a form of enrolment of the habitat/plants and a widening of the pool of people who care about the meadows. Few of those attending would have remained unmoved by the swathes of orchids.

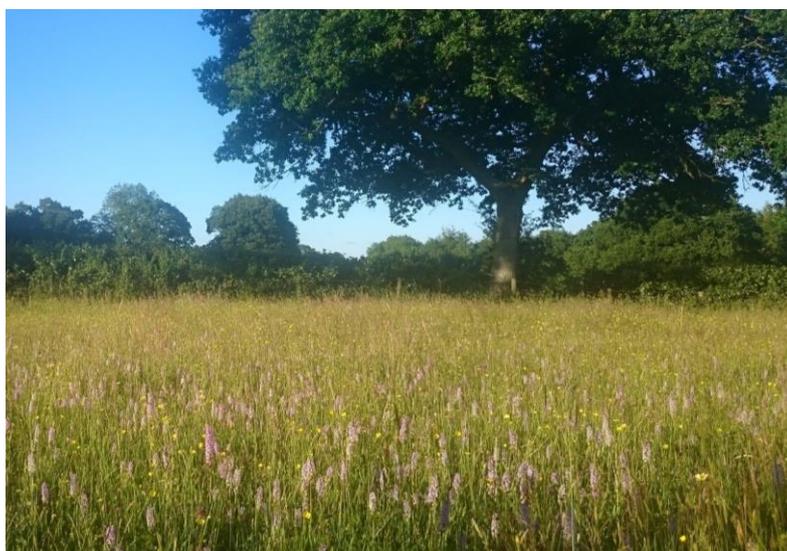


Figure 6.6 Orchids at Marked Ash Meadows SSSI, 21.6.18

The research revealed actors such as veteran trees, lichens, and assemblages such as meadows which are cited during the planning process as being in danger. They have become beings of concern to scientists, objectors and also applicants in case such actors could halt an application. As yet, few non-humans have been

¹⁰⁸ I looked at the Shropshire Flora volumes but found it too difficult to identify specific ‘indicator’ type species. County ecologists later confirmed that it would be a challenging exercise to check all the data and very difficult given the current lack of a lichen or bryophyte ‘recorder’ for the county. They were having discussions about a project to do this type of work, given the perceived threats.

¹⁰⁹ It was said to be lichen that stopped one poultry development in Carmarthenshire going ahead; the SSSI lichen assemblage at the National Trust’s Dinefwr Estate was cited as the reason for permission not being granted (Perrett 2018).

successful in halting a planning application in this area, with the possible exception of veteran trees in the parkland at Aston Munslow. The trees were overlooked by Shropshire Council in their assessments and may be part of the reason the Council ceded that judicial review. Lichens are one focus of attention in the 2020 Tasley case.

There is other wildlife which has been disappearing:

'her husband had been brought up in the parish and he remembers tickling trout in the Corve but there are no trout there now. He also remembers seeing kingfishers along the river and they've gone.'
(Research notes, 17.11.18).

Only some people may notice these absences and because they are not protected species the information is unlikely to be of interest during a planning application.

Several farmers I spoke to took an interest in local wildlife and worked to enhance certain aspects on their land. One farmer stressed the connection between making a good profit from poultry and being able to finance conservation (for which they were also receiving stewardship payments):

'If we're going to invest in seed mixes (...) for yellowhammers in the winter, we have to make a profit somewhere and the profit is the chickens. (...) This is why we can set five or six acres aside for seed mixes and have 50, 60 yellowhammers in a hedge in January.' (F5).

Another farmer was an active partner in a wildlife project and posted videos of otters and other wildlife along their local stream. All the farmers were also concerned about wild bird populations but usually for bio-security reasons. Wild birds such as ducks and geese and game birds like pheasants are thought to be potential carriers of bird flu and as such a significant risk to the chicken population.

The research identified other types of non-human actors such as the ubiquitous chicken lorries that are seen on local roads every day (Figure 6.7)¹¹⁰: *'it's not possible to drive into Hereford without seeing two or three lorries going out to get chickens and that's during the day.'* (O3). It takes about 34 lorries to depopulate a four-shed site. That totals around 40,000 lorry movements a year in Herefordshire moving live birds (in addition to other IPU traffic and tractor movements).

¹¹⁰ I estimate I see a chicken lorry every 20 minutes or so when driving around locally, despite multiple people saying most of the chicken movements are done during the night to keep the chickens calm.



Figure 6.7 Chicken lorry, Hereford

Neglected footpath infrastructure, electric fences and alarming warning signage could be treated as actors, deterring casual walkers close to IPUs. I discuss how these are experienced in chapter 9.

Finally, chicken manure could be considered an actor. It requires clearing out from sheds and moving to AD units, field piles, spreading on fields or transporting elsewhere. It fertilises the ground, generates power in AD units and creates profit for farmers. It pollutes air with smells and ammonia, attracts flies and causes distress to neighbours. It pollutes rivers with its nutrient content and can poison wildlife. It may contain other ingredients such as drug residues, heavy metals, or antimicrobial resistant bugs. Manure increasingly requires management plans and legal agreements for disposal and it acted in one location (Tasley) to require a case to go to the High Court and Royal Courts of Appeal.

Non-humans act in multiple ways through their presence, disappearance and absence. They are sometimes encountered, scientifically sampled or monitored. Some objectors have concerns and cares about certain non-humans and may lobby on their behalf (such as chickens) or enrol them in objections (mussels, lichen, rivers, meadows). They may enrol some negatively (e.g. lorries or manure). Chapter 7 discusses how knowledge about these actors may slow, amend or potentially stop planning applications. Chapter 9 explores how they contribute to experiences of poultry units.

6.5 Silent actors

Objectors reported widely that there were people concerned about applications who didn't speak out or submit objections. The case of tenants on estates is one example, already mentioned. In another village business concerns kept many people quiet:

'a lot in the village didn't even put in objections to the planning application. I think a lot of them were scared that their own business, like the local photographer, the local removal van guy, if he put his name down he'd lose half his clientele, cos they were worried about that whiplash effect' (O2).

Rural communities have small populations who are often intertwined in many interconnected business, social and family relationships. One objector mentioned their neighbours who were unhappy about the application but did not object due to their close farming connections:

'They're forever going to parties with family and people like the (applicants) are there, so they don't want to get on the wrong side. But they don't want it. They also said they'll probably move before too long.' (O7).

Some people reportedly felt that getting involved wouldn't make a difference; that the farmer was bound to receive permission, so why get involved on the losing side. Others simply didn't want to be involved in a divisive local issue. In one community people were invited to become 'supporters' of the campaign group on an anonymous basis so they could help, perhaps by giving a donation, but avoid active campaigning.

One reason people may stay silent is the fear of the consequences of speaking out and intimidation by farmers. Some interviewees made a general comment along these lines: *'farmers aren't the nicest to the neighbours. They wind everybody up - they're a bit arrogant.'* (GEP2). In other cases there were specific accounts of intimidation or threats:

'we didn't object because we don't want to fall out with the farmer. I know him reasonably well and you don't want to fall out with him. Neighbours felt the same way. (...) The people who moved out of [property name] did and ended up for two years having great piles of chicken shit piled opposite their house.' (OP1).

The intimidation had prompted the residents to move away. I heard several tales such as this and concerns about the consequences of objecting for individuals. Some people were aware that if you have a dispute with a neighbour it could

make selling one's property more difficult. I found evidence of two cases where this had happened.

Tourism businesses are often silent actors. Although tourism is a commonly voiced concern in the planning process businesses themselves often avoided getting drawn into the debate. Some are based on farms or estates or serve the farming community, such as pubs. Others submitted written objections but wanted to avoid further involvement. One tourism business interviewee had a strong social media following and could have publicised the case widely but realised it would be counter-productive for their business. They didn't want to draw attention to a negative that might affect bookings, regular visitors and the viability of their business. The consequences of objecting loom large. I only spoke to one tourism business owner who was heavily involved in an objection campaign. It appears it may be too risky and counterproductive for tourism actors to get drawn into contestations.

6.6 Tourism values and concerns

The interviews, observations and documentary analysis identified that, even when they are voiced, tourism concerns and values are usually ignored or are absent:

'Agriculture has a massive voice, doesn't it? Tourism (...) brings more income into the area, so you'd think that... It surprises me on a daily basis how it's ignored.' (T5).

Some people had dismissive attitudes to tourism businesses. The sector is regarded as somehow non-serious, frivolous even; small-scale, lifestyle businesses involving leisure, pleasure, relaxation and fun. The language and attitudes are different to those used when describing farming and food production, which are seen as serious, 'proper' (male) work, essential for national wellbeing and feeding the population. One planning officer challenged whether walking is an important element of the local tourism industry and went on to query whether tourism, and B&Bs in particular, were actually businesses. They viewed most tourism concerns dismissively and didn't see the need to seek a tourism perspective on poultry applications. There is no requirement to look at tourism impacts as there is with ecology, landscape etc. There is also no longer a mechanism to seek a tourism perspective on applications; no local authority tourism officers remain in either

county, where 10-15 years ago there were six in Shropshire and about eight in Herefordshire¹¹¹.

In Herefordshire the tourism remit was moved from the Council to become an independent organisation Visit Herefordshire for several years. This struggled and was taken on by the Hereford and Worcester Chamber before folding altogether in 2018/19. There remains just a commercial publishing business which prints an annual guide and holds periodic forums for businesses. Several people used the term ‘vacuum’ to describe the county’s tourism support system. The industry lacks a voice, particularly in Herefordshire. In most counties there are several individuals who own or manage larger, high-profile tourism businesses who become spokespeople for the industry. I asked several tourism actors whether there was anyone like this locally. One interviewee, without thinking, named the owner of a significant self-catering business who had been involved with Visit Herefordshire but is also a major poultry farmer. Another interviewee mentioned this unprompted and commented ironically: *‘It explains a bit why the tourism lobby in Herefordshire never gets involved.’* (OP1)¹¹².

The farmer didn’t see any conflicts from their involvement in both sectors:

‘I do sit in both camps. I support all the tourism initiatives and I support the farmers. I sit on various local farming groups (...) so I don't see a conflict from a farmer's point of view. Many of us have diversified into having holiday properties. (...) I think probably tourism and farming work pretty well together, putting aside the poultry farms.’ (FT1).

They clearly have a farming perspective; the poultry is significantly more dominant and profitable. This farmer had actively supported IPU applications close to tourism businesses.

One of the tourism objectors I spoke to said they had raised the planning application threatening their business at a tourism forum: *‘they wouldn’t get involved at all. (...) when I brought up chicken sheds they just weren’t*

¹¹¹ As tourism is not a statutory responsibility both Councils have withdrawn from all but residual (economic development) activity in the area as austerity funding cuts have impacted. I was employed as one of the six in Shropshire (2004-6) when there were five district councils plus the county council, before the county went unitary.

¹¹² In fact farmer involvement in Visit Herefordshire is longstanding; the chair of Visit Herefordshire during the mid-late 2000s was the former President of the NFU (1998-2004), Sir Ben Gill nationally well known during the foot and mouth disease outbreak in 2001.

interested.' (TO2). Another tourism objector said they would have appreciated help from Shropshire Tourism, but:

'if they complain about it too much, if you start saying negative things about Shropshire, it impacts on potentially attracting guests. So what do you do?' (TO1).

Tourism actors may keep quiet because they don't want to rock the boat (perhaps they have members or funders who have farming interests), but also because they don't want to attract attention to the negative issue. Quite possibly tourism organisations have been in such decline they have no one to address an issue perceived as difficult and peripheral to their main activity.

The current situation in Herefordshire demonstrates the way farming has become entangled in the tourism sector. There are still local tourism groups across Herefordshire, although they are very fragmented and have little capacity. Such groups network and sustain a basic tourist information service, but are unlikely to get involved in lobbying against IPU planning applications, partly because they have farm tourism businesses as members. Herefordshire Sustainable Food and Tourism Partnership was set up as the public sector tourism role declined. It is coordinated by the Brightspace Foundation¹¹³ which also drives several county-based initiatives, including Farm Herefordshire (chapter 5). Formed in 2014 the Partnership includes the Duchy of Cornwall¹¹⁴, Visit Herefordshire (until its demise), Herefordshire Rural Hub¹¹⁵, the Rural and Farming Network, Herefordshire Council, Brightspace Foundation, the NFU and CLA. Clearly the farming sector dominates. The Brightspace Foundation's CEO formerly worked for the NFU and one trustee was general manager at Cargill between 1987 and 2002. This grouping of largely food and farming interests identified the tourism vacuum, lack of leadership and strategy and has moved into that space. It has ensured that farming perspectives are embedded in any county level thinking about tourism. The Partnership coordinated production of a Herefordshire Destination Management Plan in 2018 and leads proposals for a Business Improvement District

¹¹³ Formerly the Bulmer Foundation founded in 2001, is a not-for-profit organisation focusing on Herefordshire and with a single stated objective: *'to enable people and communities to live sustainably'* (www.brightspacefoundation.org.uk/who-we-are).

¹¹⁴ The Duchy of Cornwall (Prince Charles) owns about 13,000 acres of land in Herefordshire <https://whoownsengland.org/2017/03/15/what-land-does-the-duchy-of-cornwall-own/> It was described by one interviewee as *'a big player in this county, in terms of how land is used'* (F1).

¹¹⁵ The Rural Hub is based at the NFU offices and supports *'farming and rural businesses'*.

which would raise funds via a business rate surcharge. Partners I interviewed were all relatively dismissive of any clash between IPU and tourism.

In Shropshire there is a different pattern. Here the heritage and culture of the county are more diverse and there are larger, more commercially minded tourism players¹¹⁶. In the Shropshire Hills the AONB identified the emerging vacuum in the tourism sector and has for the last 10-15 years been supporting a 'Destination Partnership', the small Shropshire Hills Tourism Association and a Sustainable Tourism Strategy.

The Marches Local Enterprise Partnership (LEP)¹¹⁷ identifies tourism as a priority but has led little tourism activity in recent years. One officer commented:

'It's been a real running battle. If you look at the LEP's strategic economic plan (...) tourism is in there as a sector that is important (...) We have been fighting to get some recognition for tourism and to get some support for the sector and we have never had it. We've struggled; we've really struggled.' (GT1).

While there had been European money for which rural tourism projects could apply, there was little direct LEP funding and only an *ad hoc* group of several officers who communicated occasionally on tourism issues. The officer was frustrated at the lack of support for one of Herefordshire's key sectors. Another tourism actor said: *'It's like banging your head against a brick wall'* (T2). The suspicion is that the LEP may be being persuaded to focus on other sectors¹¹⁸. The loss of research, visitor surveys and tourism economic impact studies which were previously carried out routinely, reinforces the lack of profile and knowledge about the sector. It is more difficult to make the case for how significant tourism is to the local economy.

By design or default, the voices that speak for tourism in Herefordshire tend to be farming voices. And these voices will not speak out against intensive livestock farming. Herefordshire planning officers and planning committee members agreed that tourism doesn't have a voice in the planning process. In contrast numerous people commented how the NFU and CLA lobby for farming interests and regularly supply letters of support. *'That's just the way it is I suppose...'* (F1) offered one

¹¹⁶ Such as Ironbridge World Heritage Site, conference venues, large hotels and many significant attractions.

¹¹⁷ which covers Herefordshire, Shropshire plus Telford and Wrekin

¹¹⁸ The LEP Board has no tourism representation, but several agricultural and manufacturing sector representatives.

interviewee. I asked another about the contrast between the voices for tourism and farming and they offered:

'What can you do about that? (...) Cos farmers are big. Big money, big debt, big everything, and so they get a big voice. That's unfortunate but that's life isn't it.' (GD3).

Food and farming are important elements of tourism in Herefordshire, but they have come to dominate almost to the exclusion of more mainstream tourism values and interests. Farming and landowning actors have occupied the tourism space to control 'the story', suppress alternative tourism voices and sustain the status quo. As tourism is undervalued and often ignored, the tourism related concerns and arguments about IPU impacts are downplayed and dismissed. The argument is that there is no evidence of tourism impact; I shall explore this in the following chapters.

6.7 Objector enrolment and suppression

The sections above have demonstrated how objectors have successfully drawn more actors into contestations through, in Callon's terms, a process of '*interessement*' and then '*enrolment*'. If successful, enrolment moves into a mobilisation of allies. However, enrolment may fail and actors may decide not to participate, to stay silent or cannot be recruited for other reasons. Objectors enrol others to write letters, join a campaign or as paid advisers. They may target influential people, politicians, business owners and NGOs; boosting their associational power (Woods 2005). The increasing frequency of tourism impacts being referenced could also be seen as a form of enrolment. Objectors are trying to enrol businesses and future visitors to support their objections. This is similar to how Evans (2013) described objectors to polytunnel developments rallying wider support and using tourism to bolster their argument. In several recent cases manure disposal has been a major issue and objectors could be said to have enrolled manure and manure lorries into their arguments. Manure is transformed from valuable fertiliser, as argued by the farming sector, into a hazardous waste product and source of pollution.

Objectors have enrolled protected wildlife species into contestations to help stop developments. The freshwater pearl mussel (FWPM) has become a sentinel species, or bioindicator showing water quality in the river is not improving (Gramaglia 2005; Gramaglia and Mélard 2019). Objectors close to the remaining

mussel community enrolled them into planning objections. Their precarious presence in the river Clun has made mussels objects of scientific study and prompted many years of work by agencies to improve the water quality to prevent them dying out. The FWPM has been at the heart of legal challenges over the failure of agencies to meet water quality thresholds and also contestation between farming bodies and environmental bodies over whether the catchment should be designated a Nitrogen Vulnerable Zone. The outcome: the continuing decline of the mussels, reveals how ineffective actors have been in addressing their needs despite the money spent on water quality improvement measures¹¹⁹. Environmental bodies have failed to bridge between their regulatory position and their conservation work. They have been unable to harness an argument to object to IPU applications in the catchment that can withstand the applicant agent's assaults.

This chapter has also revealed actors who resisted enrolment: a range of silent or passive actors, choosing not to get involved despite feeling concern about IPU impacts. Avoiding contestation may reflect the hegemonic fatalism Bell (2016) found in Appalachia. Several North American authors found rural residents decided not to object to CAFOs so as to avoid community division (Williams 2006; Henson and Bailey 2009). Some, however, stay silent out of fear of the consequences of speaking out. These include those within or connected to farming or land-owning communities whose views may be suppressed through peer pressure, familial ties or obligation. In small, sparsely populated settlements falling out with dominant social figures is not without risk or consequence. I did not hear of potential objectors being bribed to stay silent, reported by Nicholls (2020) in research about contentious solar farm applications, but there were stories of trade-offs for support of other planning applications and several unprompted mentions of intimidation. A proportion of the opposition is suppressed: (Robbins 2012). In Appalachia Bell (2016) found evidence of how local elites with ties to the coal industry were able to exert pressure on other residents to stifle criticism. There was strong pushback against people who were perceived as being '*against coal*': 'othering' objectors as 'outsiders' whether they were or not.

Another group of silent actors has been identified: tourism businesses. While they may feel intimidated or socially compromised, they particularly fear drawing

¹¹⁹ This also applies to native crayfish or salmon, both of which have also been the focus of conservation action.

attention to the proposal and damaging future business (Beebeejaun 2017). The LEP prioritised food and agricultural sectors whilst largely ignoring the tourism sector. The Herefordshire tourism sector had been colonised by the agricultural hegemony. As the Council withdrew from tourism during the 2010s the vacuum was filled by additional food and farming actors.

The research has uncovered a plethora of ‘matters of concern’ for the actors involved, many of which are contested by applicants and their agents. There are few ‘matters of fact’ in this situation (Latour 2005). Other than the size and shape of the buildings, most other aspects of proposed developments are disputed to a greater or lesser extent. Many objectors’ concerns relate to people’s attachment to place and objectors are responding to perceived threats as a form of ‘place-protective action’, prompted by emotional attachments to a locality and thereby to identity (Devine-Wright 2009). In many cases objectors care as well as are concerned (Puig de la Bellacasa 2011). They may care about the welfare of the chickens or disappearing species and habitats, sometimes enrolling them in objections. Objector values that emerge from the analysis are more multifaceted than those of farming actors discussed in chapter 5 and expand during the process to encompass more collective, ethical and justice values. Non humans are written through the contestations in scientific evidence (Hinchliffe *et al.* 2005) and may act to influence the planning arguments.

The next chapter moves on to look more closely at the types of information and knowledge which are deployed in IPU planning applications. I will explore how the knowledge is harnessed and contested; what evidence is deployed, the arguments over it and also what evidence is missing from the debates.

Chapter 7 Contested knowledge

Chapter 6 demonstrated the range of concerns and issues which planning applications for poultry units provoke. Each potential impact requires different evidence or knowledge to be assessed during the planning process. This varies from projections for additional heavy goods traffic, analysis of soil types for drainage purposes, impacts on nearby heritage assets, rights of way or protected species. Recent applications have been accompanied by numerous reports requested by planning officers trying to address the range of concerns articulated during the consultation process. The planning documentation ostensibly assesses levels of risk to prove a new development will cause limited externalities (Beck 1986; Weis 2013). However all too often uncertainties about the information multiply on closer inspection.

In this chapter I have chosen to explore some of the most contested areas of knowledge and how evidence is constructed, presented and then disputed. Expert technical reports assess the risks and are generally presented as factual and politically neutral (Allmendinger and Haughton 2015). But I also consider how lay knowledge and expertise is handled in the planning process (Petts and Brooks 2006; Beebeejaun 2017). I use a Foucauldian perspective to explore how this knowledge engenders or induces power. Power relations play out in how knowledge is handled and framed and what knowledge warrants consideration during a planning application. Thus the second part of the chapter considers evidence that is not sought or considered, focusing on economic/tourism and social/health perspectives. I try to clarify areas of uncertainty and (inadvertent or deliberate) ignorance (Callon *et al.* 2001; Proctor and Schiebinger 2008). Also, I consider what information is missing with an eye to whether it would be possible to incorporate such knowledge in future planning processes (Forester 2012).

'planning is looking at the evidence.' (FP2).

7.1 Knowledge construction

This section explores the air pollution, smell and landscape impacts of IPU and how they are constructed and contested in the planning process. These are examples of how knowledge has become increasingly 'scientised' over time (Lowe

et al. 1997). Ammonia and odour impact assessments are ‘black-boxed’ and have proved difficult to question (Rydin 2012; Rydin *et al.* 2018). I explore how objectors have tried to challenge this technical knowledge and at times constructed their own knowledge.

7.1.1 Air pollution and ammonia

*‘On one that is more sensitive, potentially, ammonia may be a show-stopper. To actually work out and to get the Council to confirm whether they are okay with the proposal, with some sensible mitigation, it’s going to cost several thousand in surveys. (...) It’s off the scale. It’s like a science. Never had to do it before... and the cost!’
(FP1).*

During 2018 ecologists at Shropshire Council began to tighten the ammonia screening process and modelling guidance¹²⁰, delaying numerous applications. Views about the new guidance, published in May 2018, were mixed with some agents complaining about the costs, of applications and the developments themselves. The *‘it’s like a science’* comment in the quote above demonstrates how increasingly technical and scientific the process is becoming.

Ammonia has become the principal air pollution concern in the planning process. It derives from chicken urine and faeces and is emitted from ventilator fans on IPU: *‘Nitrogen deposition is one of the main threats to worldwide biodiversity, alongside climate change and habitat destruction.’* (EA 2018). Ammonia is normally invisible: emissions can only be seen in certain weather conditions (Figure 7.1)



Figure 7.1 Emissions from IPU fans at Penrhos (photo circulated by campaigners)

¹²⁰ They followed a 2017 protocol developed by Natural Resources Wales with revised thresholds. The new guidance was triggered by case law about ‘in combination’ impacts needing to be accounted for, rather than screening other impacts out through the use of thresholds (Wealden District - a case about traffic impacts).

Figure 7.2 shows that while the other air pollutants of primary concern to government have declined in the last 50 years, ammonia emissions have remained high.

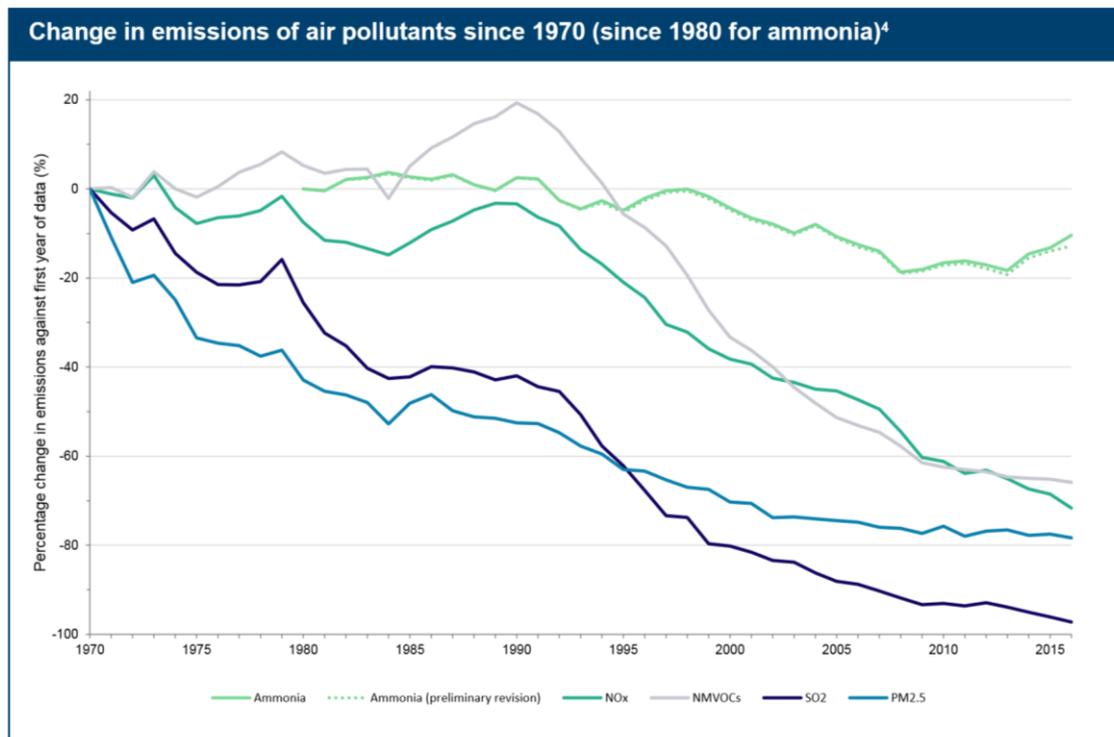


Figure 7.2 UK Government Clean Air Strategy 2019:13

The pictogram in Figure 7.3 summarises the concerns around ammonia and its impacts on human health and the environment.

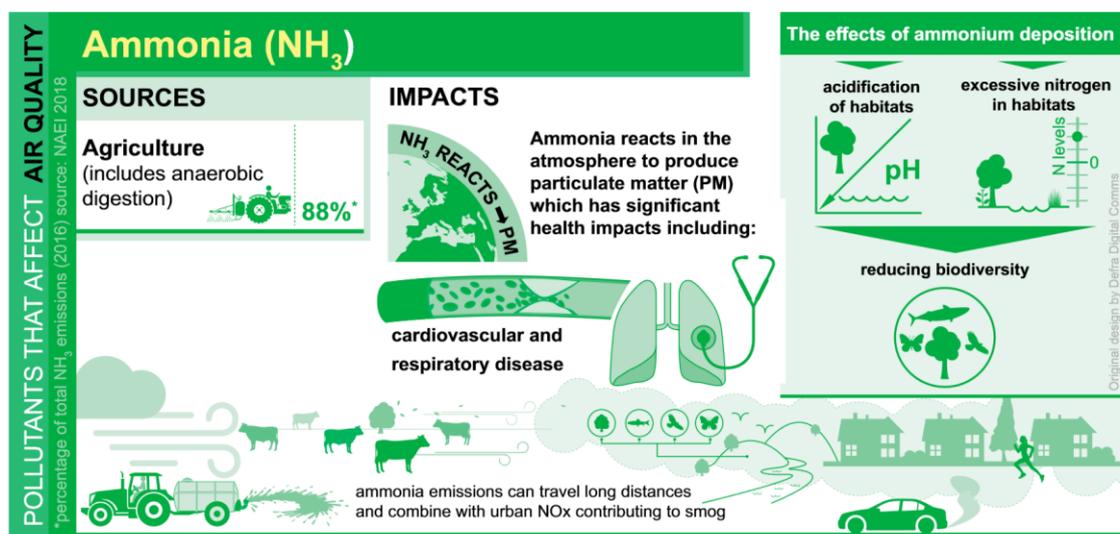


Figure 7.3. UK Government Clean Air Strategy 2019:17

A Royal Society report (Guthrie *et al.* 2018) collated evidence on ammonia emissions in the UK. Impacts include loss of sensitive plants and habitats (as discussed in chapter 6), freshwater eutrophication, soil acidification, direct toxic damage to leaves and increased susceptibility of plants to frost, drought, pathogens and pests (Jones *et al.* 2013; Plantlife and Plant Link UK 2017). Guthrie *et al.* attempted to quantify economic impacts of ammonia emissions on biodiversity and health and estimated total costs to be around £2.50 per kg of ammonia or £700m a year¹²¹.

Objectors often also have concerns about dust, bioaerosols, particulate matter or chemicals which are present in emissions. Particulate matter PM10s and PM2.5s¹²² may contain micro-organisms, bacteria, fungi, spores, viruses, antibiotics and aero-allergens from the plant and animal matter in poultry units such as feed, bedding, pests and chickens themselves (EA 2008). One objector spoke of how angry they got about air pollution:

‘Smell doesn’t kill you but the particulates coming out of those chimneys, I did a lot of research on it, the particulates made Volkswagens look clean. And they were chucking out unfiltered dust into the atmosphere, which cause respiratory problems, heart failure, liver problems...’ (O2).

The objector’s research identified that air filters could be fitted to IPUs. However, no public sector interviewees mentioned the potential to filter emissions from units; there appeared to be patchy awareness of health or environmental risks of particulate pollution. Health impacts have occasionally been an issue in IPU planning applications. I am aware of two cases in Herefordshire where issues of air quality impacts on nearby residents with respiratory problems were raised¹²³.

Normally the Environment Agency (EA) assesses potential emissions as part of the environmental permitting process. Farmers must satisfy EA that they will operate their poultry unit to Best Available Techniques (BAT) guidelines. Proposed developments go through a screening process to see whether emissions need to be

¹²¹ Though the range of possible values was between £2 and £56 per kg and up to £16.5 billion a year, if the higher estimates are used.

¹²² The figure relates to the size of particles, in micrometres

¹²³ At Bush Bank the planning committee refused the application but the applicant won on appeal after commissioning a further air quality report.

modelled. In the past, three quarters of sites 'screened out' and were not required to undergo the expensive ammonia modelling. I was talked through the complicated process by an EA officer. Theoretical 'process contributions' of the IPU are calculated by computer (based on the number of animals and the ventilation system proposed). Until recently the process minimised likely cumulative ammonia as nearby sites were only included if calculated to be over a certain threshold. Background ammonia levels are also not taken into account; Herefordshire and Shropshire have quite high levels already (DEFRA 2002).

If a modelling report is required then the process assesses whether ammonia emissions from the proposed units will exceed critical levels at nearby designated habitats such as SSSIs, SACs, local nature sites and ancient woodlands. Again, this a complicated theoretical assessment undertaken by consultants using an 'Atmospheric Dispersion Modelling System' which is then checked by specialists at EA. The data and calculations are difficult for non-specialists and many specialists to understand. Figure 7.4 shows the modelled ammonia map from a current planning application in Shropshire with four proposed chicken sheds at the centre of the map in blue.

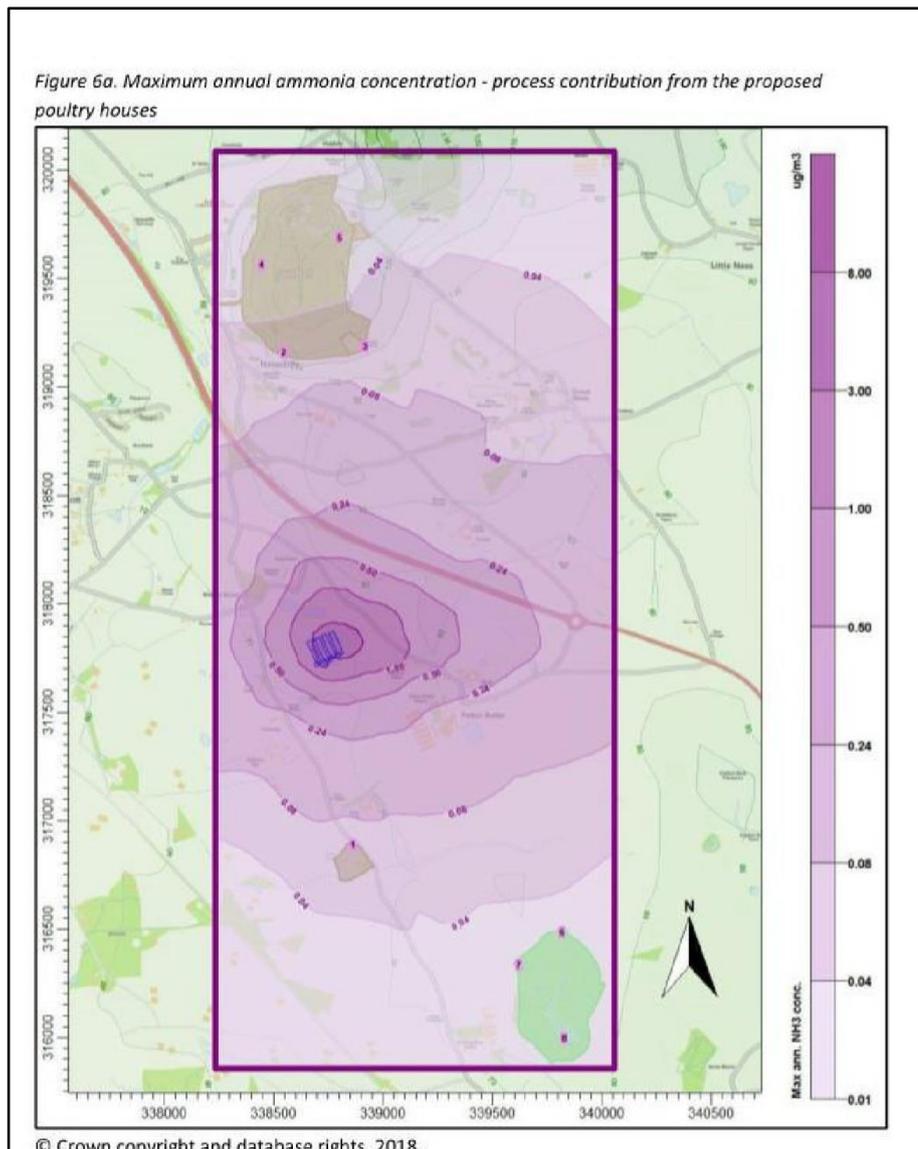


Figure 7.4 Ammonia modelling for North Shropshire application (Smith 2018:24)

What the map does not show are the 21 poultry sheds already built within the map area, plus another seven just to the north east. The 27-page report is highly technical and applies the latest atmospheric modelling techniques and yet does not include cumulative impacts of existing units.

Several recent applications now include ammonia scrubbers in the specification. This is expensive technology that ‘scrubs’ 90% of ammonia from the air as it passes through the ventilation system, for collection and disposal in some other way. The costs of these have been quoted at about £100,000 per shed¹²⁴. Obviously, farmers

¹²⁴ In fact the costs may not be so high, as the scrubbers reduce other costs, such as for fans and electrics.

are reluctant to use this technology unless absolutely required. This type of technical fix may be seen more frequently, although it is unlikely to stack up financially for smaller developments and is unproven on free-range egg units. Other forms of mitigation have been explored to reduce ammonia and nitrogen impacts such as reducing fertiliser spreading and planting trees. Effectively local authorities will help applicants mitigate or 'get round' the ammonia emissions issue. This is acknowledged by all sides; one component of the planning officer's role is to facilitate the applicant achieving their planning permission.

Lichen and other sensitive species have until recently been absent in this evidence and ammonia assessments. In Shropshire there is currently little available information on lichen and no county recorder. Ecologists were seeking to train volunteers and collect evidence from lichen and higher plants to monitor plant losses.

During the Aston Munslow case objectors studied the ammonia data and challenged the local authority ecologist's conclusions. One objector produced an eight page report challenging data in the six ammonia reports submitted and the ecologist's assessment that as the proposal would only increase ammonia deposition by a small amount, and background levels were already so high, it wouldn't make much difference. Objectors also pointed out that impacts on the grade 2* registered parkland and its veteran trees had been omitted from the analysis. The landowner commissioned a lichen survey of the parkland; creating additional knowledge to challenge the application. The objectors were very critical of the process and how the ammonia guidance, once published, was ignored by the Council; *'But having published it they just say: "It's only guidance"'*. They quoted the ecologist ironically: *"it doesn't matter what you say, my decision counts"*. This case went to judicial review which has a whole new level of evidence requirements. One objector complained that a lawyer advised they couldn't use their ammonia analysis at the JR because they weren't an 'expert':

'We all have the evidence. We're joining things up, which the EA has failed to do. But because we're lay people we're not being listened to on 'expert' topics.' (Observation notes, 25.4.19).

In the ongoing case at Tasley the County Ecologist has enrolled lichen by insisting surveys be undertaken by the applicant at nearby woodland sites. Awareness of damage to lichens and the role of IPUs has grown, but it remains to be seen whether the argument will gain much purchase. Many rare lichens have already

been lost (chapter 6). The baseline is unknown. In Mid Wales, where there are much richer lichen habitats, environmental bodies are concerned (NRW 2020) but have not yet assembled the evidence and argument strongly enough to affect planning decisions. The APIS ‘lichen app’¹²⁵ has potential for being used by lay people such as objectors to survey their local environment. However, monitoring change over time needs repeated surveys, perhaps before an IPU is built and again several years later; which cannot be of use with a specific planning application. A collaborative programme of monitoring would enable lichen to be enrolled more successfully into the planning process and contestation, albeit through its disappearance.

7.1.2 Odour

Potential odour from proposed IPUs is assessed using modelling techniques similar to ammonia modelling. Odour is by its nature difficult to measure. It is relatively subjective and some people have a stronger sense or are more sensitive to smell than others. The EA classifies odours from intensive livestock rearing as ‘moderately offensive’ and has set a benchmark of 3 odour-units exposure or 3.0 ouE/m³. The modelling assesses a 98th percentile hourly mean of 3.0 ouE/m³ over a one year period¹²⁶. The model includes technical information about proposed sheds and dispersion variables including wind and terrain and quantifies how many odour-units sensitive receptors, such as nearby houses, would receive. Odour on IPU clear out days is omitted from most assessments despite smell peaking at this point in the production cycle.

Whilst many of the variables are discussed in technical and quantitative language, the actual model is in effect a ‘black box’. Objectors can challenge details such as the distance of a receptor to the units but there is little scope to challenge the results. Planning officers are in a similar situation; some have doubts about odour report results:

‘you’re thinking, I’m not sure that’s far enough away. Why is that all right? (...) my experience is if they were that close to somebody, we’d be expecting a problem and they say, it’s not going to be’ (GEP2).

Officers check the variables but may outsource another modelling exercise to test the results. The problem is that there is one odour modelling consultant who

¹²⁵ Air Pollution Information System <http://www.apis.ac.uk/lichen-app/main>

¹²⁶ The 98th percentile refers to 98% of the time - i.e. the model would allow for about seven days a year when the odour would exceed the 3 odour units level.

dominates the sector and in fact also does almost all the ammonia modelling reports¹²⁷. Several officers described difficulties trying to source an alternative consultant to review an odour report as others have been taught by or worked with the leading consultant:

‘there’s one consultant who has found a niche, cornered the market (...) when we were trying to commission people to do a peer review of his assessment (...) they said “well you’ve got to be careful he’s industry leading on this and it’s his model - we all use variants of that.”.’(GP3).

The peer review reports tend to suggest only minor adjustments. One planning officer described how councillors on the planning committee were becoming quite cynical about the modelling reports:

‘when they read the reports you can almost hear the eye rolling (...) “Oh another report which says cumulative effect just below 3 odour units per metre cubed, 98th percentile” - “Oh another one which just comes in under the WHO¹²⁸ noise, and another one which is just alright in terms of the outfall into the local brook” - just skirting the bounds of acceptability, but always just falling in the applicant’s favour.’ (GP2).

Campaigners in Somerset have critiqued the odour model claiming it underestimated the odour impacts by a factor of three¹²⁹. Objectors to the Tasley case referenced this Somerset critique and identified supporting academic articles. They have commissioned reviews of the odour and ammonia reports and found several weaknesses and omissions (Bull 2019). Such counter evidence could undoubtedly itself be challenged, but it raises considerable doubt and uncertainty.

I asked officers whether odour (or ammonia or noise) models used were tested once a poultry unit had been built. No one was aware of such checking mechanisms. Effectively the local authority does not have resources to commission *post hoc* testing, which in any case might create awkward situations if impacts were found to be higher than predicted. Odour complaints are usually dealt with by the EA under the permitting process,¹³⁰ so planning officers rarely hear about

¹²⁷ There is also one (different) company which produces almost all the noise impact assessment reports

¹²⁸ World Health Organisation

¹²⁹ They successfully campaigned to have EA order an IPU to decommission several sheds on smell grounds.

¹³⁰ Complaints about smaller units, below the 40,000 bird permitting threshold, would be dealt with by the local authority’s environmental health department.

complaints unless there's an application to extend a site. Even then, there are mixed stories about how complaints are dealt with and the technology used to test odours. Checking odour complaints is time consuming and subjective; there is no easy way for example for local people to record smell as evidence of a continuing problem. I also heard stories about vexatious complaints when there were no chickens in the units and of people confusing smell from manure spreading with IPU emissions.

There were contradictory accounts of a case in Herefordshire where smell was a major issue. Owners of a six shed site wanted to add another six sheds and a manure incinerator¹³¹, across the main road from a village and beside a small caravan site. Some people said villagers only complained about the first six sheds after hearing about plans for another six. Some said this wasn't the case and that smells had been a problem for years. Others pointed out people tire of complaining when nothing happens in response. The Council refused the application which went to appeal. There were arguments about the odour modelling during the appeal as the methodology had been adjusted. The Planning Inspector allowed the appeal saying the environmental permit and 'Best Available Techniques' would minimise emissions. They added:

*'I consider it unlikely that the proposed development would be the source of offensive odour for nearby residents and visitors for the great majority of the time. Residents might experience some odour during the clearing out process, but this would be of short duration on a periodic cycle and would not be unacceptable in a rural area.'*¹³²
(Bore 2016).

An officer reflected:

'the planning inspector allowed it and hammered us for costs so presumably the PI considered that that campsite will get smells but do you know what? that farmer needs to make a living and we need that meat. That's what our national policy says. We tried really hard to defend that and failed.' (GP1).

Figure 7.5 shows this site with older sheds on the left and the silos and fans of the new sheds on the right. The Council faced a legal bill in the tens of thousands of pounds in this case¹³³.

¹³¹ To date the only incinerator burning poultry manure to generate energy in the area

¹³² As each set of sheds works on a different cycle, clearing out happens about 16 times a year, when smells peak for several days.

¹³³ One interviewee mentioned a figure of £80,000 when referring to an appeal the council lost on a poultry application, probably this case.



Figure 7.5 Poultry sheds at Moreton on Lugg, Herefordshire

The threat of costs awarded against the council is very much in the minds of planning officers. They remind planning committee members, in their reports and verbally at committee, of the cost implications if a case is refused permission and the decision is then reversed at appeal as happened in this case.

7.1.3 Landscape and visual impacts

Almost all IPU applications require a landscape and visual impact assessment (LVIA). These varied in quality in the past. In earlier applications the LVIA is relatively short and cursory whereas later cases have more detailed assessments. One landscape expert commented about LVIA's submitted by one agent in around 2013: *'he was putting in (...) a page of landscape assessment - "I've been out, I've taken a photograph. You can't see it; it's fine." Literally.'* (OP3). Planning officers have over time become more familiar with the various forms of evidence and demand better quality information. In many cases several versions of the LVIA were required as gaps or inaccuracies were corrected.

Landscape architects should carry out LVIA's in accordance with a standard methodology¹³⁴ and then use their professional judgement to grade impacts. Some elements of the process are not well understood. For example, a landscape expert explained landscape character should be addressed as an amalgam of physical,

¹³⁴ The LVIA's assess landscape quality, landscape value and susceptibility to change. Overall landscape sensitivity, is derived from these three measures to give a value between very high and low. The sensitivity is then judged against the magnitude of landscape effects in a matrix to produce a measure of overall landscape character effects on a scale from negligible, minor, moderate to major. Environmental statements are supposed to include a 'non-technical summary' explaining the impact assessments in layperson's terms but rarely is this carried out effectively.

natural and experiential. They said it took planners a long time to understand that effects on landscape character are more than just aesthetic impacts on views but should include ‘*the perceptual*’; impacts on other senses: ‘*Because you can have effects on landscape character even if nobody can see the thing.*’ (OP3).

Consultants acting for applicants still often submit minimum-level assessments and present impacts in the best light possible. Reports assess visual impacts from neighbouring properties, public sites and rights of way, both close to and at a distance from proposed sites. But in practice viewpoints are sometimes omitted, truncated or poor quality photographs are used. For example, compare the photo from the LVIA at Neenton (Figure 7.6) with my photo from the same point on a bridleway (Figure 7.7), which shows the wider view including Brown Cle¹³⁵ on the right.



Figure 7.6 Photo from Neenton LVIA, showing only Titterstone Cle Hill (Challoner 2017)



Figure 7.7 Neenton site during construction with both Cle Hills in the background (2017)

LVIA normally (but not always) include photos of views which would be impacted but often leave the scale of the impact to the imagination. Sometimes the

¹³⁵ The highest point in Shropshire

location of the proposed IPU is indicated in photographs with arrows. Only in one or two cases have better visual representations been submitted by applicants. An example is shown in Figure 7.8 for a Shropshire case inside the AONB where visual impact was a major concern.



Figure 7.8 Photomontage of proposed sheds (John Campion Associates 2012)

It would be relatively simple for the planning authority to require such photomontages be produced for all IPU proposals, but they seemingly have never done so. Such techniques bring additional cost for the applicant and would need proper assessment by officers, but would provide clearer indication of visual impacts. Planning committee members do usually conduct a site visit.

In a recent case in North Shropshire objectors commissioned a review of the LVIA and a series of photomontages of the proposed free-range egg unit to support their objections. Figure 7.9 is the viewpoint analysis from the applicant's LVIA, showing an overall visual impact of 'moderate'. Figure 7.10 is the photomontage commissioned by the objectors.

Viewpoint 1: View from Maer Lane



Vp1	Panoramic View (Distance 0.16km looking north east)	
Baseline Description	This is a view from Maer Lane looking north east towards the proposed site through a field gateway. The local topography is undulating, with fields in agricultural use defined by hedgerows with trees, post and wire fences and woodland. Some longer range views of the wider landscape are available where the landform falls and distant wooded hills can be seen.	
Predicted change	From this viewpoint, the proposed building would be set in front of the small woodland that sits centrally in the view, against a vegetated backcloth.	
Type of effect	The introduction of the proposed building types would be comparable to the type of agricultural development that already exists in the local landscape.	
Magnitude of Change	The development would result in a noticeable change in the view and would be clearly visible to an observer.	
Assessment	Sensitivity	Road users – Medium
	Magnitude	Medium
Overall Visual Effect	Moderate	

Figure 7.9 LVIA site assessment (ACD Environmental Ltd 2019:27)



Figure 7.10 Photomontage commissioned by objectors (Pegasus Environment 2019:9)

Shropshire Council commissioned their own review of both reports which concluded that criticisms of the original LVIA were justified but as the photomontages were not taken from exactly the same site they should be disregarded. They also dismissed viewpoints along permissive rights of way as

these rights might at some future time be withdrawn. For balance, in several cases objectors have been accused of taking photographs from sites not accessible to the public or of using telephoto lenses to exaggerate the impacts on views.

On one of my solo walks I took the LVIA document with me and looked at the viewpoints and photographs from the footpaths identified (Figure 7.11):

it's difficult to judge what the impact might be. On the photo it's just got little arrows saying 'site behind trees' and there are half a dozen trees, very widely spaced out so it's probably going to be very clear between those trees, rather than behind. (Field notes, 19.11.17).

There was also no photo taken from where the footpath came closest to the site.



Photograph 2: View from south-east on Footpath 0148/UN1.

Figure 7.11 Tasley LVIA photo (Allan Moss Associates 2016:54)

Visual impacts remain relatively subjective. Some people, including some planning officers, accept poultry sheds as a normal feature in the landscape. Others insist they are industrial in nature and scale and inappropriate in a rural setting. One interviewee called it '*creeping industrialisation of our landscape*' (GEP4). Multiple objectors said the developments would be better located on an industrial estate, but as livestock rearing it continues to be defined as agriculture in the 1990 Planning Act. At that time large scale and intensive developments were rare and sheds were smaller: new sheds can be 120m long. Some objectors felt this legislation needed to be updated. Visual impacts are more of an issue when sites are in or close to an AONB, in attractive countryside or close to heritage sites. Scale is a significant factor, e.g. when some villages have only 20-50 houses, the IPU can have a bigger footprint than the village¹³⁶.

¹³⁶ For example Wistanstow in Shropshire Figure 5.27

The cumulative visual impacts of a changing landscape are not assessed. One landscape expert made an analogy with polytunnels:

'you will go out and assess a landscape and you say well this is a landscape with polytunnels in it. But (...) eventually it can tip into a "polytunnels landscape".' (OP3).

They warned that Herefordshire could soon become a '*chicken shed landscape*'.

7.1.4 Challenging scientised evidence

All types of evidence have been increasingly challenged by objectors. They are now more aware of checking basic factual and numeric information in supporting evidence. They sometimes lobby the council to commission a review of certain evidence or pay for their own expert report. There is a current case (Stagbatch) where objectors commissioned a heritage report and asked estate agents to give a professional valuation for the historic property adjacent to an application site and potential loss in value if the IPU development were to go ahead. Challenging evidence has required objectors to develop new skills and knowledge. They also need persistence to pursue certain issues and information while often simultaneously raising funds for planning or legal advice.

The quality of evidence has improved over the last five to ten years under all these influences. Interviewees spoke of the sometimes shockingly poor reports from agents in earlier applications: '*It was the minimum that he could get away with and he got away with it for quite a long time.*' (OP3). Local objectors still distrusted much evidence presented. Documents supporting applications invariably use language minimising potential impacts to make proposals sound acceptable. Occasionally objectors made reference to their own local knowledge to refute something in the application; e.g. photos of a flooded stream, poisoned fish or descriptions of noise or smell levels from existing poultry units. In another example, traffic accident records were sourced to prove that a road was already dangerous. Planning officers acknowledged that objections sometimes identify new issues and useful evidence. Lay knowledge enriches the topographical two-dimensional reports and maps which dominate planning evidence. However, such local knowledge was not often presented. In the face of a barrage of technical reports objectors may feel nervous presenting informal or unproven information.

Regulations require local authorities to protect specific wildlife species. Thus the planning system has for many years paid attention to bats, dormice and newts in the locality of an application; an example of how animals (and rare plants) bring

regulatory systems and spaces into conflict (Bear 2019). Such creatures will often delay developments although rarely do they halt a proposal completely. Objectors have studied ecological surveys and challenged them when deficient, for example omitting a protected species, such as otters, known to be found locally (Hinchliffe *et al.* 2005). There have been multiple examples of surveys undertaken at the wrong times of day/season which state species are not present or which do not explore the full area. In many cases there is relatively little rare wildlife remaining in the vicinity of the IPU and what there is can be accommodated by planning conditions such as bat boxes or planting replacement hedgerows.

The planning system works around the idea that if you compile enough information the right decision can be made with a degree of certainty. This research has demonstrated how the nature and use of evidence in IPU planning applications has shifted over the last 5-10 years with planning authorities requiring better quality specialist reports on issues such as LVIA, noise, odour, ammonia emissions, etc. The research explored how knowledge has been constructed by applicants to make the case that their applications will do no harm, buttressed by discourses which reinforce the farming sector's arguments and the presumption in favour of development. Applicants are usually able to mobilise power and knowledge most effectively:

'Power, quite simply, produces that knowledge and that rationality which is conducive to the reality it wants. Conversely, power suppresses that knowledge and rationality for which it has no use.'
(Flyvbjerg 1998:36).

Evidence is now being subjected to closer scrutiny and challenge by objectors. At times objectors have learned more about their locality to construct new knowledge or commissioned rival specialist reports. It has been a steep learning curve. Objectors challenge application documentation in the knowledge that their own counter evidence and lay knowledge tends to be dismissed by planning officials and committees (Beebeejaun 2017). Wills and Lake (2020) referenced Dewey in highlighting that expert knowledge is often aligned with private interests and distanced from public concerns. Scott urged more attention to what he called 'practical knowledge' and quoted Pascal saying '*the great failure of rationalism is "not its recognition of technical knowledge, but its failure to recognize any other".*' (Scott 1998:340).

The process has become increasingly 'scientised', by which I mean more technical and involving scientific black-box modelling methodologies (Rydin *et al.* 2018a).

These are extremely difficult for lay people, and indeed officers, to understand using needlessly technical language and presentation of data¹³⁷. Scientisation aims to close down the arguments. This is similar to Lowe *et al.*'s '*scientification*' (1997) which they used to describe a process of making something more technical to make it seem less significant and thereby to suppress debate. Technical reports use language which implies certainty about predictions and deters challenge; a form of '*boundary work*' (Jasanoff 1990). The language minimises potential impacts and emphasises averages. This is the sort of tactic Beck (1986) critiqued when discussing whether acceptable levels of pollution exist and how such processes require an inverted burden of proof. Beck suggested there has been a loss of '*social thinking*', whereby industrial pollution and loss of nature are viewed in technical and scientific ways with a focus on nature and economics but no consideration given to impacts on people's health and social life (see also Hencke 2008). Individual farmers avoid taking responsibility for pollution by denying it will be a problem in advance and in the knowledge that most agricultural pollution is not traced to an exact source and can thus be sidestepped.

Another strategy adopted by applicants is to add mitigation or technical fixes to their proposals. Agents can make almost anything 'not unacceptable' if they source the right technology such as ammonia scrubbers, build passing places on tiny lanes or plant wide 'buffer' strips or belts of trees. These fixes are designed to address areas of most concern and deliver supposed certainty to planners and decision takers. The application costs have been rising and timescales to approval lengthening as more evidence and fixes are required and scrutinised more carefully.

The scientisation and assertions of certainty are rooted in the scientific biases of neoliberal agriculture and biotechnology (Thompson 1995; Hencke 2008). In these planning processes the black-box models are treated as scientific, objective and not to be argued with. Specificities of locality and context are treated as irrelevant, even if local residents are sceptical of modelling results (Callon *et al.* 2001; Wynne 2001; Whatmore and Landström 2011). Standard narratives are used to assert the certainty, rationality and objectivity of technical reports presented

¹³⁷ It's not clear whether the reports are deliberately inaccessible so as to make countering their findings more difficult. Possibly the consultants are protecting their methods by making the black-box process and associated language hard to decipher. But reading a number of them I could see no reason why key aspects of the reports could not be summarised in non-technical language.

in support of applications. Objector arguments are criticised as irrational, emotional and using subjective, amateur (and, often, female) knowledge and arguments (Beebeejaun 2017; 2019). Nevertheless, there is evidence of objectors becoming increasingly effective in their challenges, a trend also identified by Henson and Bailey (2009) in Alabama and Juska (2010) in Lithuania. Objectors have got to grips with scientised evidence to challenge the science and the regulatory framework, in court if required.

7.2 Absent evidence

Reviewing the large volumes of evidence that now accompany poultry planning applications it is striking how weighted it is towards environmental and landscape issues. Other statutory topics normally addressed before permission is granted include heritage, drainage, traffic, noise and rights of way. Sometimes one of these issues will cause concern; such as access off tiny rural lanes or a nearby heritage site and additional reports may be commissioned to seek expert judgement. However, little evidence is presented on economic or social aspects of the proposed development, despite sustainable development being defined in national policy as including; economic, social and environmental objectives (MHCLG 2018). In the next sections I explore the missing knowledge in more detail to clarify how these zones of ignorance and uncertainty have come about and are sustained.

7.2.1 Economic and tourism impacts

The economic justification for a development is now given significant weight in planning decision-making. The application usually gives brief details about the farm operation and the desire to diversify and expand the business. Planning officers will normally seek clarification of whether additional jobs will be created through the development. Direct job creation on farms is relatively limited; a four shed development will usually create one job for a family member or poultry manager. Sometimes an additional part time role is specified. Some applications will make the case for economic benefits during the construction period and for supplier companies. Sometimes reference is made to jobs supported in processing plants. Often the processor and the NFU provide supporting letters making a case for increased demand for chicken meat (or eggs) and sometimes prospective trades suppliers will provide letters of support.

Economic evidence is not assessed as diligently as other evidence; there is rarely checking of figures or opinion from the council's economic development department. There is no standardised way of calculating or presenting economic impacts (positive or negative) used in IPU applications. When I explored this with interviewees it became apparent that an economic impact assessment is occasionally prepared to support an application. It can be required during the Environmental Impact Assessment process for larger applications¹³⁸, but only if requested by the local authority. My research did not identify any, which reveals that it must rarely be called for. One agent told me that economic impacts is a '*matter of planning balance*'. That if they can prove the IPU is going to be 100% compliant with environmental criteria and statutory consultees are '*happy*' then there is no need to argue the economic case. They said economic data was usually prepared only if the case went to appeal: '*I'm looking for no harm rather than the planning officer having to balance an objection against economic impacts and economic benefits.*' (FP3). Essentially, they try to win the decision by proving the development will cause no environmental harm; that the impacts fall within allowed limits and thresholds. They avoid arguments over economic impacts unless the case is refused and goes to appeal. It shows the information could be gathered and presented, perhaps to some standard type of format, but is not called for despite the economic argument often being given most weight during planning committee decision-making. The quote above hints that if more economic evidence were to be gathered it might include negative as well as positive impacts. Potentially there could be calls to calculate externalities and use accurate market data, all of which would weaken the case.

Objectors have argued that developments will have negative economic impacts on local tourism businesses and the wider visitor economy, but evidence presented to support this argument has been relatively limited. On occasion lists of local tourism businesses are submitted and letters of objection from specific tourism businesses are not uncommon. But many interviewees used the words '*there is no evidence*' to me when discussing tourism impacts. One planning officer explained they would need evidence of significant loss of financial earnings from a tourism business, linked to evidence from guests specifying it was because of poultry sheds for them to be able to use such evidence.

¹³⁸ Over 85,000 birds

I found no details of planning authorities attempting to source tourism evidence, even published visitor surveys or asking the opinion of tourism associations or actors. I have not seen information about the number of people employed in tourism in the locality even when a significant business is adjacent to the proposed site. Letters of objection from tourism businesses are generally treated in the same way as all other objections. Planning officers tend to dismiss potential negative economic tourism impacts in a single sentence. For example, with the holiday home park adjacent to the Hopton Heath site the officer rolled tourism in with consideration of noise, odour, traffic etc. and said the environmental permit would deal with any issues. One planning officer spoke in a dismissive way about tourism business owners and their concerns. They confirmed there was no attempt to seek information on possible tourism impacts. It came down to the officer's personal judgement. Where, as in this case, there appeared to be a personal bias against tourism businesses, they are unlikely to take the issue seriously.

The only case where I found tourism evidence highlighted was when it dismissed tourism impacts. An objector to the Mansell Lacy case owned a holiday letting business near the proposed IPU. A letter from the owner of a large poultry operation¹³⁹ elsewhere in the county who also has a holiday letting business¹⁴⁰ had been submitted in support of the applicant. It stated that there had been no complaints from guests about the IPUs or related smells. The letter was quoted in the officer's report and discussed at the committee. Objectors thought this single letter from a high-profile farming/tourism actor was given more weight by councillors than the many letters against. They resented not being able to challenge it during the committee discussion. One councillor referred unprompted to the same case:

'they may have lost their business. Cos you've got to say in common sense who's going to go there for a week with all the chickens, whether there are smells or not, whatever next door.' (GD3).

Here the new agricultural business was clearly given priority over an existing tourism business. Since the IPU was built the holiday units have been put on the market. The owner was terrified of receiving bad reviews about poultry smells which they felt would destroy their business.

¹³⁹ With 22 chicken sheds on a 700 acre farm

¹⁴⁰ With 5 properties accommodating over 50 people

The lack of specific tourism evidence allows the issue to be side-lined. And yet there were many comments from a wide range of sources about how it is likely to be an issue. Some just referred to common sense: *'I mean logic does tell you that if you've got an extremely smelly business nearby, it's not going to exactly help. That seems pretty obvious'* (GD4). Other people appreciated how it would affect specific types of tourism business such as campsites. One comment identified the potential impact on tourism and the leisure time of local people:

'Who will want to sit in the local pub gardens on a warm summer's day with the smell of intensively farmed chickens wafting above their locally brewed ale?' (Objection Aston Munslow 4.12.17).

One tourism business stressed the impacts on repeat business would be most significant. They already had negative comments about increased nighttime HGV traffic (possibly chicken lorries) on TripAdvisor and knew further comments would be damaging. The power of the online review came across strongly.

Environmental officers could also appreciate the problems. One discussed the impacts of a strong smelling IPU on a neighbouring caravan park during the upcoming Easter weekend. Another was concerned about the overall image of the area:

'We're shooting ourselves in the foot - Herefordshire should be a landscape rich with agriculture, natural history and food and they're heading for an industrial agricultural vision instead. (...) industrial chicken isn't what people want to come and see.' (E2).

This interviewee mentioned how on their half hour drive to work they could sometimes smell chicken manure along the whole route; *'Tourists don't want to smell that'*. It is the longer-term cumulative impacts of IPUs which people could perceive could deter repeat visitors: *'I think it's just how many you see.'* (T6). Another interviewee agreed visitors might change their destination choices. They pointed out that many rural visitors are discerning, relatively wealthy and choosy about where they go.

Several people feared that a whole county could become negatively associated with poultry farming and foul smells and that would put off potential visitors: *'It only takes a couple of things on Countryfile (...) People see the negative thing, don't they? That's what they'll hear: "Shropshire: lots of broilers!"'* (TO1). For counties which project a traditional, picturesque, idyllic rural image that type of association was worrying.

Some people thought IPU could clash with the way local food is promoted as a key element of the area's appeal for visitors. I asked one tourism professional whether many visitors would make such connections and they responded:

'Some visitors will. I've just spent the weekend with a bunch of people, some of which were incredibly environmentally aware. Real yoghurt knitters. And so they'd see that... yeah they'd be completely in touch with that.' (GT2).

This highlights that it may depend on people's motivations for their visit. Environmentally aware, vegetarian walkers are far more likely to be affected by seeing poultry sheds than, say, groups staying in large barn conversions (such as those owned by several poultry farms) for family get-togethers where the focus is social rather than landscape and active experiences. Currently it may be a minority of visitors who pick up connections between the farmed landscape and food in local eating places and shops, but this could shift in years to come.

For others, tourism impacts were not seen as problem, or at least not yet. They didn't think visitors would pick up on reality being different from promotional images. The following comment was typical of farming sector views:

'If you're coming to walk in the Shropshire Hills and there's a poultry unit outside, is it really gonna disturb your enjoyment of the whole landscape? And if you walk past it, it'll take you five minutes and then you'll be off. (...) And are you really gonna be bothered?' (F3).

In some cases tourism businesses themselves were accused of being 'incomers' and 'NIMBYs'. It is true that many smaller tourism operations are lifestyle businesses, sometimes run by people taking early retirement or downshifting. This demonstrates another way of using the NIMBY argument to undermine objections and broadening the bracket to include tourism businesses as well as residents.

Several farmers were aware of how IPU could deter visitors. None of those running a tourism business alongside their IPU mention it in their promotional media:

'I don't say in any of my literature that we're a chicken farm, because I just think that... that could be a real turn off. (...) I don't mention it.' (FT1).

Another poultry farmer had been considering several other diversification options and made the comment:

'if I was going to build some log cabins, which is something we're thinking about, I wouldn't build them next to a chicken site, you just wouldn't, would you?' (F2).

Similarly, the farmer at Aston Munslow was taken to task by objectors for stating in their application that one reason for building the poultry unit away from the farm itself was because of the campsite they owned there and the negative impact on it; an argument they later retracted.

One of the most elusive elements of this research was trying to identify how justified concerns about tourism complaints and loss of business are. Are tourism businesses right to be so fearful? The dynamics of visitor complaints are partly to blame. Visitors may put it down to a smelly day in the countryside and decide they don't want to act the 'townie' by complaining about countryside smells. They may realise that smell or flies is not something the business owner can do anything about and therefore refrain from commenting. Visitors are on holiday; voicing a complaint can impact one's enjoyment of an experience; better to pretend it's not happening. I know from my own experience at a Herefordshire campsite in 2018 that my evening was significantly impacted by smell and yet the owners would be unaware, as they did not live on site. Most tourism actors agreed the most likely impact would be that visitors would simply not return. It might not be a conscious decision, but when thinking about where to go in future Herefordshire/Shropshire simply wouldn't be high on the list.

But the impacts are not just loss of repeat business, what businesses feared more was negative reviews deterring future visitors. Recommendations have always been a powerful marketing force in tourism, traditionally through word of mouth. Now word of mouth is magnified through the internet. Evidence of actual complaints online is sparse. Not all small rural tourism businesses are listed on TripAdvisor, especially campsites and self-catering. However, even a smattering of negative reviews could result in the loss of valuable bookings. The impacts are almost impossible to prove and yet could cost a business thousands of pounds.

In search of more evidence of tourism impacts I contacted a long-established caravan/campsite, close to a poultry unit¹⁴¹ built in late 2018, to ask whether they had experienced any impacts during 2019. The caravan site had over 50 positive reviews on pitchup.com from that season. The only negatives mentioned were about traffic noise from the road. I was therefore rather shocked when the owner reported:

¹⁴¹ Just over the border into Powys, near Hay on Wye. I contacted them by email in late 2019.

'We get smells and can hear the fans on at night when the wind is in our direction which is most of the time. The biggest impact is FLIES. It is horrendous, people on the site complaining constantly, some as soon as they arrive, a girl was continuously going around the site trying to get away from flies, I keep lying and tell them it's a bad year for flies and we are in the country. I fear a lot won't return because of flies.'
(Personal communication 13.11.19).

The owner described how flies plagued their own house; *'it's that bad my wife wants to move!'*. They mentioned the local shop had had problems and a B&B had stopped operating because of the unprecedented flies. It is revealing that there is no evidence online of what appears to be a significant problem. Also that they were considering moving; possibly shutting their business.

When I had asked the agent for that IPU application about impacts on tourism they referred unprompted to that caravan/campsite and described how they had argued tourism impacts are technically less important because visitors are transient. They went on to haltingly acknowledge that the IPU had potential to harm the caravan/campsite and put it out of business. I have identified several other tourism businesses very close to IPUs which appear to be in a state of flux or decline¹⁴² One can't be definitive from such small numbers and sparse details, but the arrival of an IPU does appear to threaten the viability of some tourism businesses or the willingness of owners to carry on.

So there are further silences revealed in the research, not only tourism businesses reluctant to draw attention to the issue, as discussed in chapter 6 but visitor complaints not being captured for others to hear. There remains a lack of information on how visitors really feel about what they experience from IPUs. The experiential elements of this research reported in chapter 9 begin to address this.

7.2.2 Social, community and health impacts

The final element of the sustainable development concept which guides the planning process is social impacts. There is little specific reference to social or community aspects in planning application documentation and decision-making. It seems to include amenity and nuisance impacts on people living near the proposed development, plus perhaps traffic impacts through a village. Yet several decision makers told me they thought the impact on people was the top priority.

¹⁴² One being de-listed, one where a long-standing manager has left, another which doesn't appear to be active anymore.

In reviewing objections there were many references to impacts on the local community but few specifics: *'The financial interests of just one family should not, (...) be allowed to push aside the interests and concerns of the whole community'* (Objection Aston Munslow 2018). Sometimes the phrase *'lack of public benefit'* was used in questioning the application. Despite this emphasis on community views, little weight seems to be given when decisions are made in committee. The failure by planning officers, councillors and perhaps objectors themselves to compile and articulate the 'social' impacts may be why little is made of them. Collectively there are many factors which would impact residents' quality of life, amenity, leisure, businesses and enjoyment of their local environment. These are often simply listed as bullet pointed objections in an officer's report, often counter-balanced by supportive views. The lack of any coherent assessment or mechanism to better articulate community views, however mixed, means these are to a great extent lost in the process. Social impacts are poorly captured and appear to carry little weight in practice.

Another area where there is increasing concern and a lack of evidence is health or disease issues. Air pollution (Section 7.1.1) tended to be the main health concern. Several interviewees described having experienced health impacts, including one living near an IPU which had recently started operating, whose asthma had seriously worsened. Several objectors had researched health impacts and had identified something of a vacuum of information and policy. One described:

'real concerns about the public health stuff; ammonia, dust, odour, bio-aerosols... are those real fears founded on something or not? Where is the evidence? And how strong is it?' (O1).

Rural air quality is not normally seen as an issue and in Herefordshire only two (urban) sites have air quality monitors. Interviewees were unaware of any monitoring of respiratory issues in the local population or whether health authorities were concerned about the topic. One group had raised issues around asthma levels in local schools but found school officials unwilling to engage due to potential legal liability issues.

No one I spoke to mentioned any research, recent or otherwise, into health impacts of poultry farming in the area, despite the industry's long history. Some felt the relevant expertise was missing in local government or health authorities. One or two people speculated about the consequences if local GPs or the health trust identified a high incidence of respiratory problems or antibiotic resistance close to clusters of IPUs. One of the planning officers when asked what would help

their role, specifically called for more health evidence, calling it a ‘*very legitimate concern*’ (GP2).

The environmental permit process addresses some public health risks such as air quality, noise, odour, waste disposal and proximity of housing. But cumulative impacts, infectious diseases and anti-microbial resistance do not appear to be covered. An informant at Public Health Wales¹⁴³ described permitting as ‘*process and process only*’ which I take to mean that as long as the application conforms to ‘Best Available Techniques’ it will be approved. This informant mentioned trying to get health issues moved higher up the agenda. They said when they do get asked to comment on planning applications it is ‘*very late in the day*’ and it would be better if this were done ‘*upstream*’. They thought health should be made a statutory part of the consultation process and commented how it is odd that the planning process prioritises ecological harm over harm to human beings. They felt more research was needed on health impacts of intensive farming¹⁴⁴. One interviewee had been shocked to discover some sheds are cleaned out with formaldehyde and speculated about what other harmful chemicals are used.

The current guidance on ILU environmental permit health risk assessments was published by the then Health Protection Agency (HPA)¹⁴⁵ in 2006:

‘While a large number of applications (over 1000) are expected, the information on which to base a health response will be extremely limited as this sector does not have a history of similar environmental regulation. Furthermore, the Regulator will be adopting a streamlined approach with this sector and will not be requiring an extensive amount of information pre-permit issue.’ (HPA 2006:1).

The references to limited information, limited previous regulation and streamlined approach all ring potential alarm bells for those concerned about health impacts from IPUs. Regarding bioaerosols the HPA stated:

‘Clearly, intensive farming has the potential to generate bioaerosols. (...) However, current information is limited and the potential public health issues arising from bioaerosols from intensive farming need further evaluation. (...) We anticipate that further information on the potential of intensive farming industries to generate bioaerosols will become available over the next few years and we would expect this

¹⁴³ Who contacted me about my research in 2019

¹⁴⁴ A review article in the US identified consistent links to respiratory problems, MRSA, Q fever and stress and more limited evidence of links to birth outcomes, hyper tension, cognitive impairment and other infections and called for more community based research (Casey *et al.* 2015).

¹⁴⁵ Now Public Health England

information to be incorporated into future reviews of PPC permits' (HPA 2006:2-3).

This guidance is still be in use, unamended, 13 years later¹⁴⁶.

Other disease risks from poultry units such as camphylobacter, e-coli and salmonella were raised by objectors. There was little clarity whether there is a risk to the local population as well as consumers from such pathogens; whether workers could spread disease to the general population or whether they can be spread via manure or in particulate matter. Antibiotic use was a concern to many objectors but there was little awareness or any evidence about the risk of anti-microbial resistance (AMR) spreading to the local environment and population. An interviewee with some expertise commented:

'The trouble is in Britain we haven't done the research (...) They say there's no evidence - well if you don't look for evidence you don't find it. (...) There is clear evidence if you look (...) papers which say if you have intensive chicken farms, you'll find AMR bacteria in the environs.'
(E5).¹⁴⁷

One objector was aware of the national AMR review (HM Government 2016):

'some of their stuff is really scary (...) it said 75% of antibiotics given to farm animals are excreted unmetabolised, which means then the potential is they get into the water sources.'(O1).

My impression is that one or two officers at government agencies or local authorities were aware of potential risks about AMR but because of a lack of specific guidance and data from the local area, were not prepared to go on record about risks and how they should be handled during the planning process¹⁴⁸.

If this is not worrying enough, another health issue which has potential catastrophic impacts is avian influenza or bird flu, mentioned by multiple interviewees. I asked one councillor whether issues such as bird flu ever cropped up in discussions over poultry planning applications:

¹⁴⁶ Confirmed by Public Health England during the Tasley case in 2020. PHE's non committal response to this planning case was critiqued in detail by campaigners in 2020 arguing that it amounted to avoiding assessing health impacts, displacing responsibility to EA which could not address health impacts.

¹⁴⁷ Compassion in World Farming recently published a compilation of Dutch evidence on AMR which proves this point (CIWF 2020a)

¹⁴⁸ I did contact the Director of Public Health about health impacts. They sent a short response focusing solely on AMR saying that no studies have been undertaken locally with respect to AMR and that 'it would have to be a commissioned bespoke study' - i.e. it was not something the public bodies were likely to undertake or fund normally.

'the line tends to be, you don't need to worry your pretty heads about that. That's all controlled and monitored and regulated and thoroughly dealt with. That's the line.' (GD2).

Decision makers are told not to take these issues into account, even if they have doubts.

It became clear that some interviewees knew more about the risks of bird flu. Many farming actors were concerned about bio-security and were aware that further clustering of IPUs would increase the risks of bird flu spreading were it to reach the area¹⁴⁹. There was concern about how close wild birds came to the poultry units and whether free-range egg units were adequately protected. Local authorities were aware of the risks. A senior officer referenced an emergency planning exercise the previous year about an avian influenza outbreak in Herefordshire which affected the local population. But this exercise had not been made public and risks of bird flu were not seen as relevant to planning assessments. Local communities were aware there could be risks but had no information about the level of risk, how communities would be informed or the consequences. Several interviewees remembered the impacts of Foot and Mouth Disease in 2001 and how many rural sectors, particularly tourism, were closed down for months. There was an awareness of potentially catastrophic consequences but a lack of information about risk and whether the levels were increasing with the growth of the poultry industry in the area.¹⁵⁰

Tourism actors were aware of the potential for widespread and long-lasting negative publicity from an outbreak of bird flu and that it could close multiple tourism businesses. Other health related stories about ammonia pollution or antibiotics in the environment were also mentioned: *'it'd just become a no-go area. That could happen, all it takes is one really good journalist or a Panorama programme or something like that'*(O2). To date there hasn't been anything this specific. The mentions on TV programmes or in national newspapers have not focused on the area in quite that way. The closest it has come was when the CIWF data where Herefordshire was the number one county for poultry units was covered in local papers. Some of the planning officers were aware of the potential for such impacts:

¹⁴⁹ Fatal bird flu viruses emerged 14 times globally between 1959 and 1995, about one outbreak every 2.6 years, but the rate is accelerating; in the 13 years from 1996 to 2008, they arose 11 times, about once every 1.2 years. (Cirino 2020)

¹⁵⁰ The 2020 pandemic will no doubt have further changed perceptions and awareness.

'I can quite understand that the perception of those reading the national press about "oh well avoid Herefordshire, Powys and Shropshire unless you want to breathe in foetid horrible air with all sorts of bacteria and implications for your respiratory function" - for some people it may be very persuasive.' (GP2).

However, they maintained they would struggle to make the case about the potential for impact on tourism unless they had better evidence.

7.2.3 Uncertain cumulative impacts

The research has explored evidence that has been largely missing from the planning process. This includes the economic, tourism, social and health impacts of IPU and also the cumulative pollution impacts local authorities were only beginning to recognise. Many interviewees were aware of the gaps in information and evidence in the decision-making process. One officer said:

'Knowledge is what we need - rather than modelling we need scientific on-the-ground research because a model's only as good as what you put into it and we don't know if the modelling and the process we're following at the moment is too harsh or is it not harsh enough?' (GE5).

One consultant listed three areas which they thought local authorities should address: better evidence on individual impacts; better information on cumulative impacts and follow-up monitoring or auditing. Health impacts in particular are uncertain and public health bodies have been unwilling to become embroiled in IPU issues when there is no resource or will to research health aspects (Emel and Neo 2011).

There may be elements of inertia, lack of resources and an unwillingness to conceive of change; that new perspectives or alternative types of evidence might be valuable. The planning system can be rigid. Alternative and new forms of knowledge are distrusted and often ignored, undermined or displaced. Part of the problem is that intensive agricultural technology has outstripped the original planning legislation which defined it as agricultural development. The scale and accumulation of impacts is unprecedented in the UK, although experience from North America should have made the direction of travel clear.

The planning system gives a false sense of certainty to the deliberations over an IPU. Allmendinger described the growing use of expert knowledge and technical planning documentation from the mid-2000s, much of which was in response to: *'the need to demonstrate that a particular development met the various, vague and shifting elements of sustainability.'* (Allmendinger 2016:155). He said this

displacement of politics into the realm of experts and managers was counterproductive. It further delayed applications, increased costs and increased uncertainties. With IPU's, planning authorities have been struggling to handle the increasing uncertainties, especially around cumulative impacts which were rarely referenced in planning committees until very recently. Each case was considered in isolation. Once cumulative impacts are considered (remembering that cumulative could be related to any other issue; smell, ammonia, nutrients, heritage, traffic, visual etc (MHCLG 2018)) then levels of uncertainty soar. Attempts to assess cumulative impacts would have pointed to the need for a more strategic approach much earlier. There has been a collective failure amongst public bodies to define strategically what increased levels of, for example, ammonia might be acceptable over what period and then use that to make decisions. The focus has been on whether a proposed IPU's emissions will remain below certain thresholds. Few officers have been willing to lift their heads to ask: *'what are the effects that we should be seeking?'* (Mol 1998:86).

The result is the extra increments of ammonia each development generates tend to be excused. This is in line with Beck's critique of acceptable levels of pollution and writing a blank cheque to pollute nature 'a bit' (Beck 1986). Despite their new ammonia guidelines, Shropshire Council continued to approve more units as the net increases in ammonia were modelled, with mitigation, to be relatively small. Officers and politicians focused on the technicalities while losing sight of the wider picture and obvious questions such as; how much more ammonia are we willing to accept? What do we know about its current impacts on habitats and people? How effective have technical fixes such as ammonia scrubbers proved to be? The creeping impacts accumulate over many years, until the area and its air quality have changed significantly. Hunsberger and Awâsis in researching the impacts of an oil pipeline, described how decision makers engaged in a kind of:

'erasure or "unimagining" of impacts - particularly cumulative, slow and indirect impacts on people (...) This narrow focus greatly reduced the scope for engaging with questions of equity within and between generations' (Hunsberger and Awâsis 2019:11).

I would suggest the tourism impacts might work in a similar way. The tourism impacts from each application may be modest and difficult to prove but over time will accumulate until, after some years, the area is no longer what it was and has become a less desirable place to visit. The planning process restricts the imagining of longer term effects.

This chapter identified the flaws in much of the evidence presented and the wide zones of ignorance and uncertainty within the apparently certain evidence (Callon *et al.* 2001). Such uncertainty and missing knowledge fuels contestation (Rydin *et al.* 2018). It is clear that evidence could be gathered to address some of these zones but is not called for. The ‘experts’ are not always neutral (Allmendinger and Haughton 2015). They may not understand the uncertainty of many situations and are often incapable of articulating the limits of their own work (Wynne 1992). I also identified how some of the issues are difficult to evidence, at least over short timeframes.

The political will to improve knowledge is lacking. Some gaps in technical reports could be filled relatively easily, such as requiring photomontages in LVIAs, modelling of odour on clear-out days (Bull 2018) and more detailed economic impact assessments. Resources could be assigned to research priority areas and monitor impacts. Consultations with the health authorities could be held to investigate what information there is on health impacts and what more research would be helpful. A research project on ammonia trends and impacts, possibly using bioindicators such as lichen, could be pursued¹⁵¹. But there are few resources, capacity or, most importantly, political will to do this. This situation could be described as a form of ‘agnotology’; the inadvertent or deliberate production of ignorance. Proctor and Schiebinger (2008) discussed the many ways in which ignorance can be passively or actively constructed through selectivity over knowledge or the suppression of information; ‘*knowledge that could have been but wasn’t, or should be but isn’t*’(pvii). One of their examples was the tobacco industry’s long running obfuscation over the health impacts of smoking. Multinational corporations find it comparatively simple to sustain doubts about technical aspects when it suits them, possibly for many years. As Nixon (2011:39) commented: ‘*The forces of inaction have deep pockets*’ (see also McGoev 2019).

Willow and Wylie (2014) used agnotology to describe how the fracking industry in Ohio secures permissions and only responds reactively to health and environmental hazards rather than proactively preventing them. They urged that fracking: ‘*like other anthropogenic ecological disturbances - must be approached not only as an environmental issue, but as a cultural and political one as well.*’

¹⁵¹ See Appendix 5 for a full list of potential responses identified.

(Willow and Wylie 2014:224). It is this cultural and political perspective that goes unacknowledged in the IPU planning process. Culture and politics drive much of the decision-making covertly and this generates distrust in the processes. These issues are explored further in the next chapter which pursues the journey evidence follows through the planning process. I examine in more detail the perspectives of public agencies which have to relate the evidence to policy, the role of planning officers who frame the key issues and the decision-making processes.

Chapter 8 Contested Processes

The arena where all the actors and evidence involved in the IPU contestations are gathered over a matter of weeks, months and sometimes years is the formal planning application process co-ordinated through the local authority. Here planning officers become the main actors initially, gathering and assessing large volumes of evidence, before passing the application to the planning committee, which makes the decision with reference to planning policy. This is the type of delegative democratic process that Callon *et al.* (2001) found wanting. This chapter explores how planning actors and processes operate and how relations of power and democracy are performed within the planning arena. Local authorities have increasing difficulties handling cases where there are multiple issues of concern, considerable uncertainty and contestation.

The chapter first addresses how planning officers act within this politically charged environment. They have little policy framework to assist them; the context is effectively a policy vacuum where entrepreneurialism and national food security are prioritised (Allmendinger 2016). I explore how planners and politicians handle knowledge and evidence to adjudicate on each application and consider to what extent they listen to the public's matters of concern. Throughout the process certain rationalities are prioritised over others, using narratives and framings which act to de-democratise the process (Marres 2007). I find echoes of Wynne's (2016:115) '*deaf machinery (...) of contemporary governance*'. Section 8.4 discusses hegemonic narratives in more detail and explores the institutional context and processes further, concluding that there is not only a policy vacuum but an institutional void within which actors tend to displace issues to avoid tackling them (Hajer 2003). This and ineffective and technocratic planning processes have created high levels of distrust throughout the system. I unpick this more before considering how such an uncertain situation could be handled better in future.

8.1 Handling contested values and knowledge within a policy vacuum

The decisions about IPUs are taken within a policy vacuum. Specific policies at national, county and local level are set out in Appendix 6. The National Planning Policy Framework (NPPF) (MHCLG 2018) has overarching objectives to support

'sustainable development' but scarcely mentions agriculture. Interviewees, including planning officers, were sceptical about sustainable development. It was variously described as: 'any old development'; 'an oxymoron'; 'weasel words'; 'sustainababble' and 'nonsense'. Most actors interpreted national policy as an agenda for growth. Numerous interviewees thought the definition of intensive livestock rearing as agriculture was the underlying problem. They viewed IPU as industrial but because the definition of agriculture has not been amended since the 1947 and 1990 Planning Acts, policies which control industrial developments cannot be applied to IPU¹⁵². This is despite the scale of such developments and the technology having changed radically. One councillor explained it this way:

'If these sheds were producing spring coils or something, (...) they wouldn't be allowed. (...) but because this is, in policy terms, deemed to be agriculture that's a real problem.' (GD2).

In both Shropshire and Herefordshire the Core Strategies provide little guidance on IPU developments. There is just one reference to poultry units in Shropshire and none in Herefordshire:

'we have a specific planning vacuum in our own policies, for cumulative impact, impact on the natural environment, as well as the road infrastructure. We have to rely on what words there are in the Core Strategy which are pretty loose and pretty positive around diversification or employment and economic growth and rural economy.' (GD2).

This councillor argued that this makes it difficult to refuse IPU unless the site was particularly sensitive in landscape terms. An agent confirmed this when they said:

'Most local authorities now in their new plans haven't even got a farm building policy let alone an intensive livestock unit policy so you're reliant on national policy and the national policy is very, very supportive.' (FP3).

In this situation a local authority may develop supplementary planning guidance (SPG) to fill the vacuum and give officers, councillors (and applicants) more advice about what is acceptable and where. Herefordshire Council did exactly that when faced with similar contestation over polytunnel developments (Evans 2013). With IPU, several councillors proposed SPG be produced in the mid-2010s but interviewees described how it was blocked by Conservative politicians. The delaying tactics have allowed the current tranche of Cargill applications to pass through the process taking advantage of the policy vacuum. Other options for a more strategic approach such as zoning had not been explored. Several of the

¹⁵² Other than through the Environmental Permitting process

AONBs have identified that Landscape Character Assessments might be a route to proactively decide about appropriate development in various landscapes (Tudor 2014).

The lack of strategy or policies has increased contestation and presented planners with the difficult task of handling the polarised arguments:

‘What’s it called? “Managing outrage”?’

AC - “Managing outrage”? How do you mean?

‘Is that what it’s called? Is that what your project’s called?’ (FP3).

One agent asked this jokingly at the end of our interview. They explained they were quoting a planning officer who saw their role largely about dealing with all the objectors and their opinions. When I looked back at my notes that officer had also used the phrase to me.

The time and resources required by large IPU cases has increased substantially as contestation and evidential requirements have risen. Officers must consult multiple specialist officers and statutory agencies to ensure the proposals meet minimum requirements across key issues such as drainage, water, air pollution, ecology etc. As discussed in chapter 7, they may have to compare several specialist reports:

‘It is very difficult if it’s a particularly science-based assessment. I’m not a chemist, I’m not a physicist, I’m not a geologist, so I’m not particularly well placed to challenge the findings of a report, which is why we end up going to external consultants and (...) they’ll come to slightly different conclusions and we’re stuck in the middle and (...) I’ve got to read all three of those and I’ve got to come to some sort of judgment. It’s very difficult.’ (GP3).

Officers need robust evidence that will withstand scrutiny if decisions are challenged at appeal (if the application is refused¹⁵³) or at judicial review (JR) (if it is approved). This takes place within a broader context of austerity cuts. Any officer raising concerns may have to defend their opinion in court and some officers are not willing to raise queries or ‘stick their heads above the parapet’.

Other opinions were voiced about officers approving applications to avoid long drawn out appeals and get them off their desks when faced with large workloads and dwindling resources. During my interviews and observations, I heard many accounts of mistakes and of procedural slip ups. Some had serious consequences,

¹⁵³ Applicants have spent so much time and money that if the application is refused they almost always appeal.

on occasion triggering a JR and costing the Council thousands of pounds. Objectors complained about delays in loading information onto the planning portal, contradictory information about deadlines and factual errors in reports. The farming sector complained that pre-application advice could later be contradicted and different planning officers often gave different advice. Sometimes there is suspicion that the officer in question has been ‘leaned on’: *‘they’re subjected to a certain amount of pressure from senior officers, I know.’* (OP2).

There were contrasting views about planning officers in the two counties. Officers handling earlier Herefordshire cases came in for serious criticism, but from around 2015 onwards the Council established a ‘majors’ team to deal with larger, complicated applications which included the most experienced and able officers. The officers became more familiar with the diverse technical evidence. It appears from several accounts that as officers became better versed in the issues, they began to challenge more evidence and indeed recommended several applications for refusal. I was told by at least four interviewees about one officer for whom this led to repercussions:

‘the officer concerned I know was under enormous pressure from his line managers and planning to recommend approval of that application. He stood his ground, and... there have been consequences for him, shall we say.’ (GD2)

This officer and one I interviewed both left the Council in 2018/19; I was told anecdotally they were fed up with being told what their decisions had to be.

In Shropshire opinions about planning officers were less positive. I picked up considerable concern about reports written by a specific officer. He was accused of ‘*steamrolling*’ cases through. I heard numerous comments about bias and how the officer tried to control consultation processes. One objector implied financial impropriety:

‘the planning officer (...) was just not listening at all. They had done a pre-application scoping with him, quite obviously, and presumably coin of the realm changed hands at that point to Shropshire Council and I think he’d said, “Oh this’ll be all right. We can push this one through”’
(O4)¹⁵⁴.

I heard gossip about connections between officers and politicians and details of misinterpretations of policy. One objector was critical of the skill set at the

¹⁵⁴ This was not the only accusation of corruption.

Council across planning and specialist disciplines. They claimed that objectors are becoming almost more experienced at looking at the data than officers.

Herefordshire officers appeared genuinely keen to source evidence to address areas of uncertainty such as health impacts. In contrast Shropshire planning officers seemed to have set views about poultry developments, resulting in continuing approvals. Even the ammonia emissions issue did not seem to affect this attitude, as they were aware that with technical fixes such as ammonia scrubbers or mitigation proposals the applications could still gain approval. Reflecting on the '*managing outrage*' phrase highlighted at the start of this section, which referred to Shropshire, I now feel it includes elements of condescension towards objectors and their concerns. It shifts the focus from IPU impacts, to dealing with the 'flak' and opposition surrounding applications and their eventual (inevitable) approval.

This attitude may shift as Shropshire Council has lost or ceded three judicial reviews in 2019. The issue is costing the authority many tens if not hundreds of thousands of pounds and more scrutiny may be given to decision-making in future. I heard at a campaign meeting in 2019 that the officer dealing with most controversial cases '*has been taken off anything to do with chickens!*'; ironically due to his lack of competence, rather than the Herefordshire officer taken off IPU cases for becoming too competent.

8.2 Institutional void

The research shows how the planning system has often failed to handle IPU contestations effectively. The technocratic planning process struggles with such complexity and is entrenched in topographical, two dimensional perspectives (Murdoch 2006). Planning's rigid framework does not easily accommodate social and natural entities and the dynamic, heterogeneous relations involved in IPU contestations. Asymmetric power relations have been revealed within the planning system. Public sector bodies have little capacity to resist the colonising forces of the agricultural hegemony. The policy vacuum gives them little purchase to resist and they have taken the line of least resistance. Even those planners who try to maintain neutrality in their role become, as Murdoch (2006:143) put it, '*an orchestrator of political processes*'. Planning officers felt constrained by the institutionalised system, rules, norms and structures of knowledge (McGuirk 2000). Officers felt they had little room to manoeuvre, limited resources and were

unable to act strategically, especially when politicians block development of supplementary planning guidance.

The lack of resources has led to pressure on officers and outsourcing some officer roles, expertise and, on occasion, scrutiny. Parker *et al.* (2018:735) described this as increasingly '*fragmentary planning*'; the lines of accountability become ever more blurred and lead into private sector companies where relations are more difficult to trace. It also fits Allmendinger's description of '*displacing the political*' (2016:156). Officers may be aware of disconnects in the system, such as those the research identified between planning and environmental permitting, but are unable to address them. Some of those who make efforts to tighten processes or resist pressure are removed or choose to leave. Staff turnover undermines resources and reduces confidence to challenge.

There is still a growth and development agenda driving the planning process. Although sustainability is referenced, few officers or politicians believed it stood for anything. Alaimo argued the term sustainability is used only in ways which do not threaten capitalist growth agendas:

'Like "conservation", sustainability has become a plastic but potent signifier, meaning, roughly, the ability to somehow keep things going, despite, or rather because of, the fact that we suspect economic and environmental crises render this impossible. In other words, "sustainability" reveals the desire for inertia, propelled by denial.'
(Alaimo 2016:170).

There has been continued denial of ecological impacts, amidst a false or constructed neutrality (Allmendinger 2016).

I heard multiple reports of mistakes and misdeeds within the planning system. Mistakes can, to a certain degree, be evidenced by the volume of judicial reviews. But by their nature misdeeds, undue influence or corruption are rarely possible to prove. For the same reasons literature on corruption in planning decisions is meagre (Fox-Rogers 2019). Fox-Rogers and Murphy (2014) explored informal power relations in the planning system in Ireland. Their understanding of power focused on economic relations which enabled wealthier actors access to a '*shadow planning system*' operating in parallel to the official system. Fox-Rogers and Murphy identified high-level informal interactions within a local authority: '*it seems that planners are (informally) made aware of the 'corporate view' on a particular file when they are making formal recommendations on applications.'*' (p263). The planning officer's report provides formal legitimacy for a decision that

has ‘*murky underlying processes*’. They claimed powerful interests use this informal planning system to promote and embed a pro-development agenda. There were numerous stories of similar murky processes and relations at play in both Herefordshire and Shropshire.

It is possible that in Herefordshire there was a calculated decision to leave a void in the core strategy adopted in 2015, written just before the surge in controversial cases¹⁵⁵. Planning managers and politicians must have thought they could continue to handle IPU applications without additional guidance; they could ‘*manage the outrage*’ and keep the strategy of approving most applications through tick box consultation processes on course.

8.3 Agency capacity and displacement

Government agencies involved in IPU decision-making, largely the Environment Agency (EA) and Natural England (NE), also struggle to handle IPU applications. Councils generally rely on the EA to identify pollution risk and monitor and deal with actual pollution arising once IPUs are built. The EA’s environmental permitting process ensure applicants have applied Best Available Technologies (BAT) in their design and processes. Applicants are almost never refused a permit; several interviewees said the EA have never turned one down. The EA tends to work with an applicant until all BAT standards are met and then issues a permit.

The NPPF states that planning authorities and environmental agencies should not trespass on each other’s territory in making decisions about developments (Appendix 6). The farming sector asserts permits prove there will be no pollution problems and that in any case EA would address any pollution issues that occur. However, objectors have been concerned about a gap or disconnect between the environmental permitting and planning processes, rather than an overlap. An agent confirmed:

‘there are cracks, there are gaps between the planning and the environmental... I shouldn’t say it you know... the two organisations don’t fully overlap. There would be potentially one or two bits that don’t get picked up, but don’t publicise that.’ (FP1).

Permits do not deal with anything outside the boundary of IPUs and some pollution and manure management issues have fallen between the two systems. This has been confirmed recently by the Tasley case near Bridgnorth; objectors lost their

¹⁵⁵ The previous more detailed Unitary Development Plan did include a specific policy.

JR but took the decision to the Royal Courts of Justice and won. Essentially the Council was in error in assuming the permit controlled the off-site manure spreading. The poultry manure and the objectors are acting to close some disconnects in these processes.

The EA and NE also face funding cuts, high staff turnover, restructurings and workload pressures which may mean environment staff are reluctant to challenge evidence or raise issues. NE officers were concerned about environmental uncertainties and wanted better information, particularly about cumulative impacts. They called for more nutrient monitoring and bemoaned the lack of resources to take enforcement action. They indicated they were trying to work with the Councils and specifically mentioned they had raised SPG with Herefordshire Council.

The Environment Agency came in for more sustained criticism from objectors, officers and councillors. One planning officer said there had been '*deafening silence!*' from the EA about cumulative impacts. One described councillors on the planning committee becoming cynical about the EA's effectiveness. They knew environmental permitting and planning assessments were desk-based exercises; that the EA had never refused a permit and felt permits were a '*cash cow*' for the Agency. EA officers themselves admitted they were understaffed and '*not regulating the farms perhaps as much as we should be*' (GE1) as they had grown so numerous. Their ability to address complaints about pollution was questioned and sometimes criticism extended to forthright comments about the EA being linked into the farming sector and rarely acting on agricultural pollution.

Several environmental officers pointed out other serious disconnects in the EA's remit and permitting processes. One expressed considerable frustration regarding the river Clun SAC and the protected pearl mussel:

'This takes you to the crazy situation where Environment Agency are also funding some of our work, their work, yet they're also permitting these developments right on top of a site that's a European protected site. I can't square that... I can't understand why that can be. (...) it just doesn't make sense that here we have a globally important site. Yet, the agencies who're there to protect it are also permitting the very developments that are causing its reason to fail.' (GEP3).

They pointed out that millions of pounds had been spent in recent years trying to conserve the status of the Clun SAC and protect the pearl mussels. The phrase used above: '*I can't understand why that can be*' sums up this situation for many actors.

Government agencies had been operating under considerable pressures, fulfilling the bare minimum actions relating to permits and planning applications. There appeared to be no capacity to step back and view the wider situation; to ask whether procedures and processes needed to be adjusted, guidelines updated and new data collected in light of IPU proliferation.

In the case of water pollution there have been serious consequences. The farming sector deny IPUs cause water pollution, arguing that farmers follow recommended procedures and would not apply excess poultry manure as fertiliser because of the cost¹⁵⁶. Farmers say poultry manure from newly built IPUs substitutes for manure imported from elsewhere. In contrast, objectors see numerous pathways for water contamination on IPU sites and during manure transport, storage and application and are not confident these are controlled or monitored. AD units and free-range egg units add to nutrient risks as AD digestate is used as fertiliser and runoff washes nutrients from hen ranging areas into watercourses¹⁵⁷ (DEFRA and EA 2009). Objectors also perceive risks and uncertainties around failures in procedures, overflows, accidents, illegalities and extreme rainfall events and flooding. There is not yet technology in use to pinpoint the source of most pollution and only occasional pollution incidents are reported to the EA¹⁵⁸.

When Herefordshire Council developed its last Core Strategy, which proposes substantial housing growth (over 15,000 new homes¹⁵⁹), the Planning Inspectorate refused approval unless it was accompanied by a Nutrient Management Plan (NMP) (EA and NE 2014) which provided assurance that nutrient levels in the Wye and Lugg Catchment (Figure 8.1) would be brought down to within legal levels by 2027¹⁶⁰.

¹⁵⁶ Although WWF research found 20-30% of farmers in England did not comply with water protection legislation and regulations (Hughes and Inman 2014)

¹⁵⁷ This issue generated national media coverage in 2020 when the river Wye algal blooms were blamed on free-range units in Powys (McKie 2020; Ungeod-Thomas, 2020; Adams 2020)

¹⁵⁸ In 2020 the EA has started experimenting with camera drones to investigate water pollution incidents

¹⁵⁹ The total population in Herefordshire is 191,000 so 15,000 new houses by 2031 is a major expansion

¹⁶⁰ Herefordshire was breaking the European Union Habitats and Water Framework Directives, due to the high levels of phosphates and nitrates in the rivers which are SACs.

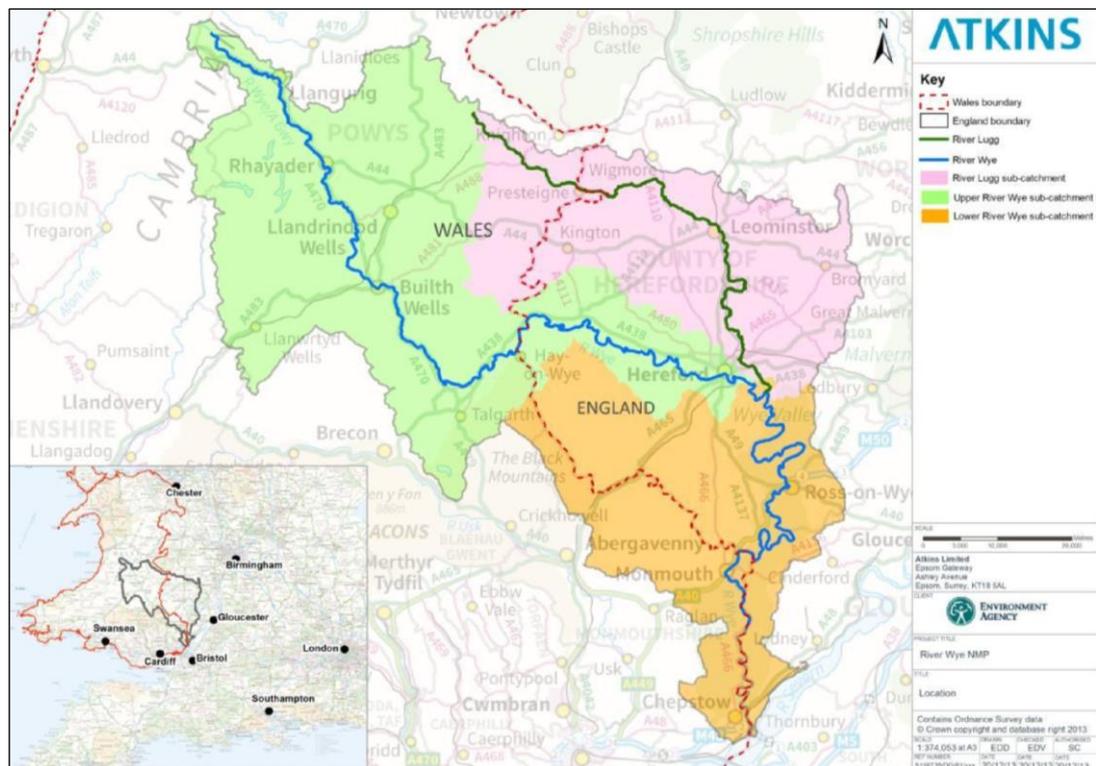


Figure 8.1 The Wye and Lugg river catchment (NMP 2014:15)

Organisations in the Wye catchment have therefore been collaborating to tackle excess nutrients in watercourses. The NMP attributed 50% of river nutrients to agricultural sources (although further modelling in 2020 suggests the figure is closer to 70% and Nutrient Management Board (NMB) partners do not know whether this is an increase or if the modelling was at fault). The Board¹⁶¹ works across the whole catchment of the River Wye, involving English and Welsh agencies, chaired until 2019 by a Herefordshire farmer. Member organisations focus on nutrient monitoring, sewage treatment improvements and working with farmers to encourage better husbandry to reduce nutrient run-off. The Wye and Usk Foundation leads on much farmer liaison work with Catchment Sensitive Farming (CSF) advisors. Farm Herefordshire runs workshops, promotes videos and training sessions.

¹⁶¹ Board members include Herefordshire and Powys Councils (mainly planning officers and councillors), Environment Agency, Welsh Water, Natural England, Natural Resources Wales (NRW), Wye and Usk Foundation, National Farmers Unions, Country Landowners Association and Farm Herefordshire; the meetings are officially public and are also usually attended by reps from CPRE and CPRW.

The Board decided in 2015 to develop a ‘dashboard’ for lay people to track progress. The dashboard was finally published online in May 2019¹⁶². It includes water quality data from six sites, housing growth figures, water company performance, pollution incidents and farm visits along with traffic light indicators of progress (Figure 8.2). Only the numbers of farm visits are specified, not the percentage of farms or actions taken after visits.

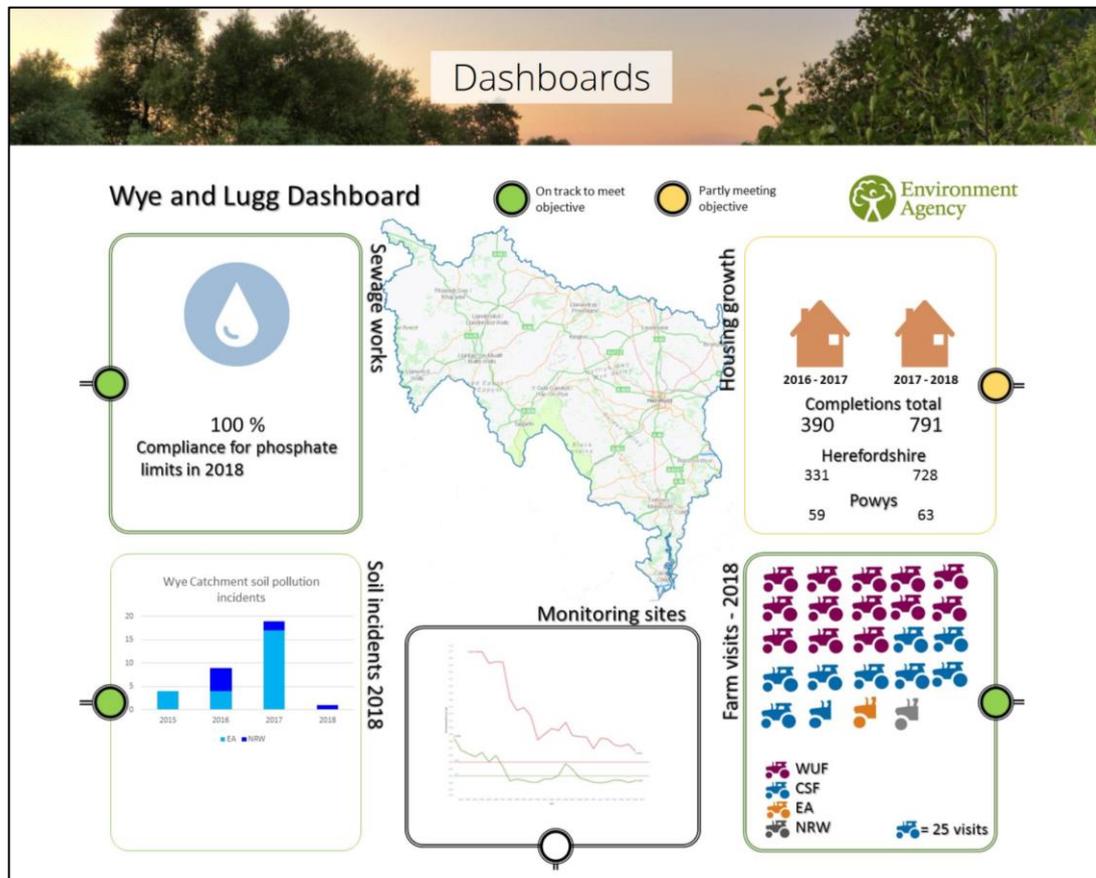


Figure 8.2 The Wye and Lugg Nutrient Management Dashboard (Nutrient Management Board, n.d.)

The emphasis has been on reducing nutrients from sewage treatment works, with action by the farming sector left to voluntary adjustments encouraged by the advisory visits. One officer described how agencies were advised to address sewage first, before ‘locking horns with the NFU’. The farming lobby consistently deflects blame from the industry and delays tighter regulation. Since the plan was

¹⁶² It is quite difficult to find - on an obscure page on Herefordshire Council’s website, on pages associated with the Core Strategy evidence base (Wye and Lugg Nutrient Management Board [no date]). I could not find a link on any of the other partner agency/organisation websites.

published there has been little improvement in nutrient levels, although monitoring effectiveness is contested. CPRE Herefordshire have been regularly lobbying for better monitoring of nutrient levels, yet EA reduced monitoring points on the river from 45 to 8 in 2019, saying it was about freeing up resources and *'assessing differently'*.

The creation of an NMP was seen by many actors as a successful way to address the phosphate issue. It has brought many relevant agencies together to develop a more strategic approach to tackling water quality and there appears to be useful farm advisory work ongoing. However, the dashboard monitors activity to address pollution rather than the causes of the pollution. The Board and the dashboard are tools to prove someone is doing something. A rhetoric has been developed maintaining the proliferation of poultry units is not relevant. It would be relatively easy to monitor new poultry units or volume of birds/manure given permission each year, but that would acknowledge the poultry industry is part of the problem. The proliferation of IPU and additional manure was rarely mentioned at NMB meetings. If referenced, the subject was usually swiftly changed, particularly when NFU or CLA representatives were present. My observation notes from one meeting mention a feeling of *'let's not go there'*, or *'an elephant in the room'*. The grouping of councils and agencies, influenced and policed by the farming lobby, have developed a rationality focusing on selective evidence. The processes and influences at play tend towards official inaction on pollution and the facilitation of continued economic and agri-industrial growth. The official stance that IPU numbers are not relevant, conflicts with concerns about manure expressed by several EA staff I interviewed; one referenced farmers *'producing more than the catchment can actually take with the land mass'* (GE3). This further problem of how to dispose of excess manure (and the potential for over-application or illegal disposal) is characteristic of areas with dense concentrations of IPUs (Bové *et al.* 2001; Emel and Neo 2011).

It is impossible to say yet whether work agreed in the NMP in 2014 is proving effective. Certainly nutrient levels have not yet improved. Yet having the plan in place meant planning permissions for housing and poultry units could continue unabated over the following five years¹⁶³. Several councillors were frustrated with the system:

¹⁶³ I estimate at least 80 new poultry sheds housing approximately 2.5m birds have been given planning permission in Herefordshire since 2014 when the plan was published and

'I think it's pretty feeble stuff to be honest. (...) [it] appears to get the council off the hook in terms of responsibility for the water quality.'
(GD4).

This situation was suddenly challenged in July 2019. A legal case in the Netherlands, known as the Dutch Nitrates case, caused NE to block any further development in the Lugg catchment until there is 'certainty' that the Nutrient Management Plan will reduce nutrient levels to legal levels:

'there remains reasonable scientific doubt as to whether the NMP can provide appropriate mitigation (based on how much certainty this currently demonstrates)'. (Herefordshire Council 2019:2).

There is therefore a moratorium on all development which would increase nutrient levels in the Lugg catchment. The Council is urgently seeking ways to speed nutrient reductions at a potential cost of millions of pounds of tax-payers' money¹⁶⁴. House building companies are exerting intense pressure for the moratorium to be lifted¹⁶⁵, jobs are at risk, and there are implications for the county not meeting its housing allocations, invalidating the Core Strategy. The ineffectiveness of the Nutrient Management Board and Plan has been exposed. Institutions focused attention on selective indicators whilst avoiding awkward and contested issues. How the whole situation will be resolved is still unclear in 2020.

The Nutrient Management Plan is another example of 'displacement'; being seen to be addressing problematic issues like breaching European regulations; while allowing things to continue, avoiding more direct action (Rutland and Aylett 2008; Allmendinger 2016). Public sector partners, pressured by the NFU and CLA, do not question whether the proliferation of IPU affects nutrient levels. They 'act busy' carrying out advisory visits to farmers and pressuring the water company to improve sewage treatment works. They focused several years of effort on producing the 'nutrient dashboard' to demonstrate activity and the hoped-for improvement in nutrient levels, while hundreds more IPU sheds were built and nutrient levels worsened. They assembled and presented technical data rather than effecting material change (Alaimo 2016). The inaction led to the current NMP

that the quantity of poultry manure produced would thus have increased by somewhere in the region of 55,000 tonnes a year. This does not include sheds in the Powys part of the catchment which CPRW figures would suggest could be another 50 (mainly free-range).

¹⁶⁴ At the September 2020 Nutrient Management Board Herefordshire Council reported they were allocating £2m New Homes Bonus funding plus a £1m grant from the LEP to pay for creating several integrated wetland projects and/or reversion or rewilding projects on farmland to capture excess nutrients.

¹⁶⁵ Reportedly 130 planning applications for over 1,100 houses are on hold indefinitely (Agyepong-Parsons 2019).

crisis, River Lugg moratorium and huge public costs. The situation could be characterised as a '*sustainability impasse*' (Diaz *et al.* 2013) where years of inaction result in river pollution continuing unabated as with the green tides in Brittany. Lang (2020) characterised such government lack of action as the '*reluctant state*', saying authorities often have to be dragged into action, sometimes prompted by crisis.

My interviews and observations suggest the local authorities have been in denial, trying to avoid conflict and contestation but riding it out and managing it when it occurs. This could be characterised as an '*institutional void*' (Hajer 2003) where '*everyday positivism*' leads to the staging of selective knowledge, often black-boxed models, and allows outside actors to influence decision-making. There is a lack of transparency. Planning officers and committees appear under pressure to find ways to allow development to proceed and shift the focus to mitigation measures (Rydin *et al.* 2015). Policy and institutional voids created space for colonisation, undue influence, incompetence, and poor decision-making; all going previously unchallenged, with little scrutiny.

Most public sector actors appear caught in a difficult position with little resource or capacity to break out of current procedures and processes and no incentive or political support to do so. The two main areas where action has been taken recently have been in response to court cases elsewhere; the ruling on cumulative impacts which prompted action from Shropshire Council on ammonia and the 'Dutch Nitrates' case which prompted Natural England to challenge the Wye and Lugg Nutrient Management Plan. NE demanded 'certainty' that the Plan would deliver improved nutrient levels. They called the bluff of the partners in the NMB, exposing that NMB action would not achieve its goal.

Until recently public bodies avoided addressing cumulative impacts of IPU. Planners focused on the local scale and individual sites. Emel and Neo (2011) argued that environmental, social, economic and ethical issues around IPU need to be addressed simultaneously to produce effective responses. Beebeejaun (2019) described planning officers' political use of scale to dismiss non local objections and reduce key issues to the micro level of noise and visual impacts on immediate neighbours, similar to my findings. Impacts down river or down wind, become peripheral to the debate at the planning committee. The refusal of the local authority to address IPU in a strategic fashion reduces contestations to a series of local battles. Different scales have been used to frame certain narratives, all to

the advantage of applicants. Beebeejaun concluded that a '*politics of fragmentation*' (p787) is often deployed by local authorities and applicants to sideline objections, undermining the legitimacy of the planning process. This is similar to what Butt and Taylor found with IPU contestations in Australia where local concerns about place identity, alternative food systems and animal ethics went unheard. In Herefordshire and Shropshire too contestations have '*reintroduced the political*' to the planning process (Butt and Taylor 2017). There is a clear political battle over what is or is not relevant and what framing or scale is used in planning deliberations.

8.4 Contested decision-making and hegemonic narratives

Members of the planning committee, politicians, make the actual decisions on IPU planning applications. They are tasked with finding 'the planning balance' between various arguments. This process is contested by objectors who claim that not all evidence or actors are heard and only certain arguments are accepted during the process: "*Planning committees have no intellectual capacity at all*" "*They are spoon fed a report which is bent*" (Observation notes, 25.6.19).

The planning committees in both counties have a strong farming presence. While it is not true (as I sometimes heard) that most of the councillors are farmers, alliances of Conservatives supported by farmers from other political groups had a clear majority and held chair and vice chair positions in both counties. Several councillors belonged to the NFU and/or CLA¹⁶⁶. Farmers (or their spouses) also had a strong presence on many Parish Councils. One planning committee member commented:

'If it comes to something which touches on the farming lobby and all that goes with that, there's an almost a knee-jerk, DNA reaction, in conservative councillors, to think, "Oh well, that must be a good thing. We support local businesses. We support farmers. We support this application. Job done." That's the default mentality' (GD4).

Objectors had frustrations about how planning committees were conducted. Both Councils publish meeting minutes but these include only general details of issues discussed. There is no record of what councillors say or how they vote. It is thus not possible to monitor the voting record of individual councillors. Herefordshire Council introduced audio recording of the planning committee in 2018, in Shropshire there was no recording of the committees. Numerous interviewees

¹⁶⁶ Councillors are required to list union membership on their statements of interest.

suggested that decisions in both counties are discussed by some councillors before the committees, which is against official protocol. Not all councillors read the committee papers and only a few read much of the background information. It is the planning officer's role to pull out the most significant points in their written report which can be 40 to 100 pages long.

In Herefordshire, since around 2014, there have been occasions when the planning officer recommended refusal. Also when the committee has gone against the officer's recommendation, both for refusal and approval. One could infer that the officers have been taking a firmer line and that the councillors on occasion have decided a particular case needed to be debated in greater depth and the evidence challenged. In contrast in Shropshire the officer recommendations have almost always been for approval and only on one occasion has a committee seriously challenged this and made the decision to refuse. The quality of debate in the planning committees was said, and observed, to be higher in Herefordshire.

Farming sector framings dominate the arguments made by the applicant to support and defend IPU developments and much of the discussion at planning committees and other forums. Some of the most common are listed in Table 8.1.

Table 8.1 Common narratives used in support of IPU applications

IPUs are a result of progress in modern agricultural technology, they are the most efficient and safe way of rearing chicken at scale.
Intensive livestock farming is required if we are to feed the nation and growing global population.
Farmers are struggling financially and have few alternative choices.
Farming is a vital part of the local rural economy and supports many workers and supply chain businesses.
IPU sheds are just part of the normal agricultural landscape.
IPUs provide food security and reduce food miles compared with importing chicken and eggs (and animal welfare standards are better too).
Chicken is healthy and affordable.
We're just supplying what consumers are demanding.
Family farms need to invest to enable the next generation to take on the farm.
There's no market for organic/free-range chicken and alternative systems are bound to fail.
An IPU generates profits which can then be used to sustain environmentally friendly farming activity on the farm.

Farmers are stewards of the land and know best how to sustain agriculture long term.

The processing company is the biggest employer in the region and we can't afford to lose it.

These narratives foreground food security and the general rhetoric around progress, growth and efficiency (Helm 2019). This 'there is no alternative' (TINA) framing is like the way Scott (1985) described farmers justifying decisions by emphasising their 'need' to make changes, despite the main motivation being financial. There may be political links with some narratives and possibly connections to populist stances on Brexit which are echoed in comments about the importance of British self-sufficiency¹⁶⁷. But most of the narratives are mainstream neo-productivist rhetorics deeply ingrained in agricultural circles such as agricultural colleges/universities, the farming media and lobbies (Thompson 1995).

Traditional values are often embedded in these arguments, particularly around defending 'family farms', a phrase which resonates strongly in local communities, as Henson and Bailey (2009) also found in the United States. Another common narrative was how 'tidy' poultry farms are, used to denote a well-run farm or a 'good farmer' (Burton *et al.* 2020). The phrase was deployed in planning committees by councillors approving new developments arguing that an existing operation looked well-kept and so the new development would be unlikely to have negative impacts. Two planning officers parodied this rhetoric, as they must have heard it numerous times, but concluded that the narrative was effective:

'Farmer Giles (...) keeps a tidy farm..! (...) But I think that that can have some... influence (...) if he puts his best side parting in and his best tie and his NFU blazer on and says well you know how much I've done for the community and how tidy I am and look I sweep my farmyard within an inch of its life and you can see your face in my concrete yard and all that sort of thing... And they get some traction...' (GP2).

'Tidy' was also applied to the role of farmers looking after the wider countryside and how they deserved local support.

A key factor at committees was when statutory bodies such as the EA and NE had not objected. Planning officers and councillors stressed this, saying in effect 'our hands are tied' or perhaps trying to spread blame for the decision about to be

¹⁶⁷ Batel and Devine-Wright (2018) discussed this in the context of energy infrastructure developments.

made. It was also referenced in connection with potential costs of the case going to appeal if permission is refused. A number of councillors said the views of the community were an important element of their thinking, but this did not come across in the committee meetings I observed. Councillors denied the numbers of objections and supporters an application received affected their decisions, however planning agents felt it was important to muster supporters if the number of objectors was rising. In Shropshire supporter campaigns have rarely emerged: perhaps because there was no need for them. Even with high levels of contestation, applications tended to be approved with little reference to objections from the local community.

A further set of narratives came through strongly in planning documentation, reports and discussion which deny or normalise the impacts of IPUs. The most significant are listed in Table 8.2.

Table 8.2 Narratives used to normalise IPU impacts

The environmental permit will resolve any pollution problems.
IPUs generate little smell and the countryside smells anyway (the same goes for noise).
The manure generated is valuable fertiliser required for soil fertility.
Increasing amounts of poultry manure simply substitute artificial fertiliser brought in from elsewhere and no farmers would over-apply fertiliser.
British animal welfare and environmental protection legislation are the best in the world (gold standard).
Visitors and tourists won't notice; they'll keep coming.

These arguments are a powerful means of undermining objections, sweeping away what could be quite detailed points with a simple denial. Most incorporate a hint of scorn as if objectors are ignorant of farming and the countryside.

These framings combine to support the farming industry and argue that objectors' fears are irrational and unlikely to be realised. Approvals are rationalised by saying that pollution will be controlled by relevant agencies and if refused the applicant would probably win on appeal anyway. The impression is that it's an unfortunate situation and there's nothing much decision makers can do, despite objections. At several committees there was a tipping point in the meeting where a more dominant councillor made some broader remarks about '*what really matters in this situation*' and then started talking about mitigation to address the objections. The discussion shifted from whether the proposal should go ahead to

what would make it less unacceptable. Details of traffic management, tree screening or colour of sheds were debated¹⁶⁸. It was as if these details would somehow mollify objectors and demonstrate responsible behaviour by councillors in taking their decision. From this point onwards the audience could sense that the decision had been made, even if the formal proposal to approve came a little later.

Listening to the debates at planning committees it is clear farming related arguments are given more time and attention. While several interviewees voiced suspicions of hidden connections between the poultry farming network, politicians and agencies there is little public evidence of this. What does seem clear is that some actors have channels of influence available to them, perhaps through farming bodies such as the NFU and CLA and most councillors are sympathetic to the farmer applicant's case: *'The farming lobby is traditionally a strong one in a conservative run county. It's given more time and attention, inevitably.'* (GD2).

One Herefordshire application involved a significant clash between the local ward member (a farmer) who called in a case recommended for refusal on landscape grounds. The site is on the edge of the Golden Valley close to the Brecon Beacons National Park. The farmer spoke at length in support of the application, heavily criticising a landscape architect's report. One committee member described it to me as *'an extraordinary performance'*. They went on:

'he virtually bullied the planning committee into accepting it which was really bizarre. (...) He was determined it was going to go through (...) I don't think I've ever seen anything like that before.' (GD4).

Several councillors collectively pushed the application through for approval and despite official complaints and a judicial review the unit went ahead (Figure 8.3).

¹⁶⁸ In Shropshire there was some standing joke about what specific colour code is most appropriate for agricultural buildings and councillors also placed great emphasis on the preference for screening to be native, locally sourced species. Such issues could easily be specified as part of SPG guidance.



Figure 8.3 IPU at Archenfield September 2020

It is possible there are gender aspects to some contestations during the planning process. The planning officers dealing with these cases are almost all men as are the majority of planning committee councillors and the chairs and vice chairs. Most applications for the controversial cases have been led by male farmers and handled by male agents. Men dominate the list of statutory consultees giving expert assessments. In contrast, objectors have a more balanced gender mix; several campaigns have been led by women and consultants acting for objectors are almost all women. One agent reeled off a list of women objectors he assumed I'd interviewed using a slightly contemptuous tone. I also heard an anecdote about a meeting between two applicants and two objectors who took their female consultant along. The objectors described how the consultant was told: “you're only a woman - shut up” (TO2).

Farmers are usually referred to as 'he', the next generation which might take the farm on was nearly always referred to as a son rather than a daughter. There were two interviewees who talked about farmers and specifically male farmers as not being good at communicating and suggested that this added to contestation levels. They thought women farmers were better at 'bridging' between the farming sector and 'normal society'; whereas male farmers who mainly socialise with other male farmers have a more limited set of beliefs, values and language. One could speculate whether gender balance affects decision-making. It may be easier to dismiss evidence submitted by women, or to undermine their arguments as emotional and less rational than those made by male technical advisors. There

were multiple references to one female objector consultant who was regarded as having '*stirred everything up*'. She was accused of pursuing almost a personal campaign against chicken sheds either for environmental reasons or to benefit her business. Her persistence made her unpopular. In cases where specialist officers have raised their heads above the parapet to question applications and raise concerns, these officers have frequently been women. This division is simplistic but may still be meaningful in a traditional and conservative rural context.

Narratives deployed during the planning process and decision-making, along with the attack narratives identified in chapter 6, are a powerful arsenal used by applicants and their supporters. On closer inspection some narratives contradict others and in certain combinations there is considerable potential for circular reasoning. However used selectively and collectively to defend, attack and deny they are difficult to combat. The narratives could be viewed as a form of Woods' (2005) '*discursive power*'. Several narratives were repeated by non-farmers, suggesting at least a partially hegemonic society where certain logics and ways of thinking pervade multiple networks of power relations.

I observed these agricultural narratives in use regularly in environment forums. Here, many actors are aware of the proliferation of IPU's, but have to tread very carefully when raising concerns or objecting to planning applications. Wildlife Trusts, AONBs, and River Trusts have farming and landowning interests on their Boards/Partnerships. The dynamics are different in each organisation but where the farming lobby has secured a voice it is quick to forestall or deny any critique of farming practices and new developments. One interviewee asked frustratedly why everyone '*pussyfoots around the farmers?*' (OP1). The reality is that such organisations need landowner cooperation for some of their activities and try to avoid antagonising farmers. Officers risk losing the goodwill of the sector long term¹⁶⁹. Most direct criticism of farmers is aired away from public forums where discussion is policed.

I have identified additional narratives deployed to deflect criticism of farmers (Table 8.3) and to delay or rebut suggested changes:

¹⁶⁹ There were several references to previous '*vicious*' and lengthy '*backlashes*' by the farming lobby when an organisation or officer tried to address a perceived problem caused by local farmers.

Table 8.3 Deflection and delay narratives

Natural hazards - Farmers are struggling with the poor recent weather (rainfall, floods, drought, etc) and now is not a good time to ask them to change/address anything.
Pussyfooting - We need to get the farmers onside; we need to approach the sector carefully and not criticise or impose compulsory change or they'll refuse to cooperate.
Pressure - The suicide levels among farmers are increasing currently due to the above, plus financial hardship and uncertainty over subsidies. We can't put farmers under extra pressure.
Postpone - We need to address all the other contributory factors (nutrients from sewage treatment for example) before tackling the farming related factors.
Compensation - Farmers might be prepared to look at improving practices but they'd need to be financially recompensed; paid to stop harmful activity or shift to more beneficial ones.

Sometimes multiple arguments are deployed in turn until some traction is gained and the proposed actions are stalled. These narratives have validity at times, but their persistent deployment weakens, delays, diverts and halts action. This leaves farmers in a dominant position and able to carry on with business as usual. There are similarities to the situation Diaz *et al.* (2013) described in Brittany, where farmers kept ahead of the arguments and avoided addressing more fundamental issues by making limited technical changes: *'tinkering on the margins'*. In some situations farmers receive payments to stop certain polluting practices (Helm 2019). Many commentators see the need to shift to a polluter pays policy (e.g. Steinfeld *et al.* 2006; Helm 2019) but the farming lobby is fighting hard to prevent this. The reference to high levels of farmer suicides was brought up regularly by interviewees. Lowe *et al.* also noticed this narrative:

'Farming organizations pointed to the grim statistics, indicating higher suicide levels among farmers, to dramatize the pressures and isolation that some farmers face. Pollution inspectors were not unmoved by such worries and anxieties.' (Lowe *et al.* 1997:190).

Such narratives are usually effective and actors in other sectors adjust their proposals accordingly.

8.5 Addressing trust issues and uncertainty

This chapter has demonstrated that problems with procedural issues around consultation or decision-making exacerbated opposition. If people perceived the process to be unjust or undemocratic they were much more likely to object. The issue became publicised and politicised which fed contestation and controversy,

creating a new public (Marres 2007). People feel doubly removed from decision-making, first through the scientisation of evidence and secondly through the lack of democracy and scrutiny of decision-making (Callon *et al.* 2001). Callon recommended hybrid forums as the best format for open, dialogic democracy. This is not an option within the development planning system, although there is scope for a wider range of voices to be heard and for better listening. It would, though, be possible to establish a forum to consider the issues more strategically, to develop supplementary planning guidance, to sponsor further research and consider alternative approaches.

The current planning system in these two counties has enabled one set of actors and their construction of knowledge to dominate with little scrutiny of decisions. This research found distrust permeating the planning processes, proceedings and power relations: distrust of knowledge and of key actors (Petts and Brooks 2006). When objectors had low levels of trust in farmers (locally or generally) they were more likely to object (Sharp and Tucker 2005). Most objectors did not trust the politicians making decisions and levels of trust in certain planning officers were low. Mackenzie and Krogman (2005) studying CAFO decisions in Alberta, found key factors to be timing, information sharing, accessibility and accountability. Similarly Natarajan *et al.* (2019), studying NSIP planning processes, found objectors often viewed the process as a '*fait accompli*' or a 'done deal'. Their perception was that applicants could 'game the system'. Many actors distrusted the scientised knowledge presented (Wynne 1992). Even the decision makers were distrustful of environmental bodies and how they conducted their regulatory roles within the process. The multiple points of distrust have contributed to the increasing contestation. Lowe *et al.*'s research into farm pollution found that much of the contestation led back to issues around: '*who could be trusted to safeguard the countryside*' (1997:ix). Trust has emerged as a fundamental issue. Any steps taken to address the situation need to ensure that additional trust is generated and that it produces more trustworthy planning decisions (Hajer 2003).

Part of the loss of trust is due to decision makers clinging to the vestiges of certainty around environmental impacts whilst making decisions based on other issues, such as hegemonic narratives and political affiliations. Only occasionally were politicians willing to hang their decision on less scientific arguments such as loss of amenity or quality of life, despite often claiming these were significant factors. It is challenging for decision-making actors to change the entrenched

ways of thinking and longstanding rationalities behind habitual decision-making patterns.

Rather than denying, ignoring or avoiding uncertainty, I would argue that planners should face up to it and perhaps even embrace it. They could cultivate more institutional reflexivity (Wynne 2016). The planning process should better clarify the levels and areas of uncertainty and acknowledge them. Research could help reduce some uncertainty but not eradicate it. Decision-making could then be done in the light of known uncertainties with officers and politicians applying the planning balance in a more open way, incorporating more ethical perspectives; allowing councillors freedom to make decisions on the full range of information and earn back public trust. There might be more open discussion about what levels of change are acceptable and options such as zoning, stricter licensing, moratoria, more monitoring, etc. could be incorporated; all routes that have been taken elsewhere on occasion (e.g. Juska 2010; Ramsey *et al.* 2013). Everingham *et al.* (2016) summarised a similar package of complex, uncertain and disputed issues in their study of land use conflicts between coal, gas and farming in Queensland. They concluded alternative mechanisms were required to overcome the barriers in the planning system. In Herefordshire and Shropshire supplementary planning guidance for intensive livestock farming is an obvious option. As Evans (2013) found with polytunnels in Herefordshire and Butt and Taylor (2017) with the planning code for IPU's in Australia, SPG clarifies the criteria for all parties and reduces levels of contestation substantially. Even the agents I interviewed tended to agree with this, although they would obviously want to ensure the guidance was not drafted to their disadvantage.

Ways of doing politics need to be remade. As Gomart and Hajer (2003) identified, levels of contestation suggest a need to amend processes and formats for decision-making, to address the calls of the new public which has emerged. The current system cannot handle such hybrid contestations effectively. Gomart and Hajer stressed that this need not be a radical proposition; they referenced Dewey in arguing that democracy should incorporate flux and experimentation with different political forms. They stressed there may not be a simple 'institutional fix' but if current formats and methods of participation do not work, if they polarise, appear biased, feed contestation and reduce levels of trust, then a new way of doing things should be developed. Thus, it is not just publics which are emergent in such a contested situation, but the state too needs to develop and adapt to continue to play its role in ensuring the well-being of the locality. This

suggests planning processes and systems could be made more open, involve more information, more discussion and address the policy vacuum. There could also be potential for incorporating more experiential perspectives.

In the next chapter I turn to explore some of the missing perspectives further. So far the IPU buildings themselves have seemed fairly abstract in all the documentation and scientific reports and also in the decision-making. I now take a closer look at how poultry sheds are experienced once built and to what extent they impact on people's senses, quality of life and experience of place.

Chapter 9 Contested experiences

The scientised knowledge discussed in chapter 7 states with certainty that pollution, smell, noise and visual impacts of IPUs will be minimal or at least below thresholds of acceptability. This research aimed to explore people's actual experiences and responses once the IPUs are built. Local authorities and agencies only monitor impacts such as smell when they receive significant levels of complaints. Predictions in planning applications are not tested after the unit starts operating; their accuracy is uncertain. The sensory and experiential data on how people experience the units, when living, walking or passing nearby demonstrates the potential of IPUs to affect people's quality of life. Such topics are largely ignored during the planning process (Jon 2020).

The experiential aspects of the methods and my interest in recording sensory data produce a better understanding of the multidimensionality of IPU impacts and enrich the topological, relational theoretical approach (Wylie 2007). This was the 'creative' effect I was hoping to achieve with my mixed theoretical and methodological approach (Emel 1991; Jones 2020). This has moved the research well beyond the two dimensional to explore more situated knowledges and ways of seeing and experiencing (Haraway 1991; Pink 2015). I have found that, as both Edensor (2000) and Lee Vergunst (2008) suggested, walking wakes one's body up to multisensory aspects of a locality and the experience of travelling, slowly, through it. Each factor: smell, noise, visual, the physical changes to the landscape and ground walked upon, interacts with the others when walking through or past an IPU site. Each experience involves various threads weaving together on a particular day, with weather, ground and seasonal factors interacting with an individual's mental state. My 'wayfaring' (Ingold 2010) alone and with others has clarified the limitations of the knowledge presented in support of IPU planning applications and how black-box modelling and paper-based evidence fail to capture what Olwig described as the: '*touched, smelled and heard proximate material world ... woven into the walker's sensory field*' (Olwig 2008:84). Models omit any sense of place and sense of belonging that people experience and how the IPUs disrupt this in multiple ways. Local people's sensory landscapes have been changed. The IPU introduces a new 'atmosphere' to the locality.

The planning system does not handle experiential evidence well. Smell and noise are artificially modelled, visual impacts assessed with a technical methodology.

Each sense is addressed in isolation: through the silo-like system. Little of this comes close to grasping the reality and variability of experiential impacts on local people and visitors. Situated sensory knowledge is heavily contested by the farming lobby, through familiar narratives. IPU's are normalised within the farming community and accepted as part of the countryside. Farmers are habituated to the structures, the noises and smells so that they notice them much less vividly than others (Porteous 1985; Wheeler 2017). For those in the agricultural community it is a working landscape rather than a domestic or leisure landscape; these are contrasting types of rural gaze and senses (Abram 2003). Local people not enmeshed within the farming hegemony perceive things differently. They are more likely to question whether something must be a certain way and less likely to see large developments as agricultural but instead industrial. They perceive a dissonance between the IPU and its setting more starkly. The sudden disruption and industrialisation of a valued landscape and environment is shocking and distressing to many. And yet little of the literature has addressed these entangled sensory and emotional impacts of new developments and their influence on the planning contestations. Kearns and Collins' study (2012) was one of few that identified the depth of feelings and 'outrage' among objectors that I also uncovered, and with which planners must contend.

Objectors may claim their experience of their locality will be impacted but, to date, such claims are dismissed for lack of evidence. This research is a first step to address the missing evidence and ignored arguments and to demonstrate there are multiple experiences, realities and rationalities. Evidence for this section is drawn from interviews; what people have said about how they experience IPU's in the landscape, and in particular the six walking interviews and the conversations whilst walking through or past poultry sites¹⁷⁰. I also draw on my solo walks.

The chapter explores the findings thematically starting with sensory impacts: moving through sight, smell and noise/traffic before exploring several material and emotional elements. As smell emerged as one of the most strongly experienced but least studied impacts. I reflect on its specific qualities in more detail: exploring various dimensions of the 'stink'. I include three vignettes from walks which show how a person's response forms in real time as they experience various aspects of IPU's while moving through the landscape.

¹⁷⁰ Of the six walking interviews four took in operating poultry sites, one a site being constructed and one was focused on a prospective site, later granted permission.

9.1 Visual impacts

Most older chicken sheds are long, low, grey buildings; large and unattractive, but vaguely agricultural. More recent sheds strike me, and many interviewees, as more industrial in appearance. Figure 9.1 shows an older style shed, built with concrete blocks, wood cladding and corrugated metal roofing.



Figure 9.1 Older poultry sheds near Mortimer's Cross, Herefordshire

I remember vividly the day I visited several new sites for the first time in North Shropshire and how striking they appeared: *'and there it was, suddenly, on the skyline a whole row of these brand new, green sheds and silos looming up above the hedges.'* (Field notes, 22.10.17 and Figure 9.2).



Figure 9.2 New poultry units at Bletchley, Shropshire



Figure 9.3 Poultry units at Great Ness, Shropshire

I was surprised by the sheer scale of each set of sheds, also the colour and appearance. Recently built sheds are often black or green, much taller than older ones and more like an industrial estate than agricultural buildings. *‘It just looks like a big factory, set in the countryside.’* (Field notes, 22.10.17 and Figure 9.3). Figure 9.4 shows another set of sheds, built in 2014. The style of building is one rarely seen previously in rural areas¹⁷¹.



Figure 9.4 Poultry units at Kingsland, Herefordshire

‘They’re massive. It’s a lovely flat riverside landscape with lots of willows and alders around and then a huge factory on the edge of a very pretty village. (...) The river’s looking lovely. It’s a good swimming spot (...) And it is slightly worrying that this huge factory is just upstream, on the flood plain.’ (Field notes, 23.2.18 and Figure 9.4).

¹⁷¹ These photos also demonstrate how difficult it is to photograph such large but low buildings. Few of my shots capture all of the buildings.

Interviewees' views of the sheds varied considerably. Some, mainly from the farming sector agreed the sheds were large and unsightly but said they were necessary and visual impacts would be diminished with tree screening. One farmer saw the sheds as normal agricultural buildings but reflected:

'There are probably more chickens in Norfolk, Lincolnshire, but you can't see the chicken sheds because it is flat. The challenge in Herefordshire is it's not flat and [it's] innately very beautiful. You can stand on hills and potentially see a lot of chicken sheds.' (F5).

Others argued that the sheds were not particularly noticeable in the landscape. These 'deniers' argued that locals aren't bothered by the sheds and visitors wouldn't notice them:

'I think if you said to a visitor how many chicken units did you see today I think they'd look at you and say "what are you talking about?"' (F1).

There were several individuals from farming backgrounds who pondered their own perspectives and why they weren't very bothered about seeing chicken sheds: *'Because I've grown up with them, I don't really... they are part of the landscape I think in my eyes. (...) part of the countryside.'* (T5). This view reflects familiarity with the structures in the landscape, perhaps an understanding of why they're there. When asked further, this interviewee suggested there should be limits but the increase in IPU numbers and size had gone unnoticed. There was also an assumption from the farming sector that most poultry sites are well away from public eyes; e.g. there was surprise if I mentioned rights of way going right through or beside sheds.

The views and experiences of non-farming sector interviewees were much more negative, particularly those who walk in the countryside regularly. One tourism/walking sector respondent reflected on the change over time and their visitors' reactions:

'You pass chicken sheds everywhere. People's reaction is, "What's that?" because I don't think they've ever seen structures so big; (...) these vast arrays of sheds. And it's not just one shed it's 10 or 12 (...) Going back 14 years ago (...) you could walk in the countryside for miles and probably see nothing. Whereas now it's difficult in some places to actually walk, because of the growth of chicken sheds.' (T1).

They went on to describe a circular walk near Shobdon where walkers pass *'rows and rows and rows of chicken sheds'* and how they saw it as *'an encroachment into the countryside'*. At sites with biomass burners or incinerators smoke rising from chimneys introduces another 'industrial' element into the landscape. Some

shed roofs reflect sunlight, especially if there are solar panels, which can cause glare (see Figure 9.5).



Figure 9.5 Chicken sheds catching sunlight, Corvedale (photo circulated by campaign group)

One objector who is familiar with a number of sites described a particular Herefordshire location which had shocked them:

'I couldn't believe this place; it was like a sort of desert as far as the eye could see there were chicken sheds and polytunnels... And it was awful I just couldn't believe it could be so terrible.' (OP2).

The word 'desert' used here gives the impression of dust and a lack of vegetation such as hedges and trees. The interviewee went on to discuss impacts on wildlife habitats and how, for them, this landscape had been destroyed.

Free-range eggs units also generated negative responses, although as these are less numerous in Herefordshire and Shropshire I heard fewer comments. One interviewee described leading a group of walkers on a footpath through a free-range compound surrounded by six-foot-high fencing (which itself has a visual impact):

'it was obvious that you were entering a zone that you had to get through as fast as you could (...) I had to shepherd everybody along. Let's move out of here as fast as we can. (...) Some of them were genuinely upset at the condition of the birds.' (GEP3).

A number of people described how visual impacts were heightened because of the contrast with traditional views of the countryside, both real and imagined. One described a location in Herefordshire where a four shed unit was sited next to a footpath crossroads (Figure 9.6):

'It's a lovely network of paths right out to Beech Camp iron age hill fort. (...) the old Roman road coming north from the [nature] reserve. You emerged from a wood and all that's orchard. And then this was dumped here... a compound and compound fencing and big asphalt yard and to dump that in the middle of all that is... I mean I do honestly feel that we here in this county we need to prioritise what we do best: traditional farming, tourism. Teeming in wildlife. This is factory farming. This is factory development in the middle of it.' (T4).



Figure 9.6 Poultry site at Hammish, Herefordshire

Here there is a sense that the landscape had remained relatively unchanged for centuries and this heritage had been despoiled by a sudden imposition of alien, modern development. The contrast between traditional farms, which still exist, and these modern units was brought up by several people:

'it's kind of the extremes of the countryside isn't it? You might be walking past a little farm with a few cattle and some honey for sale and apples and an honesty box and then round the corner there's this... It probably is very shocking in some ways (...) this is what modern farming is.' (GT1).

I asked most interviewees if they thought the units would affect walkers or visitors' experiences and many were dismissive about whether they would be noticed, particularly if visitors kept to the main tourist sites or drove through the area. One tourism actor described the sight or smell of an IPU as a '*temporary inconvenience*' (T7). They said if the numbers increased that might change, but currently the sight was a temporary '*blot on the landscape*'.

There was a view expressed several times that even walkers coming close to a poultry site would not be much affected because of the transience of the experience:

'Do you know I think it's an irrelevance, because they walk past them, it might smell for 15 minutes, ten minutes, five minutes. It might look a bit unsightly, but the rest of it's beautiful, and fresh air. (...) I don't think it'll hurt the walkers.' (GD1).

The 'tidiness' of the units was cited as another reason why walkers wouldn't be affected:

'What's visually wrong?... you know it's very tidy concrete there's no activity I'm not sure visually why anybody would be upset. (...) You walk by it; you're not going to stand...' (F1).

My impression was a number of these comments about walkers came from people who do not themselves walk in the countryside often. One councillor revealed an incomprehension of a walker's perspective or experience, demonstrating why it is generally ignored in the decision-making process.

IPUs also have visual impacts when driving through a landscape, but these are usually brief compared to walking close by. In several places I visited the view from the car was striking. One stretch of road around Lyonshall, was mentioned by several people and I saw over 20 sheds within a couple of miles. On another occasion I was driving up the Upper Teme Valley where the Welsh-English border runs, to see a site just into Wales which several people had mentioned. The visual impact of the IPU was quite startling halfway up the pretty valley. The massive green, shiny sheds and silos loomed above the road and, for me, interrupted and blighted the experience of the valley (Figures 9.7 and 9.8). The landscape is attractive with the Shropshire Hills AONB boundary and country border running along the river. The unit imposed a new landmark half-way up, which impacted the ambience of the valley.



Figure 9.7 Poultry site at Felindre: view from the road, with chicken lorry loading



Figure 9.8 Felindre: view down the Upper Teme Valley from byway

Several people stressed the cumulative visual impacts of seeing not just one set of sheds, but a number during a visit, or perhaps a walk or several walks. One commented:

'I think to look at it piecemeal like that, you would find it difficult to prove the case. [But] what's happening in Herefordshire is that virtually every village has now got one or more of these things (...) The totality of it is a terrific impact on the Herefordshire landscape, because it's not stopping. It seems [there are] very few planning controls to stop this very greedy industry which seems to have a lot of friends.' (T4).

My solo walks and encounters with units in the countryside emphasised the dissonance between the poultry units and the surrounding landscape. The buildings are out of scale and nature with other buildings in the landscape: the surrounding farms, hamlets and villages¹⁷². The negative experience is heightened when one is on a walk. The purpose of a walk is almost always for pleasure, to enjoy fresh air, scenery, wildlife and exercise and thus to come across such a dissonant development can be a jarring experience:

'They don't sit well. I know they make efforts and they try to get the colours to minimize the impact, but they do jar. They're just huge and unpleasant. That's even before you start on the smell.' (GD4).

¹⁷² Particularly the vernacular 'black and white' villages with numerous timber framed buildings.

A friend¹⁷³ I walked with commented:

'It's very obvious that you're walking next to a factory and it feels out of place, even though it's an agricultural area (...) This is an obvious hi-tech factory (...) It's just... big... and it's visible from a ways away and just coming through on a walk, you probably would have spent a full ten minutes fully aware of it, both the noise of it and the sight of it and... it's intrusive.'

It may also be that people walking in the countryside, locals or visitors, are likely to be people more attuned to beauty, nature and perhaps healthy living and more sensitive to visual (and other) impacts than the average person. Edensor, for example discussed rural walkers' reflexivity and search for '*self-actualization*' (Edensor, 2000:86).

On one of my walks I began to crystallise these thoughts. I argued with myself that there are many large farm buildings in the landscape across the two counties. Some barns are very large and there are grain silos on farms which are not poultry farms. These did not impact people as much as chicken sheds. I concluded that the sheer size, the silos and the rows of fans/chimneys make the site look more like a factory. Although some barns are massive they still look like barns; agricultural in purpose. The sheds don't look agricultural but industrial. People don't refer to them as barns. Also, while one silo doesn't look out of place on a farm the clumps of four look factory-like. There is a feeling that the buildings do not have a reason for being where they are. Most buildings set in a rural landscape have a historical or functional reason for their location, whether it's a pub, farmhouse, castle, church, barn or whatever. However there appears little relationship between the function of a shed and its location: it could be located anywhere and still work. Many objectors have suggested the sheds should be located on industrial estates which reflects this sentiment.

Three interviewees mentioned 'seeing' IPU's from above through satellite imagery. From this perspective one can see the full scale of the buildings, even when screened by trees. Several people mentioned this could put people off doing walks or booking accommodation if they research the local area using Google Earth or similar satellite imagery and 'see' a cluster of massive sheds nearby.

One interviewee I walked with was particularly concerned about the way the poultry units impacted on high quality landscape views. Vignette 1 demonstrates

¹⁷³ My friend accompanied me on my final timeline walk for security reasons.

how their opinion was formed during the experience, as we walked near and through the unit.

Vignette 9.1 Visual Impacts

This walk with a tourism actor (T6) took us to a site neither of us were familiar with. We did a walk of several miles on a damp day.

Initially we got a middle-distance view of the large poultry site (six sheds) for five-ten minutes (Figure 9.9).

Well it's a beautiful view but my goodness they're big ones aren't they! And they do look very new - cos those big silos are nice and shiny



Figure 9.9 Frome's Hill, Herefordshire

When you get closer to it you won't actually see it so much because it's quite well shaded with trees all around it but it is a significant thing from just here isn't it? Well there's a fantastic view - apart from that! Because it goes a long way - you can see all the way down into Wales.

The site was then hidden from sight until the footpath approached and went directly through the site, between two sheds (Figure 9.10);

Oh right - it looks a bit space age doesn't it and quite a hum. Looks very smart and clean. It's a tidy job here.



Figure 9.10 Farm near Frome's Hill, Herefordshire

So if I'm on a country walk that's just a farm. And some are lovely and some are ugly and that one is just average ugly. You go past some farms and they're such beautiful buildings and beautifully landscaped - it's a real pleasure. ...

So when I'm out in the countryside I quite like seeing all the things that are going on so I'm not completely put off but I might think; well would I want to go this way again. And that's actually where I might not be interested.

We walked round below the site and later got middle distance views for ten minutes or more as we completed the loop (Figure 9.11).

Now that doesn't look very nice! - Again! Here I am - it's the view isn't it.



Figure 9.11 Later view on walk at Frome's Hill

You go through it and it's on a human level - it's not huge - and then it's only when you come out of it you see, oh it is huge and it is impacting on... especially as I can hear some birds and trees ...it is impacting on that, and there's a landscape of more landscape value

behind it as well, which it is impacting on. It does concern me but on a more... bigger level rather than a little level.

It is going to be the frequency of which you come across it. If you get the awful smell for a couple of field lengths and then that's it - that's OK. But if you keep coming across it....

When I see something big and unnatural in a beautiful area it always - whatever it is whether its chicken sheds or anything, it always upsets me cos here we are intensively using the farmland and it's an industrial thing in the middle of a rural area. And you could have it anywhere - it doesn't have to be in the middle of a beautiful area.

This interviewee cared most about the middle distance views and was less affected by the experience of walking close to the sheds or the smell and noise they were giving off. They reflected that a walker becomes immersed in a total experience and their mind is taking in a mixture of information and sensory experiences. Seeing the sheds would begin to concern some people as they see it in the context of the wider habitat and wildlife. This is similar to the dissonance discussed earlier in this section. Sight is often considered the dominant sense (Urry 1992; Berger 2008) and it probably acts as an anchor point for other senses. The visual links to the totality of an experience which includes all the other senses, which are too often ignored in rural social science and to an extent in planning debates.

Familiarity with the structures (and noises and smells) means some local people, including the farmers themselves, have lesser sensory responses. They may appreciate IPU's are unattractive but their position enmeshed within farming culture means they don't have the impetus to question them: they are accepted as part of what the countryside is all about. Others may be in a state of denial or possibly ignorance. If you never walk close to a poultry unit then it is easier to question whether anyone could be affected by the experience.

9.2 Smell impacts

Smell was one of the most mentioned concerns about new poultry units (chapter 6). This section explores various dimensions of people's experience of how existing units smell and concludes with a vignette of a walk where smell emerged as the dominant theme. Smell is one of the most commonly experienced impacts:

'I think it's very difficult to go anywhere in Herefordshire without being aware of these broiler units. You can smell them - I can pick them up quite easily. Even if I can't see them I know I am passing one.'
(O3).

I feel similarly to this interviewee now; on most drives around my local area I will at some time get a familiar whiff through the car ventilation system. For someone living close to a poultry unit, smell is probably the most persistent and frequent impact. One interviewee said they were affected by smell five or six times a month (not just on clear-out and cleaning days). This equates to 60-70 days a year which could have quite an impact on people's quality of life. Some residents make complaints about smell using the Environment Agency standard reporting procedure. It was interesting to hear several EA staff discuss this and explain how, from their perspective, smell becomes visible and audible as they receive the complaints:

'People have a voice - they are the sensitive receptors; so when you've got odour you can hear it - you can see where people are shouting about it. And that's very vocal - people get quite emotive about that as well; so out of all of them [impacts] it's probably the odour that's the biggest.' (GE3).

What affects people the most is the nature of the smell which is described officially as 'mildly offensive' (section 6.1). During my first field visit I described it as: *'A sweetish, yeasty or malty, sick type smell. Not totally unpleasant. Not obviously shitty; but not really very pleasant either.'* (Field notes, 22.10.17). The impact of the smell gets worse, the longer you are smelling it¹⁷⁴. Various interviewees described the smell as *'extremely offensive'*, *'overwhelming'*, a *'putrid stench'* and one person claimed: *'it burns your nostrils'*. The burning element may relate to the ammonia content of the smell:

'chicken smell is nothing like any other type of smell (...) I can stand cow muck, I can stand sheep, I can stand anything, but I can't... chickens are a different ball game altogether.' (O6).

The way many people discussed the types of farming smells made it clear they didn't want to be perceived as stereotypical incomers complaining about normal farming smells, noises and activities. Some described how the smell had a materiality to it:

'Chicken muck is beyond the pale...! Because you can't breathe. The smell of cow manure is the countryside. But chicken muck is rotting carcasses and really thick dust and flies, it's awful...' (T8).

¹⁷⁴ See also Vignette 9.2 below

Several people mentioned that poultry manure contained bits of dead birds which makes it particularly offensive to smell or encounter on a walk. Some years ago I had several unpleasant experiences walking through recently fertilised fields covered with bits of dead chickens. However, the environmental health officer I spoke to said this practice was no longer legal (due to risks of spread of infection). People may be remembering experiences from ten-15 years ago or maybe there are instances where bird carcasses still get into poultry manure spread on fields.

Numerous interviewees said that encountering poultry smells on a walk or cycle ride would be unpleasant but if it didn't last for long might soon be forgotten. They tended to be more concerned about people who live near a unit, or where manure is regularly spread. Also visitors staying in accommodation close by, who would find it more difficult to escape the smell. One person recounted a holiday when muck was spread in a field across from their accommodation:

'It stank! So for the last four days of the holiday we had to keep the windows shut because of the flies and the smell and we couldn't really make use of the garden either because it was just too stinky.' (T6).

Despite it being a regular holiday location for them they never went back. Another described a location in Herefordshire where they used to live:

'the absolutely putrid smells from the units, we lived within half a mile of it, at certain times were appalling (...) if the wind direction was right, you couldn't sit outside because it was that putrid, it made you feel sick.' (T3).

Weather conditions and the local topography can accentuate smell. It is often worst on still, calm days and evenings; ironically when people most want to sit or eat outside. I unexpectedly experienced this when camping in Herefordshire in the long, hot summer of 2018. While cooking our meal, I suddenly identified the familiar, unpleasant smell of poultry sheds which hung over the campsite for several hours until dispersed later by a breeze. When I later checked I found there were chicken sheds about a mile away from the campsite¹⁷⁵.

Some people complained about the smell from muck-spreading while for others it was the smell of the units themselves either ongoing or at clear-out time which was the problem. For some it was all of these. Muck-spreading is usually well understood as a normal farming activity, but people complained about the muck

¹⁷⁵ During the summer of 2020 there have been numerous days and longer periods when poultry smells have hung over the whole town of Ludlow.

not being ploughed in quickly¹⁷⁶ or that muck spreading was happening more often than once a year which would be normal:

'the thing I really hate about them is this terrible, terrible smell (...) It's just sickening and cloying. And it never seems to get ploughed in very quickly it's left there to rot (...) you're faced with having to keep all the windows shut. As soon as you go outside the smell actually hits you like a wall.' (T6).

Typical impacts on people's lives (or holidays) are having to retreat indoors to avoid the smell or keeping windows shut, perhaps also not being able to dry washing on outdoor lines. Muck spreading is a traditional agricultural activity but there is concern that land is being over-manured, spread multiple times a year and that nutrients will wash off into watercourses. People described farmers just spreading muck when they have a surplus rather than timing it to the growing cycle of the crops (Monbiot 2020), making it less easy to predict. One objector was angry that odour reports only model the regular levels of smell and not the days sheds are emptied or cleared of litter and manure; about eight times a year. The nearest neighbour to the Penrhos IPU was quoted:

'She can no longer enjoy her garden because of the smell, from the ventilation chimneys. "It's a horrible, sweet, sickly smell, a mix of bedding, chicken droppings, goodness only knows what. It's weekends as well, 24/7. On Christmas Day 2015 I went out on to my terrace and was almost sick, the smell was dreadful all day. I pray for north winds now."' (Wasley and Davies 2017).

Several people reported health impacts from the smell, how it makes them feel physically unwell. For some it's a feeling of nausea or sickness, for others it may relate to breathing difficulties. One objection at Hopton Heath described the existing smells as '*choking*'. Several people referenced more of an emotional or mental health aspect; that smell (or noise) may trigger. One interviewee made the point that having to keep windows shut and not going outside can make people feel more socially isolated. There are likely to be a range of interrelated sensory, health and wellbeing factors which are experienced by residents living close to poultry units which would merit more in-depth research¹⁷⁷.

In terms of smell impacts on visitors and tourism/leisure businesses I heard numerous complaints:

¹⁷⁶ Official advice is that it should be ploughed in within a maximum of two days

¹⁷⁷ I developed asthma myself during the third year of this research (after I had concluded my fieldwork).

'I used to play golf at Madley and the smell from those chicken sheds is abhorrent - some people have packed up at the furthest point - near the chicken sheds, they've actually packed up playing and gone in and said oh we can't stand this!' (O6).

One neighbour to a new unit said the farmer had originally agreed not to clear out the sheds at weekends when the holiday cottages nearby were occupied but that agreement was breached within six months of operation. The holiday accommodation owner described how it impacted their visitors. Those unlucky enough to be there when the smell is bad have their whole experience affected whereas locals know that the smell will be better in a few days. Visitors may be much more sensitive to poultry smells than those living locally. This is a significant point: farmers may think people are over-reacting to the smell because they personally are not as sensitive or don't find it as offensive, having been more exposed to it longer term. One poultry farmer I visited asked whether I noticed any smell as I arrived. In fact it smelt quite strongly as I drove the last mile to the site. The farmer seemed surprised when I said this.

Another bad smell emanates from the Cargill/Avara processing plants in Hereford which impacts city residents and visitors. The following quote illustrates the impact on Hereford residents and their quality of life, but also on key local leisure/tourism venues such as the Courtyard Theatre¹⁷⁸. It also illustrates people's attitudes to the smell and why few make complaints:

'I went to a friend (...) we went out in the garden and the smell was atrocious and she said oh my god we can't sit out here, let's go back in the house. It was the smell coming from the... and I said have you complained? and she said no what's the point complaining? (...) Sometimes you go to the leisure centre or you go to the Courtyard and sometimes the odour is just... (...) But people don't complain because they think nothing's going to be done about it, so they don't complain. It's Cargills, you know... And you get nowhere. Or it's the Council... and you get nowhere. So you don't complain; you just put up with it.'
(OF1).

The following vignette brings together many of the smell related issues and demonstrates how they may be experienced over a period of time. Before the walk the interviewee had expressed scepticism about whether IPUs would impact people walking nearby but their views changed as the experience unfolded.

¹⁷⁸ Herefordshire's premier artistic venue

Vignette 9.2 Smell

This walking interview, with a tourism professional (GT2), targeted a site in Shropshire neither of us knew, on a sunny breezy day. We first walked across a footpath above the site, about 500m away, largely screened by trees (Figure 9.12 behind second hedge and trees).

Do you know if I wasn't looking for it I might not even have noticed it. To me it's just modern agricultural buildings. Actually from this point of view barely noticeable. Once we've lost some of the foliage though in that hedgerow it will be much more noticeable.



Figure 9.12 View across IPU near Clun, Shropshire

I'm thinking - to what extent does that factory impact on my enjoyment of this landscape and I would say not at all from this view. I think the fact that it's painted black sort of understates its presence. If it wasn't for the fact that some of it is chrome and reflects the sunlight.

We then circled round and walked along an old bridleway which ran alongside the site for several hundred metres:

Ah but now I can hear it. Still can't smell it. So there's a faint hum - which I bet is 24 hours... OK so we can see it and I can hear it so now just the fact that it is making a noise is drawing my attention to it. So I would now be noticing it as somebody who was just walking... wondering what it is - it's a large agricultural building, humming.

Ooh and there's a bit of a whiff! It smells a little bit like damp bread, fresh bread, not quite cooked.

Longer term I'd pretty soon tire of it, I must be honest.

Oh and there's another building, my gosh this is Mordor! Look at that (Figure 9.13). Wow!... Well, pretty it's not! It's very, very low. Wow. That's impressive. And now that smell's beginning to get to me. But it doesn't, it doesn't smell as I'd expect it to smell.



Figure 9.13 Closer view of poultry site near Clun, Shropshire

We later back-tracked along this route again and in the course of twenty minutes or so smell kept cropping up:

Oooh... actually no - the smell thing is really starting to bother me. It's not any stronger than it was, it's just... all you can smell.

When you're standing right close to it in the lane it's big, it's black and it's smelly...

My initial reaction to it was: "Crikey that looks like a lot more than what I was expecting from looking at it from a field or two away." And we didn't get the smell from back there.

I'm starting to get a bit of a headache!

As we returned to the car I asked what had affected them the most:

The smell. It wasn't initially unpleasant but became repugnant over time. And I'm separating in my mind the context i.e. I'm pretending that I don't know that that's a chicken shed. That there are... 100,000 chickens in one of those - how many per building?

AC: about 50,000 per shed

200,000, there are 200,000 chickens there, wow. Wow!... Yeah I think it would put me off. To be fair. I wouldn't choose to walk up there unless I had to.

I can still taste it...

Yeah the longer the exposure to it... You know you can put up with it for a couple of minutes but longer-term exposure gives you a massive headache. I think because it's quite sweet - it's a cloying smell.

Well as you know, I came in sceptical that it would have... but I hadn't appreciated the smell! And I do think that sort of thing hangs around.

I can still taste that... on my lips

And as we drove back to base:

Oh I think I can smell it on my clothes... I feel I want something to drink to get rid of that taste.

It's not the view; it's the smell. Imagine if you were here for a week and every day you were driving past that. I think that would have an impact on people's enjoyment. You'd be going; wind up the windows we're getting near the smelly bit...

I'm trying not to lick my lips cos I can still taste the bloody thing!

This vignette shows how an individual's views altered significantly over the course of an hour. It demonstrates how smell works, becoming more unpleasant with prolonged exposure and triggering other responses such as a headache. The interviewee felt they could actually taste the smell, presumably particles in the air, bringing further sensory impacts. Back at their office they talked of needing to wash their hands: bringing in the sense of touch as well. This walk involved all five senses interwoven in an increasingly unpleasant experience. The interviewee reacted to the sight and noise of the unit and to the number of chickens inside, but it was the smell that impacted them most. In comparison with the previous vignette one can conclude that different individuals are impacted by different factors, although obviously the two sites and weather conditions varied as well.

Researching the multidimensionality of the issues around smell has emphasised how black-box modelling neglects many aspects of how smell is manifested and experienced. My research findings tie in with Porteous's work on smellscape (1985). There was evidence that those enmeshed in the farming industry are more habituated to IPU smells and therefore perceive the smell as weaker and less unpleasant than non-farmers and especially visitors. There were many strong negative reactions to smell reported and experienced during the fieldwork. I found, like Constance and Tuinstra (2005), that although individual perceptions vary, key factors were the frequency, intensity and duration of poultry smells which almost everyone found offensive. Part of the experience was the relative inescapability of smell; one can only distance oneself from invisible odours by walking away. If it invades your house, holiday cottage or garden it impacts on quality of life. This is what Carolan (2008) termed a 'transgression'; a smell 'out of place'. The aroma invading personal space, possibly while people are eating, relaxing or sleeping was seriously unpleasant for most, particularly if accompanied by flies. People experienced the smell clinging to clothes, prolonging the effects. The smells are less out of place for farmers. Some comment that the odour is the 'smell of money' (Porteous 1985); farmers are the financial beneficiaries and thus less likely to find it offensive. Despite this, there were several references made by interviewees about IPUs being increasingly located at some distance from where the farmer or landowner themselves live, away from the farmstead, which was seen as a form of acknowledgement of the unpleasantness of the smells, even if the farmer would not state this publicly.

Smell interacts with other elements; for example economic impacts such as property prices and tourism visits, both of which are likely to be negatively impacted by smell (also found by Constance and Tuinstra 2005). Smell is intermeshed with health and wellbeing impacts; I heard accounts of it triggering nausea, headaches and exacerbating respiratory diseases such as asthma and emphysema. Here I am conflating smell with invisible air pollution, particulates and possible toxins in the air, but this is how people experience it. Offensive smells can trigger negative emotions and mental health conditions such as anxiety and depression. People experience feelings of vulnerability and powerlessness. Carolan (2008) found older people and women especially were most likely to talk about feeling powerless to take action about smells from nearby CAFOs. Their lack of social or economic capital affected their understanding of the odours.

Unpleasant smells can impact on people's social lives; if they cannot enjoy sharing their garden, sitting in a pub beer garden or decide to leave their holiday accommodation early. One conversation I had with a couple who live near an IPU revealed that a close relative found the smell so unpleasant that they had stopped visiting to stay at their house. I also identified how some people experience bad smells in an interlinked way with knowledge of what was generating the smell: the incarcerated chickens. The smell is a sensory prompt about what is inside the sheds and this knowledge makes the olfactory experience worse for some people. The mind is perhaps merging the information and intensifying both.

People may also feel nervous or self-conscious complaining about poultry smells. Several interviewees were conscious that they might sound like the stereotypical townie incomer complaining about country smells; a view so often repeated by the hegemony. They may suppress their views, aware that they may make it more difficult to integrate socially. Many people are reluctant to complain, like many visitors who are trying to enjoy their visits. Thus the agricultural hegemony acts in this additional way to suppress complaints from people, which means fewer complaints are heard and they are then easier to dismiss or deny.

Smell is so much more than the predictions of scientific models. Beck (1986) criticised the exclusive use of scientific formulas to evaluate air and water pollution, saying social, cultural and political meanings go unrecognised. Carolan also argued that:

'agricultural odor conflicts are in part products of deeper controversies and broader organizational shifts. Such controversies may be over, for example, what industrialized agriculture fundamentally means for

individuals in terms of rural community vitality, environmental sustainability, and/or animal welfare. They may be over differing definitions of what 'nature' or 'rural life' should be.' (Carolan 2008:1246).

My research confirms this argument. Smell is interwoven with other negative impacts and contributes to feelings of exposure and vulnerability that have emerged in local people's responses. These may be more strongly experienced by newcomers and by women (Alaimo 2016). Rather than a simple value of 'odour units per metre squared at the 98th percentile', the stink is an olfactory alert to the multifarious risks, threats and harm that IPU's engender to actors in their vicinity.

9.3 Noise, traffic and light

While smell was the most significant impact for many people, there are others for whom noise is worse: *'The smell's not so bad. It's the noise really. It is virtually every night that you can hear it.'* (TO1). This interviewee described the noise impacts from the IPU almost a mile away: *'At night, instead of the quiet, absolute silence that we should be getting here, you can hear the buzzing of the fans.'* Another described it as an *'intrusive droning'*. Rural Herefordshire and Shropshire are extremely quiet at night, other than occasional traffic and wildlife noise (owls, foxes). Against this aural backdrop the noise of an industrial facility has much more impact than it would in urban locations. Even on sites where the units are surrounded by bunds the noise travels a good distance. Numerous interviewees also mentioned the noise of feed being delivered to units when it is blown into silos:

'If you are blowing at two o'clock in the morning, you wake up everybody. It's a loud process. On a still night, or when the wind's blowing in a particular direction, it's disgraceful. That is an unacceptable blight.' (GD1).

Two farmers told me they had had noise complaints from neighbours. Noise was also mentioned by environmental officers:

'The feed is very loud. We did have this one problematic farm in Herefordshire. We had a bit of a go at him because he had feed lorries coming in at one o'clock in the morning. (...) The fans can be noisy, especially the high velocity roof fans cos they're kept inside chimneys.' (GE1).

At two sites where a footpath led directly between two sheds it was possible to hear the birds inside. One interviewee didn't react at the time, but commented later:

'You come to (...) a factory farm in the middle of the countryside, which is humming along, you hear the chickens inside and you know they're on a trajectory of like a few weeks and it's totally sterile outside and it just leaves a feeling that... this isn't what the countryside is about.' (T3).

The noises had contributed to affecting their walk and created a dissonance.

For local residents noise at night-time was most distressing. This included noise from lorries, which would also be accompanied by vehicle lights:

'I understand from this farmer I know that if Cargills want the chickens at three o'clock in the morning, he's got to be up at three o'clock for the catchers to catch them and take them back to the factory for processing, which is obviously going to cause annoyance to nearby neighbours.' (T1).

Whilst noise is likely to be a more localised impact around new developments, generated by vehicle movements and feed deliveries, it is often an important part of the planning application. Noise consultants tended to emphasise that noise levels were likely to be below national and international thresholds. But at night-time in the silent countryside such levels can be experienced as extremely loud and disturbing. The beeping of lorries reversing was raised by some interviewees, plus additional lorry movements on quiet rural roads. CPRE Herefordshire calculated the number of traffic movements for a typical four shed broiler development. Each cycle of broilers requires 212 HGV or tractor movements, plus 500 car or van movements¹⁷⁹. This totals over 4,000 annual traffic movements, more for larger units. On small, single track country lanes this level of goods traffic is significant. Several proposed developments have been turned down on traffic and highways grounds.

There are also the noise impacts associated with the construction of a new site. My field notes from my first walk past the Neenton site when earth moving vehicles were excavating (Figure 9.14) mentioned beeping, vehicle hissing noises, digger movements and a loud ramming or hammering noise, all mixed with diesel fumes. The 'deafening' noise was a major element in wanting to move on quickly.

¹⁷⁹ Data distributed by CPRE/W at an 'IPU Study Day' 4 March 2017. These figures will be less if for example some staff live on site or if the farm has its own anaerobic digester which means less manure needs to be taken off site.



Figure 9.14 Neenton first timeline walk October 2017

Noise in these rural localities fits Matless' (2005) description of how noise is typically represented as pollution of a natural soundscape. He argued noise can do more than this, such as IPU noise disturbing and annoying people, possibly affecting sleep and health. Matless said noise generates meanings of moral transgression. I found that IPU noise not only transgresses rural tranquillity but can also be a reminder of moralities around confined animals.

Additional traffic from an IPU not only generates noise but people often encounter large chicken and feed lorries, tractors and trailers on small rural lanes. In many places lanes are not wide enough for two vehicles to pass and drivers must reverse out of the way. Those on bicycle or horse will be concerned about their safety. One interviewee spoke about how walking along their lane was made hazardous by the lorries:

'the wagons, that brought the chickens out, were absolutely massive for the lane. There wasn't an inch. You had to walk back and get into a drive to allow the wagon to go forwards if you were walking up the lane. (...) people complained to the farmer' (T3).

Safety is thus an issue for many residents and visitors and an experience of stress or anxiety, perhaps frustration at the delay. One fatality was referenced at the Aston Munslow meetings where a motorcyclist was killed in a collision with a lorry at the entrance to a nearby farm a few years earlier. The sheer size of the vehicles causes damage to smaller roads, chewing up verges and leaving mud and debris on the road surface. This is a complaint about much modern farm machinery such as massive modern combine harvesters and tractors, but poultry unit traffic is more regular, heavier and year-round. Visitors may be more alarmed

about the traffic impacts than local people accustomed to muddy roads and tractor traffic.

When local lanes are inadequate, an applicant may be given permission to build either new passing places along a single-track lane or even a new road to access the unit. While these improve safety, they also create a visual impact on the landscape, changing the nature of rural lanes, the landscape and driving experience. Figure 9.15 shows the private road built to access the seven-shed site at Great Ness, avoiding the tiny lane on which the farm is located. The new stretch is about 6-700m long. There will also be impacts from increased water run-off from the tarmac.



Figure 9.15 New road built for chicken lorries at Great Ness, North Shropshire

New accesses off rural roads are often required to accommodate chicken lorries (Figure 9.16). The smooth tarmac and concrete kerbing can look out of place on a country lane with wildflower verges. The appearance of poultry sites is more akin to an industrial estate access, sometimes also with lighting to aid night-time activities.



Figure 9.16 Newly constructed access at Neenton, Shropshire¹⁸⁰

Light pollution was mentioned a few times, including by a farmer whose neighbours were affected: *'We've had complaints about lights on at night when lorries have been delivering to the poultry sheds.'* (F6). As well as lights from night-time vehicles the other main issue reported was the high-powered lights mounted on poultry sheds which remain on all night. I had experience of this when I lived in an isolated location in Herefordshire. The night-time landscape was dark apart from one very bright light shining across from a chicken shed about a mile away. One farmer commented:

'We've had people ring us up and say, "Your lights are very bright at night." I tried to explain to them that for health and safety, if we go down there, we need to have bright lights so no one gets injured in the dark outside.' (F5).

Again, in an urban setting such lights might not be noticed but when it is the only light visible in the night sky it can be a major nuisance.

9.4 Impacts on the walking experience

Poultry units tend to be built on flatter farmland where rights of way are often less easy to follow than in upland areas. Paths cross fields and if the landowner does not maintain stiles, gates or grows crops obstructing the routes then walkers may find these rights of way challenging to follow. In recent years local authority

¹⁸⁰ Previously the hedge-line was continuous and contained an old oak tree

resources for maintaining rights of way have been substantially cut and, although still a statutory duty, funds have been concentrated on popular, often upland, routes¹⁸¹. The less well used paths across farmland have been neglected. Walking experiences near poultry units should be understood within this context. Despite this, I began to think there could be a relationship between the location of poultry units and poor quality rights of way infrastructure encountered nearby. On every walk there were problems with missing waymarks, overgrown or broken stiles, blocked gates, broken bridges, obstructed paths, muck heaps and on several occasions, electric fences across footpaths. Landowners had neglected routes and in some cases this felt deliberate. One of my interviewees expressed similar thoughts:

'I think that is a mindset with some farmers that if they neglect the route and it becomes less pleasant for someone to walk along it then they won't have any difficulties in the future regarding that footpath. Cos nobody will use it.' (T3).

In some locations the neglect may date from when the farmer considered applying for planning permission for the IPU: if fewer people walk nearby fewer would be likely to object. Impacts on walkers could be downplayed if it could be demonstrated that few people walked the affected rights of way.

There is then the impact of the sheds once built. Their presence may put walkers off and lead to deterioration in the quality or ease of following the route. One walking interviewee suggested this when we found overgrown stiles and struggled to follow a route in the vicinity of an IPU:

'What will happen is that the rights of way network will disintegrate. I mean this is totally overgrown now isn't it. I mean nobody's walking this. (...) This bit's been abandoned.' (T3).

The interviewee had chosen not to route a published walk through the site. If the route had been in the leaflet the local authority, which commissioned the walk, would have repaired the broken stile and kept the route passable. But the poultry site meant the published route went a different way. Longer term the rights of way may become unusable, creating another impact on local people and visitors' leisure opportunities.

¹⁸¹ It is the landowner's legal responsibility to maintain rights of way, stiles, gates etc. Local authorities act to enforce or support this often organising maintenance work, frequently with the support of local volunteers.

This interviewee described another situation in North Shropshire where poultry manure affected the route of a published walk:

‘every time I tried it, there was mounds and mounds of chicken manure, right over the path (...) Electric fences and literally piles stretching maybe 300 metres, so it’s hard to walk round them. I had to change that walk in order to avoid this, because, even though it’s a temporary phenomenon; how temporary? Is that the farmer’s dumping ground, where that happens all of the time?’ (T3).

The mention of electric fences was not the only time they were referenced or encountered. On one walking interview we had to roll under an electric fence, close to the IPU and struggled to navigate through the site as there were no waymarks¹⁸². We felt quite awkward and walked across the concrete yard and between the sheds with some nervousness. I took the following photo (Figure 9.17) once we reached the far end of the sheds, looking back.



Figure 9.17 Footpath through poultry site near Wenlock Edge, Shropshire

For people walking close to poultry units the poor condition of rights of way can lead to uncertainty about whether they are in the correct place and whether they should be so close to the unit. Obviously if someone was on their own this might be a more intimidating situation. Certainly some people might be deterred from following the right of way and turn back; possibly the farmer’s intention.

¹⁸² Strangely the site wasn’t featured on even the newest OS map despite having been built 15 years earlier.

For women this sort of situation may be even more intimidating. The subject cropped up in one walking interview. The interviewee recounted their recent experience walking in the Alps where many people walked on their own, including women, because the routes were so well defined and waymarked. This contrasted with the experience we were having, where we went slightly off route. They said:

'You're probably a bit intimidated here because you can't quite see where to go - so you might just give up and go back. The image in the media is always some farmer with a pitchfork isn't it? - getting angry about you being in the wrong place.' (T6).

They specifically related this to women who may feel particularly uncomfortable or vulnerable walking alone close to or through poultry sites, fearful of being accosted by a farmer or worker.

These negative experiences were heightened in some locations due to signage or surveillance cameras. I saw numerous security signs or measures which added to the discomfort I felt walking close to IPU. As a confident map reader, I usually knew I was on a right of way and had every right to be in a location. It was difficult to know whether the lack of personnel at most of the sites was a positive or a negative. Whilst I wasn't keen to encounter poultry staff or the farmer (the 'get off my land' stereotype remains strong in my mind) the lack of activity and people on most sites was unsettling and slightly eerie. One person described the sites as 'sterile' (T3), another as 'sinister' (GT2).

As one of my walking interviewees pointed out there may be good reasons why farmers might be worried about people approaching their poultry sites:

'You walk past these units and there's security fencing, cameras, alarms and its almost saying we've got something to hide. I suppose if I was farming I'd be worried about certain pressure groups or the extreme end of animal welfare gaining access to the property and causing untold damage (...) But there's an awful lot of security infrastructure that goes with these buildings.' (GEP3).

Another interviewee read out the 'strict disease precautions' warning sign at one site (Figure 9.18), which could deter walkers:

'It says "all vehicles entering the site must be disinfected using the facilities provided and all personnel must wear protective clothing - use foot dips and wash hands". So there you go!' (T3).



Figure 9.18 Site near Mortimer's Cross, Herefordshire¹⁸³

I was caught on CCTV cameras at the farm where I did my timeline walks. When the farmer accosted me on my fourth visit he said ‘*This is your fourth visit isn’t it?*’ despite me having not come within sight of any people previously. I had been filmed and my presence noted and counted. I realise my behaviour was atypical and may have raised questions as to why I was walking that route several times (particularly as I had to climb a couple of gates which were blocked). I understand the farmer querying my motivations, but it left me feeling intimidated; by the CCTV as well as the farmer himself.

I noticed CCTV in several other places I walked. There were also sometimes dogs present. One site which had just been granted planning permission lies beside a house with CCTV and a large Alsatian. It is below a hill with a large solar farm. I followed the well-used footpath above the poultry site and past the solar farm where there was more CCTV, lots of barbed wire and multiple security signs saying ‘*NO TRESPASSING CCTV*’; and ‘*This area is under 24 hour CCTV surveillance Trespassers will be prosecuted*’ (Figure 9.19). My audio notes say:

‘It’s dawned on me that as you industrialise the use of the countryside you get more fences, barriers, barbed wire, tall fences (...) signs saying CCTV - there’s increased barriers, increased surveillance, and a feeling of exclusion along with the industrialisation.’ (Field notes, 11.11.18).

¹⁸³ The right of way comes down the right hand side of the main shed in the picture and across the yard.

A minute or so later I suddenly heard bird calls; a loud burst of what became apparent was an audio recording. Whether I had triggered it by walking along the path, or someone in the house had seen me on CCTV and turned it on, or whether it just goes off intermittently I don't know. It felt odd and slightly alien and made me uneasy.¹⁸⁴



Figure 9.19 Solar farm near Leominster

Essentially walkers are made to feel less than welcome near these sites. There may be good reasons for owners to feel security is required. But for the casual walker the experience is changed and damaged as security equipment and signage affect the experience. They act to warn walkers and as markers of a more industrialised countryside. This sense of surveillance makes people feel less relaxed and impinges on their enjoyment. If Solnit's (2001) suggestion of using walking and the viability of routes as an indicator of countryside health were applied, these findings would identify various threats, including to access rights and the health of ecosystems.

Clearly IPU's have effects on people's lives, particularly those living close to units or traffic routes or locations where excessive muck spreading is carried out. An IPU is experienced as out of place, out of scale and inappropriate in multiple ways. This impacts not just on where people live or where visitors stay but on the walks they take. Impacts on the leisure experience of walking are almost always dismissed in planning terms as inconsequential. Rights of way officers normally

¹⁸⁴ It occurred to me much later that it might be a bird scarer type device to deter birds from fouling/landing on the solar panels.

judge impacts from maps; rarely do they walk a right of way to assess the potential impact. Exceptions occur when the site is in a particularly scenic area but have never yet influenced a decision. This research has identified that even then the focus is only on visual impacts from the path and multisensory aspects are omitted. The ‘amenity’ of rights of way is referenced in planning policy but planning officers admitted this concept is never addressed. Might there be a way of giving weight to how people experience smells, sounds, and the overall dissonance as they move through the wider landscape and how it affects their enjoyment?

9.5 Emotional impacts

It is possible to read emotions running through the quotes I have presented above. Words like ‘upset’, ‘shock’, ‘annoying’ and ‘appalling’ have been used and sometimes people struggled to put their emotional response into words. In interviews I could hear in people’s voices or see in their faces how upset they felt or their feelings of disgust about a smell, or their anxiety or anger. Many interviewees quoted in this chapter articulated the attachment and commitment to the area’s landscape and wildlife that Puig de la Bellacasa (2011) identified in her conceptualisation of ‘cares’. I myself felt quite emotional on a number of solo walks and when listening to people speak about their experiences. Most objectors (and one farming actor) also expressed some emotional impacts from the planning process. Having to fight an often prolonged battle caused considerable upset and stress which became entangled with emotions about the sensory impacts from IPU when built. Several neighbours to new IPUs have moved house or plan to; prompting further emotional stress.

People spoke of how the experience of walking past a poultry unit can impact the whole experience of a walk. For some, even if the direct exposure to the sheds is only of short duration: *‘it ruins the amenity, the ambience, the feeling of the whole walk.’* (T3). The impacts are very personal; some people will respond more than others, depending on the situation and their own personality and state of mind. One walk leader explained how the smell and industrial appearance of the IPU may initially raise questions in walkers’ minds:

‘it doesn’t leave you with a good feeling. It’s a mixture of emotions. (...) people have said to me, they think about it and they don’t want to think about that, even if they’re guilty of buying processed chickens. In their own mind, they might feel guilty about it, but they can live with

it. But when they go past the units, they're not very happy with that.'
(T3).

This demonstrates that encountering a chicken shed can make people uncomfortable as a material reminder of their part in the process, as a consumer of chickens. Non meat-eaters are likely to respond to the reality of the chickens confined in factory units with other emotions.

The final vignette in this chapter presents my own emotional responses to the 'timeline' site as it was constructed and again once built, demonstrating how emotions vary and interweave with sensory experiences and may shift over time.

Vignette 9.3 Emotional responses

On my first visit my field notes recorded how I felt shortly after walking past the site (Figure 9.20).

Yeah I do feel slightly emotionally impacted from that building site... the scale of it... the power of the machines, the number of the machines, the noise... I've got a bit of a headache actually. It's a nice October day... a lovely bit of countryside, deeply agricultural. There was a tractor ploughing a field up above as I walked past the farm...getting on with the agriculture. And then there's this huge building site. And I've just been thinking about what's going to... go on in those buildings that are going to be built.



Figure 9.20 Neenton IPU site, October 2017

Back in the car I scribbled a few further thoughts:

- *Out of sight - away from the gaze of all but the most dedicated walkers willing to find and follow neglected rights of way.*
- *Emotional - slightly tearful, almost visceral - about the despoilation*
- *Huge crater like depression full of machines*
- *A red wound - a place of suffering being created*

On my fifth and final walk at the site, about eight months after the first one, the unit had started operating. On this occasion, having encountered the farmer the previous

time, I was accompanied by a friend and took a new, longer approach where we encountered further issues:

We're finishing this walk feeling quite distressed - the footpaths weren't easy to follow, because waymarks were missing and then coming back, disturbed about having seen that great chicken factory and also disturbed by these caged birds at the foot of trees on the way back to the car (Figure 9.21), which we don't know why they're there... a couple of magpies in one cage and a rook in another cage [two Larson traps]. I've never seen anything like that before; it's quite distressing.*

(*I had never encountered Larson traps before and had to look them up when I got home. Landowners put a magpie or crow in a small cage to lure other similar birds into the trap or possibly to be shot. There is food and water in the trap but the birds can be there for many days or weeks.)



Figure 9.21 One of the Larson traps

And the weird CCTV camera in the woods... (Figure 9.22).



Figure 9.22 CCTV (probably fake) encountered in the woods near Neenton

And I'm feeling some analogies with the chickens which may already be in that factory.... And what should be a lovely sunny walk in delicious Shropshire countryside becomes really quite.... angst-ridden...



Figure 9.23 Neenton IPU - now operational on fifth visit (13.5.18)

One of the key feelings of going for a walk in the countryside is to relax and enjoy it all ... there's lambs, there's sheep baaing, there's a plane off in the distance, it should be lovely; but we've had a slightly stressful walk. It's difficult to pin down - I don't think we're super sensitive to these things. I'm quite an experienced walker.... Yeah and you feel like - ooh let's get out of this place...

I don't know whether the chicken farmer owns the land where the CCTV camera or Larson traps were encountered; so I do not draw conclusions linking those features to that landowner deterring people walking near the new poultry unit. But there were missing waymarks on his land, long-term blockages to the bridleway and once I encountered a shooting party in the field the unit is in. So the casual walker might feel distinctly uneasy or uncomfortable. The vignette contrasts my initial responses with my views eight months later after I had become familiar with the site. It demonstrates there was still significant emotion involved. That final walk brought home the impact on people setting out for a scenic walk who then encounter odd and unsettling things plus a massive industrial site in the middle of a deeply rural area. They would be unlikely to remain unaffected.

Emotions are often omitted from accounts of development impacts and tend to be counterproductive if expressed in the planning arena. Yet Jon (2020:235) described how Dewey saw passion and emotion as important ingredients in debates about handling problematic situations; '*impassioned experience*' may

reveal meanings better than verbal reasoning. I found exploring emotional responses valuable and suggest rather than downplaying and ignoring emotion as embarrassing or unfortunate, valuable insights could be gained from considering actors' emotions alongside their words.

9.6 Multisensory dissonance and tourism impacts

The experiential focus has identified complex, multidimensional, multisensory impacts and experiences of IPU developments, widening areas of uncertainty around IPU impacts. This is also the case with tourism as chapter 7 demonstrated; planning officers and committees deny the visitor economy is being or will be impacted by the proliferation. They argue that Herefordshire and Shropshire will remain attractive areas for living and visiting.

The research has demonstrated a growing dissonance between people's expectations of the areas' characters and the reality when encountered. Expectations may be based on previous experience, marketing and other imagery and information, and long-standing perceptions about places most of us hold. Expectations lead us back, inevitably, to the rural idyll and the copious literature about it. Many authors discussed the dissonance between idyllic image and reality (Short 2006; Somerville *et al.* 2015). IPU developments are one of the more extreme current disruptions taking place in the UK's scenic mixed agricultural environments. The research revealed a dissonant landscape but also smellscape and soundscape. The dissonance or 'violence' is not just the visual disruption to an idyllic landscape but involves unpleasant smells, increased noise, associated surveillance and the sheer scale of buildings which create a very different atmosphere from more traditional livestock or modern arable agriculture.

'The NFU website shows happy cows and big hedgerows. It does not show brown fields, intensive chicken and pig farms, or indoor dairies. The harsh realities of much modern farming are kept out of sight of the general public. They would certainly deter tourists.' (Helm 2019:90).

Tourism is a useful lens through which to view these multisensory dissonances; effects are magnified when experienced by people seeking escape and relaxation and many visitors are new to the area. Walkers will anticipate a tranquil, scenic, energising experience, perhaps with heritage or wildlife along the way. They may not be attuned to change over time and less sensitive to wildlife absences, but are likely to have their experience affected if they walk by an IPU, or their

accommodation is close by. Tourism is traditionally viewed as dominated by the visual (Urry 1990). Here I found visitors are likely to be impacted by much more than the sight of an IPU; it is likely to be a more embodied experience (Edensor 2000). Evans (2013) in his research on Herefordshire polytunnels, had doubts about whether claimed tourism impacts were genuine. The results in chapter 7 and here from mixed multisensory methods suggest that tourism impacts and externalities, while difficult to capture, are all too real.

In chapter 3 I found no literature on potential dissonance between visitors' expectations of authentic, local produce they would like to taste and the intensive livestock units they may encounter. This research found intriguing traces of this disconnect. Interviewees spoke of visitors who would make the connections between the IPUs and their food choices. My view is that this is currently a minority; vegetarians and those who care about sources of meat and are curious about local agriculture and produce. However, the minority may grow with wider coverage of such issues in the media in recent years, and growing concerns over ILUs. These are also very much target visitor markets for Shropshire and Herefordshire: the curious, 'discoverer', foodie types in search of authentic experiences. Might they become disillusioned when they discover the artisan distillery they are visiting is part of a massive poultry farm? Murdoch (2006) suggested that consumers are becoming more reflexive in response to food scares and have a range of food sourcing anxieties. Again, this is an area that would warrant further research and monitoring. This is particularly pertinent in light of the 2020 coronavirus pandemic, as the scale of potential impacts from bird flu and other uncertainties around IPUs may now be better appreciated (Altieri and Nicholls 2020; CIWF 2020).

This chapter has explored many experiential perspectives and evidence not included in planning evidence and processes to begin to expose the reality of IPUs for local communities of humans and non-humans. The experiential findings of the research have enriched the topological, relational theoretical approach (Wylie 2007). They have introduced a multidimensional sense of the materiality of IPUs, and how they are experienced within the topographical spatiality, adding texture and emotion to the meanings IPUs have for people. The next chapter zooms out to discuss the major themes that have emerged from the research, how these contribute to the academic literature and what the implications may be.

Chapter 10 Discussion

Controversies around IPU result from the agri-industrial sector trying to continue business as usual and grow their operations despite mounting ecological externalities and public concerns. Marsden (2017) envisaged the British countryside entering an unstable and contested period of bio-resource governance now that overflows from the neo-productivist agricultural mainstream can no longer be exported or distanced. IPU contestations demonstrate the clash of contemporary rural value systems and polarised arguments over what (and who) the countryside is for. The agricultural hegemony remains dominant and defends ever-intensifying agricultural production systems. It works to colonise or neutralise sectors such as tourism and conservation, reinforcing certain moral rhetorics around food, nature and the environment. There is a significant void in policy and resources within many public bodies and the agricultural sector has successfully occupied much of this space, suppressing alternative viewpoints. Some of the competing framings and rationalities at play in the situation have been heard much more loudly than others, normalising intensive livestock production systems (Neo and Emel 2017). However, voices of opposition have increasingly been able to frame alternative perspectives and narratives and have begun raising serious questions.

This chapter brings together several threads from the empirical chapters (5-9) to answer research question 3 on power relations (section 10.1) and then reflect on the wider situation and how rural landscape, environments and communities are being changed (section 10.2). It then looks ahead to discuss implications of the research for future rural governance and planning and considers factors which may influence the future trajectory of IPU development (section 10.3).

10.1 Power relations, hegemony and resistance

Research question 3, about how power is performed and enacted within IPU contestations, has been partly addressed throughout the empirical chapters. I outlined the framings and narratives actors used to attack each other's values and rationalities and demonstrated how applicants have been able to marshal evidence and persuade planning actors to back their case. In Foucauldian terms, knowledge has engendered power and the increasing contestation over that knowledge demonstrates the shifting power relations. Chapter 8 demonstrated

how processes serve certain rationalities and power groupings. This section draws together the threads of the power relations discussion to reflect on what the research reveals.

Woods suggested in 2005 that the 'agrarian business hegemony' which controlled UK rural local authorities had waned by the turn of the century along with landowning elites. This research suggests that in Herefordshire and Shropshire these networks survived the disruption of the Labour government years (1997-2010) and have exerted themselves again. I didn't attempt to trace the sort of networks Woods' research followed, but the politics and linkages were clear from planning committees and regular mentions of aspects of elite local life. Agricultural actors' values and concerns for their financial security, income, family succession and ability to exert power are reflected in the way key narratives are reinforced and contrary narratives neutralised. Most within the farming sector remain faithful to their alliances and agricultural networks (Callon *et al.* 2001). The loudest voices within these networks control and police other farming voices; rarely is dissent heard. Farmers may themselves be caught in a network of power relations where they have to produce birds within the integrated model to supermarket specifications: '*very few farmers have the control that they, and others, may think they have.*' (Coppin 2003:610). But in the UK they have driven a good deal with processors and are working hard to protect the industry's continued growth: '*the maintenance of the status quo is the plan*' (Ghosh 2016:145).

Agricultural rationales are deeply engrained in local communities and organisations. Farming and landowning interests occupy many positions of influence in bodies across the environmental, business and tourism sectors and in politics. The sector is greatly over-represented in comparison to its size or economic significance (Shoard 1980; Woods 2005). In contrast, the tourism sector, despite being economically more significant, has far fewer representatives on such organisations, and those are often deeply entrenched in farming as well as tourism. Farming has at least partially 'colonised' other sectors (Lowe *et al.* 1997)¹⁸⁵.

¹⁸⁵ There are also one or two examples of 'counter colonisation' action whereby objector actors have moved to occupy political space or join influential organisations. For example several villages where objectors have secured vacant seats on parish councils.

Applying Wood's three types of rural power; resource power, associational power and discursive power, it is clear how these are functioning in this area. Farmers and landowners have the resources to invest on their own land holding. The wider sector contains networks through which associational power flows and through which support for planning applications is mobilised. Discursive power works by suppressing objections; other people perceive the power displayed by the farming sector and tend to accept their actions without disputing them. The colonisation of networks and control of narratives sustain a hegemonic system and the 'agrarian elite' continues relatively unchallenged as people don't see viable alternative options. This has facilitated the continued proliferation of IPU's. Power is exercised throughout the hegemonic networks; the power to prioritise certain issues, close down debate, delay and defer action and the power to have decisions made that benefit your business even if they harm someone else's. The agricultural sector actors may be only partially aware of how their voices dominate. Their value systems blind them to alternative ways of thinking and make them deaf to other people's rationalities. They experience things differently, seeing, hearing, smelling less dissonance than others. But there is also what Loris (2016) called '*mystification*' or dissimulation going on with motives fudged and risks denied. Landowners set out to make their case by constructing knowledge and evidence to prove their perspective should triumph. They claim certainty, ignore uncertainty and prolong ignorance. There is a collective denial of the contrasting values, experience and knowledge of other rural voices.

However, I tend to agree with Scott's (1985) more limited construction of hegemony, whereby the dominant sector may control other residents' acts but not necessarily their thoughts and feelings. Scott felt many people are simply resigned to the injustices of the system and do not see much scope to challenge the hegemonic status quo openly (like my silent actors). Scott referenced Gaventa's research over many years into Appalachian coal mining communities and how they had become resigned and demoralised by their situation (Gaventa 1980). Gaventa had found few signs of rebellion or mobilisation to protest against environmental and health impacts from the mining. There was a sense of fatalism:

'power works to develop and maintain the quiescence of the powerless [... because...] together, patterns of power and powerlessness can keep issues from arising, grievances from being voiced, and interests from being recognized.' (Gaventa 1980:vii).

Interestingly, Gaventa (2019) revisited his earlier work recently with Scott's comments in mind and found a more complex situation than before with some residents drawn to right wing politics, some alienated from politics and protest altogether, but also many signs of grassroots resistance. Gaventa located such rural protests within global trends shaping land, jobs, migration, and futures of rural areas around the world. The IPU contestations are an additional example of rural resistance emerging in response to global forces.

The strengthening multiple resistances have shifted power relations, challenging dominant discourses and narratives. Although some voices have been suppressed by the agricultural hegemony, in many localities people have been willing to object. With a planning application this must be done openly. Unlike Scott's (1985) everyday forms of more covert resistance, people must sign a letter of objection or a petition or a letter to the paper. The resistance is public; the applicant and their agent are sure to note who has objected. The objectors usually have far fewer resources and are constantly on the back foot, receiving information only when it is published on the planning portal. In comparison, applicants can fight on their own ground, at a time of their choosing, using both general and locality based arguments, depending on which arguments are likely to gain purchase. Farmers are also able to reapply if their application is refused¹⁸⁶, extending the contestation for much longer periods and generating more anxiety, uncertainty and dread in local people's lives and a degree of 'battle fatigue'. From the farmers' perspective the resistance mounted is a significant nuisance. It creates delays and usually escalates the costs of an application as more and better quality evidence is required.

This research has identified a range of resistance tactics that objectors have used (a little like Scott's weapons of the weak), including:

- Enrolment
- Publicity
- Contesting uncertain knowledge
- Developing new knowledge
- Contesting regulations
- Performing objections
- Legal challenges
- Wider collaboration

¹⁸⁶ They are not usually required to pay a second planning application fee

Resistance is often motivated by objectors' desire for the issue to be made more public and for it to be witnessed by more people. Objectors have tried to publicise the contestation via local and occasionally national journalists. Some have initiated social media campaigns. The level of success has been patchy. The decline in UK local news media in recent years means there are few reporters to cover public meetings or investigate possible local corruption: '*Consistent, informed and skilled scrutiny of local public services is less and less possible.*' (O'Toole and Roxan 2019:100). This democratic deficit makes it difficult for objectors to gain media coverage.

By contesting knowledge, and at times developing new knowledge, objectors have strengthened their arguments and better challenged established power relations. They are motivated by their concerns and uncertainties over impacts but also by seeing power exerted in what they perceive to be an unjust way. Objectors are at times also contesting the power enacted by planning regulations (Coppin 2003). One example is the common argument that IPUs should not be classified as farms but as industrial units (see also Williams 2006). If they cannot be stopped they should at least be subject to appropriate industrial planning policy.

Marres (2005) focused on how a new public can make local authorities address their issue effectively; how they can '*remake the state*' in Dewey's terms. This is a challenging task for a newly formed public who may not know each other well. She reflected that the agency of the new public may be distributed, but that the '*ungraspability*' may at times be an advantage. A collective but perhaps unpredictable and unknown new public may be able to apply pressure to effect change. It is not always those who on the surface appear to be more powerful who win the case. Several authors (Muller 2015; Van Assche *et al.* 2014) focus on this contingent nature of power within a planning context. There is potential for alternative orderings and therefore scope for political action. Asymmetrical power relations will often prevail but surprising outcomes are possible when dynamics and relations shift (Metzger *et al.* 2017). Several objectors have become more involved in local politics or NGOs and local people are increasingly calling government and agencies to better account.

Jones highlighted local resistance in his 2020 chapter advocating critical-creative ecological action and confrontation:

'To resist and reverse ecocide we need ecologies of local initiatives of eco-social resistance and creative flourishing. (...) The problem is, however, that the energy and power in the destructive systems still far

outweigh the energy and power in these alternatives.’ (Jones 2020:221).

He claimed that local action is a vital part of prompting action at a national or international level. Objectors often know their chances of success are low, but they feel they need to at least try, so they can be sure they did everything they could to stop the IPU. They may also manage to ensure better design and mitigation. Sometimes fighting hard against one case may give the next fight more chance of success. Potential applicants may decide not to go ahead with their applications. Jones quoted Solnit’s essay on resistance movements in which she encouraged campaigners saying that even if they failed at their specific objective:

‘You may change the story or the rules, give tools, templates or encouragement to future activists, and make it possible for those around you to persist in their efforts.’ (Solnit 2017:np).

For example, in 2020 it is noticeable that the Wye and Lugg Nutrient Management Board after several years of pressure and challenge from campaigning bodies is making better progress towards understanding and addressing the nutrient issues in the catchment.

Developing an IPU is about maximising profit from agricultural land. It may be dressed up as feeding the nation or sustaining family farms, but it is about large companies and landowners making money from intensively rearing chickens; one billion birds a year in the UK. Herefordshire and Shropshire have provided ideal settings, physically and culturally, for processor companies to recruit farmers and landowners, their land and capital, facilitated by generous energy subsidies. This is an example of some of Patel and Moore’s (2018) ‘cheaps’ working in practice: landscape and society have been harnessed to produce cheap chicken to provide cheap and fast food to feed the UK’s population¹⁸⁷. Natures have been put to work as cheaply as possible. It is a landscape making money for some at the expense of others.

The Herefordshire and Shropshire landscapes, including ecological and multisensory dimensions, could be said to be the outcome of the contestations which have been playing out. A changed landscape is emerging as a result of the power relations and the acts of dominance, suppression and resistance that have taken place in the battles over the planning applications. Mitchell (2003:244)

¹⁸⁷ In fact, one could say it is a landscape of chicken and chips, given the other main food crop is potatoes.

argued that '*Violence is a key to the landscape*'. His research found multiple forms of violence made Californian strawberries cheap. Herefordshire and Shropshire IPU's engender several types of violence, including slow violence¹⁸⁸, which makes the chicken cheap. IPU's are new permanences resulting from the processes taking place in the locality (Murdoch 2006). Which battles are won or lost has implications for the shape and quality of the locality into the foreseeable future.

A few communities have succeeded in resisting the hegemonic power relations that normally dominate. Sometimes the apparently weak can succeed. In a paper at the 2018 RGS¹⁸⁹ International Conference Mitchell referred to the army of 'old ladies' whose lobbying prevented detrimental developments in New York in the 1950s (Jacobs 1961). He argued that landscape takes the material form of justice, or injustice, and some landscapes can be destroyed by the power relations at play (Mitchell 2018). I can see analogies with the cohort of (mostly) older residents (many of them women) who have taken up arms to resist IPU developments, and sometimes won. The IPU landscape reflects how power has been used by wealthy landowners to produce cheap chicken and profits, regardless of the externalities generated and the forms of slow violence done to the environment and local communities. But the fact that the landscape has fewer IPU's than originally proposed, more mitigation measures for those built and the proliferation has been slowed, also reveals the resistance mobilised and the shifting power relations.

10.2 Rural transformations: ecocide, slow violence and exclusion

Reflecting on the situation as a whole, I feel the cumulative impacts of IPU's could be characterised as an example of 'ecocide' (Jones 2017; 2020). Returning to Guattari's conceptualisation (section 2.6) this would incorporate not just environmental ecologies but social and mental ecologies being impacted by IPU's and their pollution. Jones described ecocide as a 'slow violence'; gradual, attritional and often invisible damage that occurs over many years. Nixon (2011) surveyed a range of instances of slow violence, most impacting on marginalised and poor communities. He stressed the invisibility of many impacts from chemical plants, oil pipelines and the like. While he foregrounded the visual sense he also

¹⁸⁸ See next section

¹⁸⁹ Royal Geographical Society (and Institute of British Geographers)

recognised impacts on the other senses and how communities might become literally or cognitively displaced from their locality. Davies (2018) described the slow violence of toxic exposure to chemicals in 'Cancer Alley' Louisiana. Here locals have campaigned over many years against the impacts; they have witnessed declines in local vegetation and wildlife and the plants they can grow. Davies focused on the temporalities of the situation and the '*omnipresent actuality of everyday toxic exposure*' (2018:1543). While there have been some wins in the ongoing campaigns of resistance¹⁹⁰ he stressed these are infrequent.

Jackson (2011), in a study of air pollution and smell impacts from chemical plants in a First Nations reserve in Canada, found smell has embodied elements, as external substances are breathed into the body. When such air particles are known to be toxic they can generate considerable anxiety and fear. She described the reserve residents as feeling disoriented and alienated from their ancestral landscape. While few actually moved away, they experienced what Jackson termed '*dysplacement*' (c.f. Nixon's cognitive displacement). This she described as a deep alienation or dislocation from their homeland. The noxious smells of the dangerous toxins might lead in time to people being physically displaced; feeling the need to move away.

The gradual proliferation of IPUs across a rural area and the accompanying smell, air and water pollution has the characteristics of a slow violence. Each individual IPU development is a localised sudden trauma or rupture, but there is a process of slow despoilation or impoverishment across numerous sites. The gradual declines of bioindicators like lichen and pearl mussels are symptoms of the slow violence being done to the local environment (Gabrys 2018). The decline and absence of non-human actors demonstrates how nature is being displaced.

Cocker (2018:195) talked of people's emotional and visceral responses to their local environment being impacted by agricultural intensification and the persistent '*low-level heartache and melancholia*' which some experience from loss of biodiversity. Cocker described how a loss of biodiversity strips away the intricacy of the countryside and simplifies it. Individuals may experience this powerfully:

'For some people, agricultural intensification has triggered an emotionally charged, even visceral response, at the root of which is a

¹⁹⁰ Allen (1999).

baffling confrontation with local extinction and loss of meaning.'
(Cocker 2018:195).

This is similar to the '*dysplacement*' or alienation described by Jackson (2011). The impoverishment I found includes the loss of variety and richness in the environment and wildlife, impoverishment in quality of life and actual economic impoverishment that may ensue for tourism businesses or the value of someone's property. I have found evidence of actual displacement of residents, moving home, or planning to move, to escape the impacts of a particular IPU development. Those that choose not to move are more likely to experience '*dysplacement*' and some degree of alienation from the locality. Nixon discussed how slow violence is easy for authorities to ignore or defer. Short-term political cycles mean those who take decisions to allow the causes of environmental problems are rarely still around when long term impacts become more critical: '*in the domain of slow violence "yes, but not now, not yet" becomes the modus operandi.*' (Nixon 2011:9).

As a result, local authorities and agencies have deferred action on IPUs and allowed business to continue as usual for as long as possible. The contestation around water quality has illustrated this particularly well. The NFU sustains the argument that IPUs do not directly impact water quality. The technical planning assessments on IPU drainage, manure management, flood risk will all suggest that no additional nutrients can enter the river, and yet there is a general understanding that an IPU will increase the likelihood of river pollution. No agency has yet done the research to be able to prove this case. Local people know that attenuation ponds overflow or suspect that farmers release slurry in times of flood. They may notice farmers spreading poultry manure or digestate too often, or before wet weather or too close to rivers. But this information is never harnessed to counter the line that is sustained by the farming sector.

Exploring the role of non-humans and the relations in which they are involved has been helpful to better understand the situation. The disappearing pearl mussel is telling us the current planning and environmental protection systems are failing. Despite being relatively invisible below water, the mussels help illustrate the power relations in the situation. Objectors enrolled them in the objections as a way of highlighting river pollution and the ecological damage of the IPUs; raising the stakes using a critically endangered species. Lavau (2008) found that as life in the river she studied was threatened with extinction, it became more visible to local residents. Objectors in Hopton Heath could not believe something so rare in

their locality could be under such threat. But in the Clun catchment the loudest voices are the farming community (who have no love for the pearl mussel) and any alternative experience or knowledge is quickly closed down (Gramaglia and Mélard 2019). The extinction of the River Clun Fresh Water Pearl Mussel in a few years time will be evidence of the failings of environmental bodies to address the impasse and counter hegemonic arguments.

Farmers may see the pearl mussel as collateral damage. Some may even welcome its disappearance as it has been a nuisance in recent years. Rose (2011) described an attitude of dominance and violence sometimes displayed by agriculturalists over other species which intervene to the detriment of their livelihoods. She also described how some actors seek alibis; putting themselves somewhere else when animals are killed. There may be a similar self-deception amongst the public sector, environmental organisations and farmers over the loss of the pearl mussel when the time comes.

Wildlife actors that emerged in this research have been inconspicuous: lichens, mussels, plus an occasional hare, red kite or field of orchids. The chickens themselves remain invisible throughout almost the whole process, other than the occasional glimpse of an orange crate crammed with white feathers being loaded onto a lorry. These actors are forcibly enrolled by farmers but any attempt to enrol them in objections is ruled inadmissible by the planning process. Chickens are often an absence rather than a presence in the situation. Rose linked the disappearances and extinction of certain species with the production of other food species:

'The industrialized manufacture of corpses for food is sustained at the expense of hundreds of thousands of other lives. Species, ecosystems, habitats, relationships, and connections that sustain the web of life on Earth become "collateral casualties" in the rush for consumption. More often than not, monstrous cruelty and massive wastage are hidden within organized invisibility.' (Rose 2011:28).

The invisible chickens have been displaced from nature into an artificial environment where they have little capacity to act. Their labour is directed to staying alive to deliver the product which is their own bodies and their resistance is restricted to trying to evade capture on their final day in the chicken sheds (Wadiwel 2018). There are perhaps other ways that the collectives of chickens could act to affect the situation; principally by becoming ill. Requiring antibiotics and increasing the potential for AMR is one negative scenario the birds may act to

bring about. The other apocalyptic scenario would be a serious bird flu outbreak threatening human life (Davis 2005; Stuart and Gunderson 2018).

The alienation and ‘displacement’ people may feel from an IPU development may extend to a feeling of exclusion from a previously valued locality or walking route. People may feel intimidated or unsettled by the industrial premises, sinister atmosphere, biosecurity warnings and the surveillance of cameras. McKay complained about such surveillance being introduced into the countryside to protect industrial developments, talking of:

‘paranoid energy companies, turning land around power stations into Orwellian panopticons, viewed on CCTV from every conceivable angle. (...) walkers near power stations are presumed to be saboteurs and terrorists.’ (McKay 2012:282).

Once the farmer builds the IPU they may become ‘*paranoid*’ about people walking past and act to deter them or remind them they are being watched. This process could be characterised as a form of ‘territorialisation’ (Bear 2012 after Deleuze and Guattari). Space is being appropriated and people made to feel unwelcome. In time, certain rights of way may fall out of use. This is another way in which intensive agriculture may act to gradually exclude more people from the countryside (Harvey 1998). It is a reverse process to that Olwig (2008) described of people physically exercising their legal right to walk a footpath and thereby writing it in the community’s memory. Over time local people will forget the route through lack of use and it could effectively be ceded back to the landowner¹⁹¹. This begins to prove the relevance of Solnit’s discussion about walking maintaining the publicness and viability of public places and how when walking is threatened or diminished it is an indicator that something is wrong in the local environment and that certain freedoms are being endangered (Solnit 2001).

Taking this a step further, exclusion of people (and other wildlife actors) from rural localities where IPUs are developed could be seen as a form of ‘enclosure’. Watts (2004) used the concept of ‘enclosure’ to explore how, over time, nature has increasingly been enclosed by new science and technology in order to generate private profit. He linked the historical Enclosures of the British countryside to modern day poultry farming. Complex nature (and society) is simplified and regimented into a much narrower field of vision (Scott 1998) so it

¹⁹¹ I can imagine situations in future where a farmer requests the temporary or permanent closure of a footpath for bio-security reasons.

can be controlled and monitored. Watts termed the modern hybrid broiler chicken '*a cyborg: part nature, part machine*' (2004:58 after Haraway 1991). It has been genetically designed over decades to fit the needs of the poultry industry. Chicken has been commoditised into industrial agriculture and the marketplace and disembedded from nature. Watts compared the people resisting such technological scientific innovations, for example protesting against GM crops or intensive farming, to the commoners who protested against the Enclosures. He described how: '*New forms of confinement, dispossession, loss of right are already at work*' (Watts 2004:63) backed by the state.

This research can only suggest that exclusion and enclosure is emergent around IPUs; local people and visitors are being deterred from these localities. It would need research over a longer time-span to identify definite patterns and trends. However, identifying the ways in which intensive livestock agriculture acts to simplify nature, exclude humans and non-humans and trigger resistance points to possible longer-term trajectories.

The ongoing battles over many IPU planning applications could be conceptualised as clashes between different understandings of the countryside and how it is valued. Productivist, consumer, environmentalist and inhabitant (human and non-human) perspectives have competing rationalities. IPUs have provided increasing supplies of cheap chicken to supermarkets and chain restaurants generating profits, but have reduced people's enjoyment of the countryside and have led to further rural surveillance and enclosure, excluding local people, walkers and visitors who see the countryside as important to their physical and mental wellbeing. IPUs are also excluding nature and slowly harming the air, water and vital natural resources. This ecocide or slow killing of the countryside may be gradual and largely inconspicuous but is becoming increasingly difficult to deny.

10.3 Implications for rural governance

Conceptually, combining ANT and pragmatism and incorporating multisensory experiential perspectives builds on recent work by Jones (2020) and Wills and Lake: '*At present, we see only glimmers of what pragmatic social research might look like*' (Wills and Lake 2020:35). This study may be an additional glimmer; showing how pragmatism can combine powerfully to focus blended approaches on what action would best address the problematic situation. In such a spirit of pragmatism this section discusses potential responses and actions that could

improve the situation in Herefordshire and Shropshire or other areas addressing similar contestations, in the hope that it can be useful to policy makers, planners, environmental agencies and other bodies or individuals.

The planning system struggles to handle IPU planning applications and contestations effectively. As a network of knowledge it selectively draws in certain knowledge and actors, whilst failing to handle the heterogeneous natural and social entities and relations (Murdoch 2006). The results of new technologies, introduced by the private sector, evade effective regulation and local communities may increasingly feel the need to step in to tackle looming threats. If the role of the state continues to weaken, this form of citizen involvement and challenge may become increasingly important (Hajer 2003). Hajer recommended organisations and actors should find ways to work together interactively, based on mutual trust to improve our collective quality of life. Rather than trying to identify precise truths and certainty, the focus should be on clarifying the problems, monitoring progress and adjusting policies. Local people should be involved in negotiating the best way forward. This '*deliberative policy analysis*' takes a similar approach to Callon's dialogic democracy where the more actors venture into dialogic space: '*the more they can cope with deep and productive uncertainties.*' (Callon et al. 2001:135).

Murdoch (2006) argued the planning system must engage with uncertainty and also include more non-human voices and perspectives. Planning decisions are only legitimate if all the entities affected by interventions are included in the processes. The knowledge and science which is used in planning processes needs to adapt to allow for this plurality of perspectives and for uncertainty. Likewise, Wills and Lake (2020) said society and government suffers from what Dewey called the '*quest for certainty*'. They described how people facing crises and unpredictable challenges desire certainty about a situation, however complicated and unprecedented it may be. Nevertheless, it may be that existing ideas and processes are no longer adequate for a particular task and new ideas and approaches are needed. A pragmatic approach would involve the people who are affected in defining and clarifying the problems, risks and possibilities and contributing to social and political solutions. Wills and Lake suggested people should '*embrace uncertainty in the production of knowledge*' (p5) and incorporate public scrutiny in deciding what is the right thing to do. A pragmatic approach to IPU proliferation would thus connect research to community, remain alert to the diversity of opinion and the beliefs behind these and sustain an ongoing debate

about responses. It would be a collective approach, incorporating cumulative impacts and interconnected concerns (Ghosh 2016).

Objectors should be encouraged by pragmatism's focus on action and the 'power to' make a difference (Allen 2008). Jones (2020) advocated a form of 'radical incrementalism' using local, ecological and creative methods. This chimes with Alaimo's (2016) belief that 'modest protests' are one of the few ways forward and Emel's (1991) plea for researchers to 'stay in the game' and shift the focus to action. IPU objectors have embodied this type of protest and incremental challenge to the system and have made progress.

I hope this research which has drawn on pragmatism and ANT has demonstrated how useful this blended approach is and how it brings focus onto what collective action is required to address the situation, although it requires commitment from public agencies which has been largely absent to date. Jones called for '*ecologies of local initiatives of eco-social resistance and creative flourishing*' (p220) which might begin to influence larger scale change to tackle ecocide. Pragmatism holds hope that a situation can be tackled and improved. Options for action are listed in Appendix 5 and section 11.3 discusses potential governance responses.

In terms of what is likely to happen over the next few years there are multiple influences at play. In Herefordshire Cargill/Avara has succeeded in sourcing most of the supply it required and the number of applications has fallen. In Shropshire and surrounding counties there is new demand from the expanding Maelor processing plant in Wrexham and possibly other plants¹⁹². Farmers and landowners may be deterred by the increasing challenges and costs involved in submitting applications. The belated recognition of ammonia issues may require expensive ammonia scrubbers and mitigation as standard from now on. Several large applications remain stalled in the planning system in both counties. Those in north Herefordshire may not be resolved until the planning moratorium is lifted.

Marsden (2017) called for refreshed rural governance frameworks with a stronger role for the state to address ecological damage and human vulnerabilities that neo-productivist agriculture creates. He saw potential in '*unhollowing*' the state, building resilience and supporting small farms. However, as evidenced by this research local authorities and public sector bodies do not have capacity to tackle

¹⁹² In 2019 there were four applications in Herefordshire and five in Shropshire. In 2020 there were two applications in Shropshire and three in Herefordshire by September.

the multiple interlinked ecological, economic, health and climate change crises at a local level and leadership on these issues at a national level is lacking. The poultry industry is better organised; Avara has shifted the recruitment of new farmers and landowners to the area within reach of its processing factory in Brackley, Northamptonshire. Planning applications continue in this new territory¹⁹³. Such displacement tactics are not uncommon with ILUs elsewhere (Williams 2006; Juska 2010).

Patel and Moore (2018) predicted the modern food system, designed to produce cheap food at high profit, will break in the coming decades. As I write in 2020 during the Covid-19 pandemic, I have read numerous reports and media articles raising questions about the risks of intensive livestock farming (Baur 2020; CIWF 2020; Goodall 2020). There is speculation that individuals could turn away from intensively reared meat and perhaps governments will be increasingly concerned about the proliferation, risks and externalities. But proposed weakening of UK environmental and planning regulations suggest this is still some way off (e.g. Laville 2020).

Key influences which may boost or restrict further poultry developments and affect further contestation are set out in Appendix 7. They range from industry technological developments and regulations through trade agreements, policy and subsidy regimes to shifts in consumer demand or the impacts of disruptive events such as disease outbreaks. The situation over the next few years is likely to remain dynamic and uncertain.

The resistance which has mobilised in recent years against individual applications has had impact. Objectors have won certain cases and have collectively over time influenced improvements in the quality of evidence and scrutiny in the planning process. There are signs of a broader impact, particularly as campaigners have focused on cumulative impacts and the gradual processes of ecocide across the area. Agencies are at times making decisions unpopular with the agricultural sector and re-examining uncertainties. Some degree of 'remaking the state' may be in progress; as time has gone on I have observed less passive acceptance of the hegemonic narratives, more pointed questions and talk of regulatory options. Alternative ways of doing things are being considered.

¹⁹³ One high-profile campaign is against site at Rushden Northamptonshire. The original application for 10 sheds in 2017 was been replaced by one with six sheds in 2018 and is still undecided <https://www.facebook.com/CluckOffandStoptherot/>

Chapter 11 Conclusions

'Stand up against the stink of chicken sheds'

(Letter to Hereford Times 17.10.14)

This final chapter gives an overview of the research, demonstrating how each research question has been addressed. It focuses on the contributions that the research makes in documenting an untold story using a relatively novel hybrid approach. It concludes by considering the further questions opened up, potential future research agendas and governance responses.

11.1 Research overview

UK social science literature on intensive livestock farming and poultry production in particular is sparse and this research has made a significant empirical contribution to filling this gap. The research questions have been addressed progressively in the five empirical chapters. Chapter 5 revealed how the controversy emerged and the farming actors' perspectives (questions 1.1 and 1.2). It presented the previously untold story of how over a relatively short period the UK poultry industry expanded and further industrialised the domestic supply of chicken and eggs in a spatially concentrated fashion. The findings complement journalistic accounts (e.g. Lawrence 2013; Lymbery 2017) and provide an academic analysis to underpin recent campaigning journalism (e.g. Wasley *et al.* 2017; Wasley 2018).

Chapter 5 also identified why so many farmers and landowners made the decision to invest in poultry ventures. One tangential contribution of this research has been identifying that UK poultry farming does not follow the North American pattern of farmers caught in exploitative and punitive contracts, struggling to make a living (PEW 2013; Emel and Neo 2015). In the UK poultry has been a profitable form of farm diversification, consistently generating better profits than most other crops, alongside the subsidised investments in renewable energy. No interviewees questioned that it was a good, if expensive, investment. I can only speculate as to why there is a difference, but in the UK poultry is often an additional venture, established to boost the overall income of a larger farm holding. It may also be related to power relations and the historically strong

lobbying power of farming bodies in the UK. A comparative study would perhaps resolve this question.

Chapter 6 gave the perspective of the objectors, their multiple concerns about IPUs and why they have been drawn into contestations (question 1.2). I explored how they mobilised against planning applications and mounted considerable resistance. The mobilisation has taken place in different ways in different places but IPU opponents are concerned about exposure to multiple impacts and the lack of scrutiny of planning processes. They have mobilised as an outraged new public and this has opened up the process, previously controlled by the agricultural hegemony, to challenge. Chapter 6 also explored how objectors enrolled further actors to support objections and silent actors who resisted becoming drawn in. There are many similarities with opposition to other types of development such as energy installations, but this research identified attributes of the contestations which are particular to the under-researched intensive livestock sector. The actors' polarised values and concerns (question 2.1) have been revealed in these first two empirical chapters, plus the contested framings and hegemonic narratives that are deployed by each side. Later, chapter 8 added in the supposedly neutral actors within the planning process and demonstrated how planning officers and politicians influence decision-making and add to the contestation. These findings advance knowledge in the limited planning literature on contemporary rural contestations (Scott *et al.* 2019) and the dynamics of objector resistance and suppression.

The situation demonstrates many aspects of controversy discussed in the literature, opening up a complex issue, exposing different dimensions to new scrutiny (Callon *et al.* 2001). One of the main contributions has been the exploration of these zones of ignorance and uncertainty and the relations around them. Local communities became aware that not only were there the obvious impacts of additional traffic, visual impacts and smell, but that the IPUs give off ammonia, have the potential to pollute watercourses and there are unquantified risks relating to AMR, bird flu and other diseases (Steinfeld *et al.* 2006; Blay-Palmer 2008; Gunderson 2015). The areas of uncertainty grew as groups of objectors researched further. The 'inventory' of what is at stake with an IPU development became longer and longer as more potential overflows and externalities were identified. Local people began to view the apparently unfettered proliferation of IPUs locally as a 'monstrous phenomenon' and more

people began to agitate to have the issue taken seriously (Callon *et al.* 2001). As Patel and Moore (2018:21) put it; the '*externalities struck back*'.

Knowledge (and ignorance) has been weaponised in a form of arms race. Chapters 7 and 8 demonstrated how applicants' scientised evidence has been increasingly challenged (question 2.2). Marsden (2017:xiv) characterised the contested sustainabilities as a generational '*battlefield of knowledge*'. At times the new publics of objectors have won certain battles as they expose the failings of planning processes and the multiple uncertainties in planning evidence. Objectors have begun to create situated knowledge to more successfully fight in the planning arena. The information which hasn't been deployed has also been explored; revealing particular uncertainties about cumulative impacts and risk factors around the effects of IPUs on people's health. Chapter 7 suggested there had been a degree of deliberate ignorance or agnotology which facilitated the passage of planning applications through the system, supported by hegemonic agricultural narratives. The enrolment of additional actors with new knowledge and experience tends to complicate and slow the planning process. The farming sector would prefer to keep the controversy subdued and the planning process confined to fewer actors and arguments. The more contestation there is, the more light is shone on what is at stake.

Chapter 8 focused on the planning processes and decision-making which had allowed the situation to develop and persist as policy and institutional voids enabled other actors to control much of the process and narrative, displacing and avoiding key issues which had arisen about IPU proliferation. Planning authorities have struggled to handle uncertain evidence and lost the trust of many concerned local people. The findings help fill a gap in the planning literature which rarely examines agricultural developments and how the farming sector is addressed through the planning system. Public sector bodies have failed to handle the evolving contestations or recognise and address the accumulating impacts. Their strategy of 'managing the outrage', mitigating impacts and displacing any real action has now backfired leaving the local authorities with large legal and environmental bills. The poultry industry meanwhile achieved its objective of expansion locally and has relocated its future expansion aspirations elsewhere.

How people experience IPUs in the landscape (question 2.3) was addressed in chapter 9, which explored embodied responses and the intertwined multisensory nature of the experiences. This perspective is probably the most innovative aspect

of the study. Experiences vary substantially between people, places and conditions and are thus open to being contested and denied. I explored how IPU smell pollution is one of the most powerful and yet elusive impacts, an issue not previously studied outside North America. The use of mobile methods and a focus on multisensory, embodied experiences has produced new knowledge and holds considerable potential for further development.

The tourism perspective helped identify the multi-sensory dissonance many people experience and how IPUs have potential to impact the visitor economy. Space did not allow for extensive exploration of tourism perspectives, but I have demonstrated how looking through a tourism lens not only brings economic arguments to the fore, meeting the neoliberal profit arguments head on, but also foregrounds experiential perspectives and alternative forms of knowledge. Identifying how IPUs impact on nature and how people enjoy the countryside, throws up implications for the tourism sector which had previously largely been overlooked or dismissed. Despite multiple studies of the FMD outbreak in 2001 discussing how tourism had been overlooked as government prioritised the needs of agriculture (Donaldson *et al.* 2002; Sharpley 2003; Irvine and Anderson 2004), there has been little recent UK research into the contestation between these two key rural economic sectors agriculture and tourism/leisure; the production and consumption countryside.

The arguments around impacts on tourism described in chapter 7 and 9 are multifaceted and difficult to substantiate without further research but over time, fewer visitors returning will affect the tourism sector. This research has broken new ground and found evidence that this is beginning to happen. However, the most prominent tourism voices in the area are enmeshed in the agricultural hegemony and seek to downplay any harmful impacts. The sector has been partially colonised, concerns muted, and other tourism actors are reluctant to speak out for fear of damaging their own business.

Chapter 9's exploration of experiential responses revealed how the IPUs act to impoverish the locality, its environment and people's quality of life. They act as a form of exclusion from the countryside (Murdoch 2006). Focusing on pollution overflows from the IPUs such as smell, has demonstrated that far from the simple scientised knowledge in odour reports, smell impacts are multiple and intertwined with other dimensions. The experiential perspective has also begun to reveal the range of alternative types of knowledge that could be usefully drawn into the

planning process and how that could help rebalance power relations; a relatively novel approach in the planning literature. Bringing in the experiential may add to the complexity and uncertainty, but gives a more holistic and democratic understanding of the impacts. It should enable new and better forms of ethics and politics to be implemented in decision-making (Jones 2020).

The discussion in chapter 10 brought the findings together into three main areas: how power relations have been enacted and begun to shift (research question 3); the gradual ecocide impacting multiple rural localities; and finally how governance structures could respond more effectively. The disruption of IPU in a rural landscape can be better understood by incorporating more perspectives and embodied experiences: those of a wider range of local people with their concerns and lay knowledges; those of visitors; and those of non-humans, all impacted in different ways.

This research has followed multiple scent trails. I have sniffed out how IPU have impacted on actors and their localities. I experienced the materiality of powerful stench, choking emissions and pungent, oozing manure heaps. I have also caught whiffs of suspicious decisions, undue influence and the reek of money. Objectors have been successfully creating a stink to open up the situation to more scrutiny, exposing the power relations at play and ineffective governance. The increasingly frequent reek of ammonia wafting across Herefordshire and Shropshire is redolent of the multiple forms of slow violence meted out by the poultry industry.

11.2 Future research agendas

The research has contributed towards filling substantial gaps in the literature, but it has also opened up numerous further research questions. Some of these emerge from the research's limitations such as geographical focus. I have only researched the situation in two English counties, with the occasional glance across the border into Powys. An obvious direction for future research is to undertake comparative work in other parts of the UK such as Powys, East Anglia, Northern Ireland and Yorkshire. Have IPU proliferated in the same ways and how has controversy manifested itself in different localities and situations? There is scope for comparative work with other European countries, North America and elsewhere; for example IPU are also spreading fast in many less developed countries. In particular, incorporating an experiential perspective in comparative research has considerable potential as few previous studies have used embodied and sensory

methods. Compiling more data on farm size, ownership and activities would facilitate a more definite typology and geographical comparisons.

Further research would also enable more voices to be heard. I was not able to speak to everyone I would have liked. One or two people avoided me and I had to stop interviewing before exhausting many leads, as the scale of the data grew too large. New actors emerged as time moved on and further connections, relations and power flows could be revealed by longer-term research. The dynamism of the situation was one of the main challenges. New guidance was published, one processor company merged with another, there were disputed planning decisions, court cases and a planning moratorium imposed all during the research period. Most challenging of all was the nature of the topic and how multifaceted and complex it is. The research became unwieldy at times and it was challenging harnessing multiple issues and perspectives into a single account. I am writing a series of journal articles on more specific aspects of the research and there are still multiple threads I hope to follow up with future research.

Identifying hegemonic narratives and how few farmers challenge these raises questions around farmer perceptions. Why do so few farmers question the agri-industrial model, what are the barriers to less intensive production systems and might farming lobby groups broaden their concerns and lines of argument? There may be scope to engage more people (objectors, residents and farmers) in future research such as monitoring nutrient levels in rivers and streams¹⁹⁴, sampling air quality, monitoring smell, or surveying sensitive plants such as lichen over time (Gabrys 2017). This might open up opportunities to research both experiential and scientific data in tandem. How do people's cares and concerns motivate them to learn about the science involved and mobilise them to take part in citizen science and with what results?

This research has only scratched the surface of tourism related aspects of the situation. It has provided initial evidence that tourism is beginning to be harmed by the proliferation of IPUs but there is scope for more detailed research into visitor perceptions, experiences and behaviours. It may also be possible to work with tourism businesses located close to IPUs to trace impacts on their business

¹⁹⁴ In September 2020 a citizen group in the Upper Wye was lobbying for funds to launch a river water monitoring project to help tackle nutrient pollution.

after the IPU was built. These are challenging areas to research and would require significant time, resource and ingenuity.

The health impacts of IPU developments emerged as an area of particular concern and uncertainty and warrant further research from scientific and health experts. This research would suggest that such work incorporate the experience of those living close to IPU's and quality of life and mental health factors. It would also be useful to further research issues around manure related impacts, manure management and how bodies such as Nutrient Management Boards address environmental pollution and biodiversity loss. It is not a popular subject but intensive livestock farming should not hide from the materiality of animal outputs. Many of these avenues for research would be best addressed by interdisciplinary research teams, involving scientists working alongside social scientists and potentially lay people.

11.3 Potential governance responses

IPU impacts and uncertainty need to be acknowledged and made more visible (Kelly-Reif and Wing 2016). Throughout this research many opportunities to improve policy, processes and communication have become apparent. Potential responses that local authorities, public bodies and other organisations could pursue are compiled in Appendix 5 as a pragmatic gesture. The objective is to make processes more transparent, accountable and democratic for all parties, reducing areas of missing knowledge and uncertainty, and improving consistency in decision-making. Some of the more significant proposals include:

1. **ILU Forum(s)** -The development planning process is not amenable to dialogic forms of democracy such as the hybrid forums proposed by Callon *et al.* (2001) or some type of citizen assembly. This suggested mechanism would involve lifting issues out of the planning system and exploring them in more detail away from particular applications. This could be at a county level, perhaps with a view to developing SPG (see point 3), or at a sub-regional, catchment or even national level, perhaps with potential to amend national planning guidance or establishing national research and monitoring programmes. Any forum should include representatives from the poultry industry, planning and environmental agencies and expert advisors but importantly should include concerned lay publics who can bring their own concerns and knowledge into

the process on an equal level in a dynamic collaboration (Whatmore and Landström 2011; Huang and London 2016).

2. **Improved monitoring** - Local authorities and environmental organisations could require additional monitoring as a condition of planning and could develop a research programme to assess the models currently relied upon in the planning process. Improved research and monitoring of cumulative impacts, particularly air and water pollution, are long overdue, alongside assessments of technological fixes which may reduce pollution.
3. **Supplementary Planning Guidance** - Local authorities have said there is little point drawing up SPG now when much of the surge of planning applications has been decided. It could be a lengthy and acrimonious process. However, all parties acknowledged having SPG for intensive livestock units would simplify the process considerably and enable decision-making to focus on the most salient issues. SPG could include advice on mitigation technology, standard requirements for information, formats and planning conditions. There are continuing applications and may be future surges in demand for ILU development. Investing in developing SPG would give clearer guidance to farmers considering their options and save all actors time and resources longer term.
4. **Evaluation tool or framework** - One of the most challenging aspects of this situation is the breadth of issues that are encompassed in IPU contestations. This presents particular difficulties for planners and decision makers. The current silo-like tick boxes are less than satisfactory and miss many aspects. I believe it may be possible to develop a tool or framework, to help capture the complexity in a simplified format and highlight the most crucial issues for each case. Some mechanism for considering in-combination and cumulative impacts would be required plus incorporating some of the missing evidence this research has identified.

Using a novel three-fold theoretical approach and mixed methods has revealed the multidimensionality of the situation and the relations entangled within. It has identified multiple actors and captured their concerns, cares and experiences whilst also keeping an eye to what can be done to address the issues. The approach holds considerable potential for future research on this and other rural

contestations. Even within the current weakened UK public sector context, there is much that could be done to tackle the problematic situations explored, to reduce contestation and to help actors in this increasingly uncertain world.

Appendix 1 UK poultry industry background

The UK's chicken consumption continues to grow in comparison to other meats (Figure A1.1).

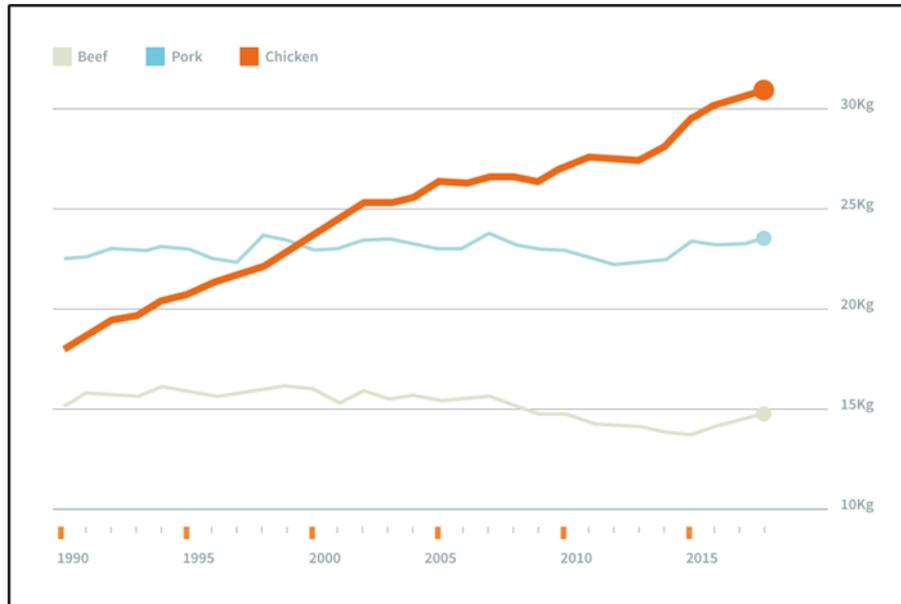


Figure A1.1 Meat consumption in OECD countries, kg/head/year (Eating Better 2020)

UK broiler production

Conventional broiler shed production systems produce about 96% of UK chicken. A small proportion of these are raised as 'slow grow' birds, in slightly higher welfare conditions and slaughtered at 50-60 days. Only 1% of UK chickens are raised organically in smaller volumes, lower densities and slaughtered at 80 days. Table A1.1 presents key information about each production system, assembled from a range of sources including Government, NFU, CIWF, RSPCA and Soil Association data to give an overview of the different systems.

Table A1.1 UK broiler production systems

Broiler production system	Stocking density ¹⁹⁵	Age at slaughter	% of market
Conventional standard (Red Tractor)	38kg/m ²	35-45 days	85%
Conventional slow grow/higher welfare (Freedom Food/RSPCA)	30kg/m ²	56 days	11% ¹⁹⁶
Free-range	27.5kg/m ²	56 days	3%
Organic (max 1000/flock)	varies	80 days	1%

Most IPUs have a ‘production cycle’ of 40-50 days. Many flocks are thinned by up to 30% a week or so before this. The larger birds are extracted which allows the rest to grow bigger although the stress of the thinning may lead to higher disease levels (Ellis 2008; DEFRA 2018). Normal mortality rates are 5%, meaning 50m birds die each year before reaching market weight.

The feed produced for the IPUs is part grown in the UK and part imported. Chicken feed varies in its composition depending on where in the world the units are located. In the UK the feed is normally 60% wheat and barley with around 20% soya and small quantities of fishmeal and other ingredients (Steinfeld *et al.* 2006). The soya is largely sourced in South America. Although soya for human consumption in Europe must not be from genetically modified seed, that for chicken feed can be GM¹⁹⁷. Some farmers supply a small proportion of the feed from their own arable crops, but this appears to be relatively limited.

Chicken has transformed from being an occasional special family meal to being ubiquitous in the form of fast food, ready meals and most types of convenience food (Figure A1.2).

¹⁹⁵ Birds grow to 2.2kg before slaughter.

¹⁹⁶ Compared to 40% slow grow in the Netherlands and 24% in France (Compassion in World Farming 2019)

¹⁹⁷ 97% of soymeal grown globally goes into feed for livestock (Steinfeld *et al.* 2006)

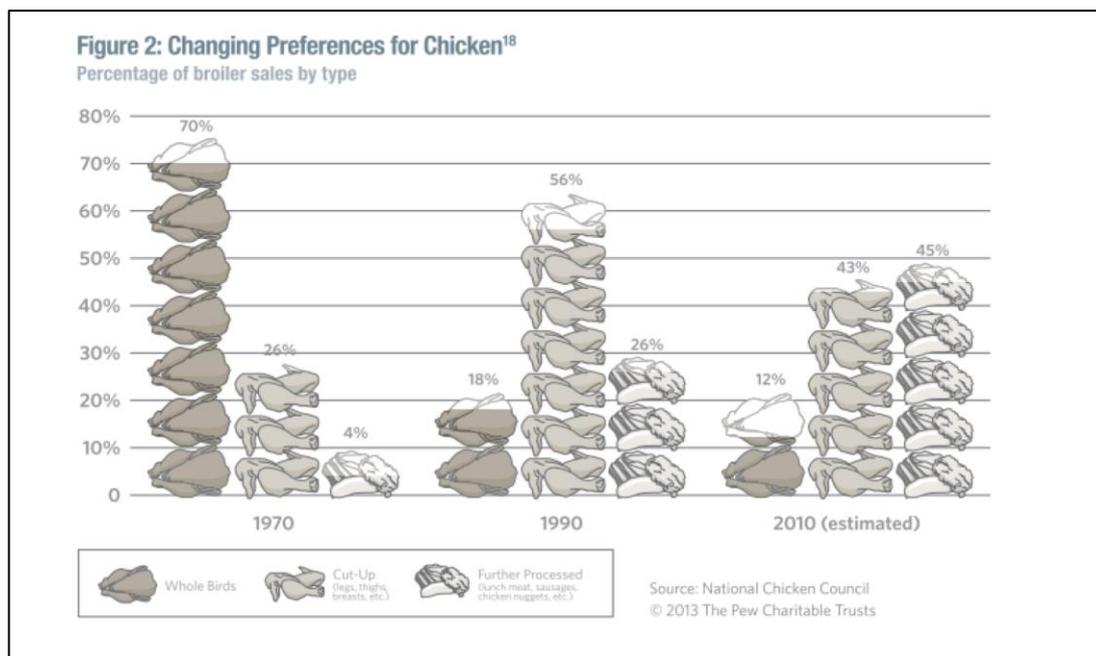


Figure A1.2 Changing preferences for type of chicken over time (PEW 2013:5)

There are now three main poultry processing companies in the UK; 2Sisters, Moy Park and Avara (formed from the merger of Faccenda and Cargill in 2018). Several newer companies have been expanding in the last few years such as Gafoor in Preston and Maelor in Wrexham (Table A1.2). The larger companies have multiple processing plants; for example some farmers in Herefordshire and Shropshire supply Moy Park which has plants in Lincolnshire and Derbyshire as well as Northern Ireland. There are also broiler breeder companies such as Hook 2Sisters, Cobb Europe, Aviagen, plus many specialist turkey, geese and duck growers. Some companies specialise in halal chicken. Many of these companies are part of multinational agribusiness companies with multiple arms; what Hendrickson *et al.* (2017) call ‘global behemoths’, which now dominate markets for seeds, feedcrops, pesticides, fertilisers, genetics, livestock, processing and manufacturing.

Table A1.2 UK poultry production companies

Company	HQ location	Birds per week (2014) ¹⁹⁸	Birds per week 2019 estimates
2 Sisters Food Group	West Midlands	6.1 million	9 million in EU/UK ¹⁹⁹ 2020
Moy Park	Northern Ireland	4.5 million	5.3 million ²⁰⁰ EU
Faccenda	Brackley, Northants	1.9 million	Avara 4.5 million ²⁰¹
Cargill (ex Sun Valley)	Hereford	1.7 million	
Banham Poultry ²⁰²	Norfolk	600,000	650,000 ²⁰³
Frank Bird Ltd	Cumbria	500,000	Not available
Highbury	Shropshire	400,000	375,000 ²⁰⁴
IHP (now Iqbal/Chesterfield)	Doncaster	400,000	300,000
Crown Poultry (now Cranswick)	Norfolk	300,000	450,000 ²⁰⁵
Gafoor Poultry	Preston Lancs	200,000	1 million ²⁰⁶
Traditional Norfolk Poultry (Free-range)	Norfolk	60,000	85,000 ²⁰⁷
Maelor Foods	Wrexham	0	1 million ²⁰⁸
Total		16.6 million	Approx. 20 million (UK)

¹⁹⁸ Figures in this column from NFU presentation slides Chris Dickenson 'State of the Poultry Industry' AHDB Outlook conference 2014

¹⁹⁹ <https://www.2sfg.com/about-us/fast-facts/>

²⁰⁰ <https://www.moypark.com/en/about>

²⁰¹ <https://www.avarafoods.co.uk/>

²⁰² Possibly now owned by Chesterfield Poultry

²⁰³ https://banhampoultryuk.com/about_us.php

²⁰⁴ <https://www.highbury-poultry.com/pdfs/highbury-brochure-web.compressed.pdf>

²⁰⁵ https://www.farminguk.com/agricultural-directory/crown-chicken_56289.html

²⁰⁶ <https://www.gafoor.co.uk/>

²⁰⁷ <http://www.poultrynews.co.uk/production/turkeys/interview-traditional-norfolk-poultres-mark-gorton-talks-turkey.html>

²⁰⁸ <https://thepoultresite.com/news/2019/05/planning-inspector-backs-maelor-foods-expansion>

UK egg production

UK egg production also continues to grow, reaching over 10 billion eggs a year in 2017, making the country 85% self-sufficient (AHDB 2018). Hens now normally lay one egg a day compared with 30-100 eggs a year in traditional farms and the 30 a year wild jungle fowl would have laid (Weis 2013:100). They are culled after a year of egg production as their laying rates tend to fall after that time²⁰⁹.

Over 50% of UK eggs are now free-range following consumer concern about the welfare of battery caged hens (Figure A1.3). Conventional egg production is no longer in battery cages but ‘enriched’ cages or ‘colony’ systems whereby 80 chickens are kept in one ‘cage’ with a slightly larger space per bird than was provided in the old battery cages. Barn eggs are produced in systems of up to 32,000 birds in a barn with no access to the outdoors. Free-range egg layers are often housed in flocks of 16,000 and recently multi-tier systems have been introduced housing 32,000 birds.

Table 3.3 UK egg packing station throughput

'000 cases	Total	Enriched cage	Barn	Free range	Organic
2000	22,460	16,187	1,675	4,598	n/a
2005	24,584	15,558	1,564	7,462	n/a
2010	27,067	13,522	1,334	11,283	928
2015	27,834	14,213	661	12,301	658
2016	28,812	14,353	621	13,144	695
2017	29,951	14,368	383	14,491	709

1 case = 360 eggs
n/a = not available
Source: Defra

Figure A1.3 UK egg production by system type (AHDB 2018)

²⁰⁹ Male chicks in the egg industry are culled immediately after hatching as a waste product.

Free-range hens must have access to the outdoors (although how many of them use the pop holes provided will vary from farm to farm). Organic hens are in flocks of up to 3,000 birds and must also be free-range.

The egg industry is also vertically integrated and said to be even more concentrated. Ellis (2008) quoted that the merger of Deans Food and Stonegate in 2006 to form Noble Foods gave the one company a 46% share of the UK egg market. Griffiths in north Shropshire has two million hens in colony systems, packs over a billion eggs a year and generates a turnover of £75m²¹⁰ (see Figure 5.9). Even the spin-off business of production of pet food is very concentrated; Ellis also quoted that 70% of dog and cat food worldwide is in the hands of two companies.

UK processor-supermarket relations

While it appears that these large processing companies dominate the system in fact many commentators say that it is the retailers (supermarkets and fast food chains) who hold most of the power in the supply chain. Dixon (2002) pointed out that chicken is an unbranded product so retailers and food outlets can brand it as they like. She felt that tipped the balance of power away from producers and towards the retailers. She also identified that, even nearly 20 years ago, the market based players were beginning to take on regulatory roles (such as welfare inspections) from government bodies (see also Flynn *et al.* 2003). She disputed that consumers have much influence despite retailers often alluding to consumer demand driving shifts in production. Figure A1.4 gives a snapshot of UK processor-supermarket relations in 2014.

²¹⁰ <https://www.griffithsfarms.co.uk/>

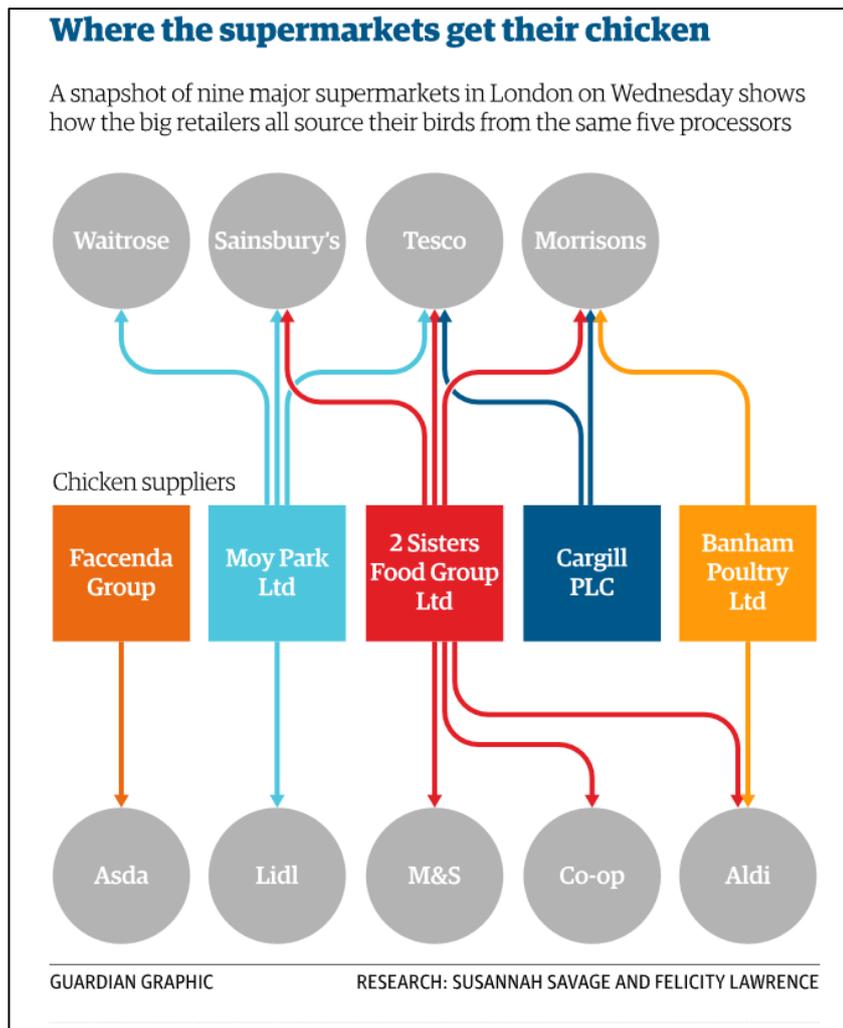


Figure A1.4 UK supermarket - processor relations 2014 (Lawrence 2014)

Supermarkets contract farmers via the processing companies for their birds. It is not uncommon to find an IPU with one shed supplying say Sainsbury's and another shed growing birds for McDonalds. Retailer specifications can vary substantially. For example, Ellis (2008) quoted CIWF figures for the proportion of each supermarket's chicken which were at that time 'slow grown' birds: M&S 100%, Sainsbury's 80%, Co-op and Waitrose 30% Tesco 8%, Asda 3%, Somerfield 1.5%.

Appendix 2 Summary of key cases

This Appendix presents a list of the planning application cases in both Herefordshire and Shropshire which attracted significant numbers of objections (in most cases over 30 objections). They are listed in date order from oldest to newest and use the location name I use in the thesis text for ease of reference. The list is accurate as of 15 September 2020.

Note the list does not include all the farms owned by farmers I interviewed (as not all were controversial), nor all the farms featured in the walking interviews as some were older or uncontroversial when built.

Table A2.1 Key IPU planning application cases

Case	Year	Total sheds	Objections	Built	Brief details
NYD = not yet determined, FR = free-range					
Great Ness, North Shropshire	2009/10 /13	7	59/30/13	2011	4 sheds refused, then approved 2010 and 3 more approved 2013.
Little Ness, North Shropshire	2009/12 /14/16	8	63/49/6/5	2013	5 sheds refused, then 3 approved, another 3 and finally 2 more plus an AD unit. Close to Great Ness above.
Acton Pigot, South Shropshire	2011		148	X	Refused and went to appeal and inquiry where it was refused, mainly on traffic grounds in a sensitive remote location
Bletchley, North Shropshire	2012	6	206	2014	Refused and went to appeal and inquiry where the application was approved.
Kingsland, Herefordshire	2013	5	13	2014	Approved by officers under delegated powers.
Penrhos, Kington, Herefordshire	2013	4	85	2015	My starter case. 4 sheds approved, after JR and application resubmitted. Another 7 sheds within 1km on same farm. Poultry manager's house later approved.
Knapton Green, Herefordshire	2013/15	4	50	(2015)	Permission for 6 broiler sheds approved but resubmitted plans for 4 barn egg sheds and few

Case	Year	Total sheds	Objections	Built	Brief details
					objections. This was built in 2015.
Bage, Golden Valley, Herefordshire	2014/16 /17		290	X	Three applications for broilers and then free-range eggs. Refused on landscape grounds at appeals. Gained national media attention.
Chance's Pitch, Malvern, Herefordshire	2014		600	X	Two applications close to Malvern Hills AONB with major negative publicity - withdrawn
Mansell Lacy, Herefordshire	2014	4	47	2017	4 sheds approved on large estate, close to tourism business.
Moreton on Lugg, Herefordshire	2014	12	37	2017	Application for 6 additional sheds, refused by Council but won on appeal with costs. Odour modelling was significant issue.
Hopton Heath, South Shropshire	2014/16 /17	(8)	64/94	X	Three applications for 4 sheds (in addition to existing 8 on same farm nearby). Approved at committee twice but objectors won JR and in most recent case Council ceded before the JR. Fresh water pearl mussel and SAC within a mile.
Bush Bank, Herefordshire	2015	2	40	2020	Application for 2 sheds, very close to residents including some with health problems. Council refused permission but won on appeal. Objectors' JR fails.
Neenton, South Shropshire	2015	4	100	2018	4 sheds approved by committee. My timeline walk case.
Clehonger, Herefordshire	2015/16	4	133	2018	Poor quality first application was replaced with more detailed version and approved for 4 sheds. Poultry managers house now also approved.
Madley, Herefordshire	2016	6	35	X	8 new sheds proposed to replace 4 of the existing 6. Application refused 2017

Case	Year	Total sheds	Objections	Built	Brief details
Dormington, Herefordshire	2016	4	32	2017	2 sheds approved in 2017 to add to existing 2 making 220,000 birds total.
Eaton Hill, Leominster, Herefordshire	2016	2	33	Under construction	Application for 2 egg pullet sheds close to Leominster and river Lugg. Approved and ground works started.
Longden, South Shropshire	2016	2	32	NYD	Further application for 2 more 2018 still undetermined. Would take no. of birds to 220,000.
Clun, South Shropshire	2016		32		2 sheds proposed in AONB, on River Clun SAC and close to literary retreat. Approved but final permission not yet issued, legal hold-ups?
Upton Magna, Shrewsbury, Shropshire	2016		86	NYD	Live case: 2 sheds, held up by complicated situation over canal and other background studies.
Tasley, Bridgnorth, South Shropshire	2017/19		516	NYD	Live case: 4 sheds approved by committee but objectors took to JR and, on losing that, to Royal Courts of Justice where they won when disconnect between planning and permitting identified. Resubmitted
Archenfield, Golden Valley, Herefordshire	2017	1	30	2019	IPU for vaccines. Recommended for refusal by Council on landscape grounds but committee approved. JR failed.
Felton Butler, North Shropshire	2017		27	NYD	Live case: 4 sheds proposed close to many other units. Cumulative impacts are significant issue.
Stagbatch, Leominster, Herefordshire	2017		60	NYD	Live case: Application for 2 sheds. 131 letters of support
Willey, Herefordshire	2017	1 FR	33	2019	Remote upland location for one free-range shed. Approved. Application for second shed submitted 2020.
Aston Munslow, South Shropshire	2017		61		My campaigner case. 2 sheds for egg pullets approved at committee. Objectors launch JR

Case	Year	Total sheds	Objections	Built	Brief details
					and council ceded. Unclear whether applicant will reapply
Cruckmeole, Shrewsbury, Shropshire	2018		33	X	Application for 1 free-range shed for 16,000 birds refused, appeal dismissed 2020.
St Owen's Cross, Herefordshire	2018	4	88	NYD	Live case: Application to replace 3 existing sheds increasing no. of birds from 142,000 to 260,000.
Betton, Market Drayton, North Shropshire	2018/19	1 FR	314/219	Under construction	Application for 1 shed for 32,000 free-range birds on recently bought plot. Approved, JR launched but failed. Section 106 agreement for manure
Crump Oak, Lyonshall, Herefordshire	2019		147	NYD	Live case: Owner with multiple sites in several counties applied for 6 sheds.

Appendix 3 Interviewee index

As explained in the methodology, the people interviewed were categorised under seven headings denoted by a letter in order to protect their anonymity.

Table A3.1 Interviewee categories

Code	Category description	No.*
G	Government actors - who work for or represent official bodies - local authorities and environmental agencies	18
D	Decision makers - I have separated out the four county/parish councillors I spoke with	4
P	Planning actors - including the official local authority planners, several officers with both an environmental and planning remit and also private sector planning consultants and land agents	15
E	Environmental actors - which include the official environmental officers, but also some people working for environmental charities, and one farming/environment actor	15
O	Objectors - who included local people, several organisations campaigning against IPU's and some local tourism and farming businesses	14
F	Farming actors - which includes farmers, their agents (who overlap into the planning category), the processor company, farming organisations and some farmers who also had tourism interests.	14
T	Tourism actors - including those running tourism businesses, working for tourism organisations or in a tourism role for a government body	14

* This number includes the actors in multiple categories so should **not** be totalled.

Where someone falls into two categories two letters are used and when they fall into three, three letters. A number is used to differentiate between the individuals in the same group. Thus, GEP1 is the first person I interviewed who was a government employee in the environmental sector who also had a planning function. While there is a little more information in the descriptions in Table A3.2, I have not attributed gender, county or any more detail (such as national/local organisation or political party of the local councillors) as this would make it easier to identify individuals. In the thesis text I refer to interviewees as 'they' throughout for the same reason.

Table A3.2 List of interviewees

Code	Description
E1	Environment professional
E2	Environment professional
E3	Environment professional
E4	Environment professional
E5	Environment/animal welfare
F1	Farming sector
F2	Farmer
F3	Farming sector
F4	Farming sector
F5	Farmer
F6	Farmer
FE1	Farming and environment sectors
FP1	Farming sector planning/land agent
FP2	Farming sector planning/land agent
FP3	Farming sector planning/land agent
FT1	Farmer with tourism interest
FT2	Farming and tourism sector
GD1	Decision maker (Parish Council)
GD2	Decision maker (Local government)
GD3	Decision maker (Local government)
GD4	Decision maker (Local government)
GE1	Government environmental professional
GE2	Government environmental professional
GE3	Government environmental professional
GE4	Government environmental professional
GE5	Government environmental professional
GEP1	Government environmental and planning professional
GEP2	Government environmental and planning professional
GEP3	Government environmental and planning professional
GEP4	Government environmental and planning professional
GP1	Local government planning
GP2	Local government planning
GP3	Local government planning

Code	Description
GP4	Local government planning
GP5	Local government planning
GT1	Local government with tourism specialism
GT2	Tourism professional in government sector
O1	Objector
O2	Objector
O3	Objector
O4	Objector
O5	Objector
O6	Objector
O7	Objector
OF1	Objector farming sector
OF2	Objector farming sector
OP1	Objector planning sector consultant
OP2	Objector planning sector
OP3	Objector planning sector consultant
T1	Tourism/walking sector
T2	Tourism professional
T3	Tourism/walking sector
T4	Tourism/walking sector
T5	Tourism professional
T6	Tourism/walking sector
T7	Tourism professional
T8	Tourism/walking sector
T01	Tourism business objector
T02	Tourism business objector
59	Total

Appendix 4 Research consent form



Research Project - Information Sheet

Research into poultry unit developments in Herefordshire and Shropshire

My name is Alison Caffyn. I am a PhD Researcher at Cardiff University in the School of Geography and Planning. I am an experienced researcher and former consultant and live in the local area.

You have been given this information sheet because you are being invited to take part in a research study. This information sheet describes the study and explains what will be involved if you decide to take part.

This research aims to explore how conflicts over some poultry unit developments have emerged over time, how the arguments are articulated during the planning process and how people experience poultry units once they have been built.

The research is a PhD study funded by the Economic and Social Research Council and Cardiff University.

What will participating in this study involve?

If you agree to participate in the research I would like to interview you. This will be a conversation about your knowledge and experiences in relation to the research topic. The interview will take place at a time and place convenient to you - this could be your home or another suitable location. It will last between 0.5 and 1.5 hours. With your permission, it will be digitally recorded and written up soon afterwards. This is helpful for me as it means I don't have to take notes during the interview.

What will happen to any information I give?

Any information I have about you will be kept confidential. I will transcribe your interview and any details that could be used to identify you will be removed from the transcript. Any extracts from what you say that are quoted in written work will be anonymous. I will use generic categories to refer to different groups of participants such as 'local resident' or 'local authority officer'. I will ask you to complete the consent form before we start the interview.

All electronic data will be stored on a password protected computer. Any paper copies will be kept in a locked filing cabinet in my office. All digital recordings will be destroyed after completion of the project. Other data from the study will be retained, in a secure location, for 7 years.

What will be done with the results of the project?

The results of this study will be written up as a thesis, used in academic publications and in presentations. I plan to share the overall research results with relevant organisations in order that any lessons can be learned and practice can be informed by the research. I would be happy to send you a summary of the results if you wish.

Contact details

I am the main contact for the study. If you have any questions about the project, please don't hesitate to ask. My contact details are:

Alison Caffyn, caffyna@cardiff.ac.uk

School of Geography and Planning, Cardiff University, Glamorgan Building, King Edward VII Avenue, Cardiff, CF10 3WA 07811 353986

If you wish to contact a senior member of the University about the research or make a complaint please contact:

Professor Mara Miele, School of Geography and Planning, Cardiff University, Glamorgan Building, King Edward VII Avenue, Cardiff, CF10 3WA. mielem@cardiff.ac.uk

Thank you for considering taking part in this study and taking the time to read this information. If you are willing to be interviewed for this research project, please complete the consent form on the next page

Consent Form

Project title - Poultry unit developments in Herefordshire and Shropshire

Alison Caffyn, Cardiff University

Please tick

Yes

I confirm that I have read and understand the information sheet provided for this study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

I understand that my participation in this study is voluntary and that I am free to withdraw at any time, without giving a reason.

I understand that the interview will be digitally recorded and then transcribed.

I understand my personal details such as phone number and address will not be revealed to people outside the project.

I understand that my words may be used in publications, reports, presentations and other research outputs.

I understand that all participants will be anonymised as much as possible in research findings. Categories such as 'a local business owner', 'a local resident' or 'a local authority officer' will be used.

Participant's name (printed) _____

Participant's signature _____ Date _____

Researcher's signature _____ Date _____

Thank you for agreeing to take part in this study.
Your contribution is very much appreciated



Appendix 5 Suggested responses and improvements

The research has identified a wide range of opportunities to respond to IPU problems and challenges and to improve current policy and processes or to conduct further research. There are also national scale consumer shifts which could be supported through policy, such as encouraging a reduction in eating meat which would help reduce overall demand. Local authorities, public bodies and other organisations could pursue many of the items listed below which aim to make processes more transparent, accountable and democratic for all parties, reduce areas of missing knowledge and uncertainty and improve consistency in decision-making.

The suggestions came from objectors but also from officers, decision makers and agents, all of whom saw room for improving the current systems and situation. I am not a trained planner and my understanding of all the technical permitting and planning processes is partial so I am assuming the relevant organisations would need to pick up particular points and develop them with their specialist expertise and in consultation with partners, the industry and objector representatives. Some items are simple adjustments to current processes, improvements in information, communication and transparency. Many of the suggested responses, however, would require considerable discussion, consultation and possibly piloting. Many would require additional staff resource and/or funding either to set up or to sustain on an ongoing basis. This would need to be balanced against the potential financial savings in dealing with reduced levels of contestation, smoothing procedures and reducing legal challenges etc.

The contextual discussion relating to this table is in section 10.3 of the thesis and the points shaded blue in the table are discussed in more detail in section 11.3.

Table A5.1 Suggested responses and improvements

1. Policy	
1.1	Review national agricultural planning policies to consider the need for updated definitions of agriculture in the light of major intensive livestock operations.
1.2	National, sub-regional or county level discussions or forum about a more strategic approach to ILUs involving the poultry industry, environmental agencies and expert advisors.
1.3	Introduce policies on ILUs in Core Strategies.
1.4	Develop and adopt Supplementary Planning Guidance (SPG) for ILUs.

1.5	Introduce zoning for ILUs (possibly as part of SPG) to direct new developments to least vulnerable areas, drawing on landscape character assessments, nature improvement areas, ammonia levels and other key factors.
1.6	Require ILUs to be built within practical reach of the farmstead, or if new poultry manager accommodation will be required, that it is submitted as part of the full application.
1.7	Remove agricultural rate exemption for ILUs.
1.8	Introduce S106 or community infrastructure levy for ILU developments.
1.9	Include AONBs in list of statutory consultees for ILU (if not all) applications (including across county/country boundaries).
1.10	Nutrient Management Boards should be made more representative, accessible and better held to account.
1.11	Provide support for local areas to develop neighbourhood development plans in locations where they do not exist currently and encourage them to consider what types of farming and tourism developments they would like to see in the area.
2. Processes	
2.1	Require pre-application community consultation for ILUs.
2.2	Improve quality of scoping advice for applicants.
2.3	Tighten up requirements for evaluation of cumulative and economic impacts.
2.4	Reintroduce neighbour notifications for ILU developments to include all nearby businesses and extend response time allowed to at least six weeks.
2.5	Require good quality photomontages of the IPU's visual impact and proposed screening from key viewpoints.
2.6	Require odour reports to meet industry guidance standards (Bull 2018).
2.7	Require a balanced economic impact assessment for IPU planning applications (possibly to a specified format or methodology).
2.8	Require detailed business case rationale and objectives from farmers in applications to better explain the thinking behind the proposals (possibly using a template for design and access statements).
2.9	Incorporate a more nuanced assessment of objections and supporting statements in the planning officer's report. Rather than just bullet pointing the issues raised, evaluate which ones are most pertinent and valid.
2.10	Improve chairing of planning committees to halt irrelevant discussions and information and to ensure issues such as potential appeal/JR costs are handled in a neutral manner.
2.11	Review and improve statutory consultee processes for ILUs to ensure disconnects are removed, better transparency and accountability.
2.12	Develop an evaluation tool or framework for (and with) planners and decision makers to better capture the multidimensional factors for each case to help make decisions.

2.13	Review and tighten up Environmental Permitting processes, to ensure sites are visited and consultation and transparency is standardised for all parties. Better detail and transparency about hazardous substances, such as cleaning chemicals, particulates, feed additives or use of antibiotics/ionophores should be provided. Consider protected species as well as habitats.
2.14	Better define 'amenity' of rights of way and how this is impacted by ILUs.
2.15	Clarify all planning consultation processes for people submitting comments, including how they can find out about conditions applied to permissions and whether these are amended, adhered to etc.
2.16	Increase technical training for local authority officers to fill gaps in specialist knowledge or improve ability to evaluate technical modelling methodologies.
2.17	Maintain a (national?) panel of approved professional experts on key topics with more transparency about their qualifications, experience and a process for removing any that do not perform to the required professional standards.
2.18	Widen and enrich farm business advice and support mechanisms (e.g. farm advisors, agents, NFU, agricultural education establishments) to include more diverse farm diversification opportunities.
3. Communication	
3.1	Specify consultants use more accessible language in technical/modelling reports to help all parties and decision makers better understand reports.
3.2	Publish a factsheet or FAQs about IPU and the poultry industry locally, updated regularly, with employment, import/export figures and standard emissions type data to remove erroneous data being quoted at planning committees and enable benchmarking of each proposal. The same could apply to the tourism industry.
3.3	Publish county-based information about health risk factors associated with ILUs, particularly on all aspects of air pollution and AMR, to include an overview of contingency planning for incidents such as bird flu outbreaks.
3.5	Improve cross border communication between counties including consultation about applications within a certain distance of the boundary, but also to monitor cumulative impacts and compatibility of approaches.
3.6	Raise awareness amongst tourism and outdoor leisure sector of issues around water quality, air quality and ILU developments.
4. Monitoring and Research	
4.1	Require monitoring of specific aspects of new IPU operations (e.g. odour or ammonia emissions and up and downstream water quality) as a condition of planning permission.
4.2	Review and monitor externalities from a sample of IPU developments, with cooperation of farmers, to test previous modelling and compare older and new IPU technologies (including ammonia scrubbers).
4.3	Specific monitoring of IPU water pollution risks and how nutrients from the IPU may reach watercourses e.g. during clear out or from attenuation ponds and ammonia deposition to fill gaps in knowledge.

4.4	Improved and increased ongoing river water quality monitoring, scrutiny and dissemination of results. This could potentially include citizen monitoring.
4.5	Publish results of recent phosphate calculator work on the Curl Brook, Herefordshire and use it to inform research across a wider area to map and monitor manure/nutrient production and usage (including AD unit digestate) to better understand the processes and patterns.
4.6	Better monitoring and dissemination of data about rural air quality, specifically ammonia.
4.7	Research into the economic impacts of IPUs on other sectors of the rural economy e.g. tracking specific visitor businesses after an IPU is built.
4.8	Research into visitor perceptions of IPUs and behavioural responses through surveys or participatory sensory methods.
4.9	Research into resident attitudes and perceptions in settlements close to IPUs.
4.10	Research into improved technologies such as air filter systems, water-based odour suppression systems and other pollution reduction technologies used in other countries which could be applied here.
4.11	Research into environmental impacts of ILUs on local habitats and wildlife perhaps working with county recorders, citizen scientists and updating historical records on flora and fauna. Also more targeted research such as monitoring lichens in the vicinity of a new IPU over a number of years.
4.12	Research into the health impacts of IPUs, such as checking local health records for unusual patterns over time (since 1950s), and carrying out new research into communities in close proximity to IPUs.
4.13	Research into levels of Anti-Microbial Resistance in local environments and communities close to long-established IPUs.
4.14	Research into the economic impacts of the poultry sector - employment on farms, at the processor and supply chains, including geographical sourcing of supplies to clarify economic benefits from the sector.
4.15	Similar economic research into the current tourism and leisure sector and supply chains (as no research done on this in recent years).
4.16	Research and development for 'alternative' poultry operations to identify current barriers and advice and support that would encourage more organic, free-range, conservation linked poultry (meat and egg) businesses, linked to new Environmental Land Management farm support schemes.
4.17	Research into how neighbourhood development plans, once adopted, affect planning decisions for ILU developments and how effective they are.
4.18	Longitudinal research into the usage and condition of rights of way and how these are impacted by different farming systems, including IPUs.
Note: ILU = Intensive livestock unit, IPU intensive poultry unit	

Appendix 6 The policy context

National planning policy

The National Planning Policy Framework has been reduced from over 1000 pages down to 50 (MHCLG 2018). Planners and decision makers have to assess complex intensive development proposals against vague concepts of ‘localism’ and ‘sustainable development’ and economic benefits must be given ‘great weight’. Paragraph 183 in the table mentions the relationship between the planning and environmental permitting processes.

Table A6.1 National Planning Policy Framework policies (MHCLG 2018)

Para.	Key Policies
83	<p>Supporting a prosperous rural economy:</p> <p><i>a) the sustainable growth and expansion of all types of business in rural areas, both through conversion of existing buildings and well-designed new buildings;</i></p> <p><i>b) the development and diversification of agricultural and other land-based rural businesses; (p23).</i></p>
170	<p>Conserving and enhancing the natural and historic environments, for example:</p> <p><i>b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services - including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland (p49)</i></p> <p><i>e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; (p49).</i></p>
180	<p>Pollution: policies and decisions should take into account:</p> <p><i>‘the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.’ (p52).</i></p>
183	<p>Policies on noise and light pollution and the need to protect tranquil areas, air pollution and pollution control, for example:</p> <p><i>The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these</i></p>

	<i>are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. (p53).</i>
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County Core Strategies

The local county development plan or Core Strategy is the primary policy guiding decision-making. In both Shropshire and Herefordshire these documents provide little guidance on IPU developments. Poultry units are referenced generically in Shropshire’s countryside policy CS5. Herefordshire’s Core Strategy makes no reference to intensive livestock farming of any sort. Farming is addressed largely in the form of farming developments and diversification; food and drink production, renewable energy opportunities, farm tourism and farm housing issues. Farming is not linked to potential negative impacts such as air quality, traffic generation, heritage impacts etc. other than one brief reference to water management issues within a five-page section on water quality and management (p160).

Table A6.2 County Core Strategy policies

Para	Key Policies
	Shropshire Core Strategy (Shropshire Council 2011)
4.74	<p>Countryside and Green Belt (CS5)</p> <p><i>‘Whilst the Core Strategy aims to provide general support for the land based sector, larger scale agricultural/horticultural/forestry/mineral related development, including livestock production units, poultry units, greenhouses/polytunnels and mineral extraction, can have significant impacts and will not be appropriate in all rural locations.’ (p67).</i></p>
	Herefordshire Core Strategy (Herefordshire Council 2015)
4.8.41	<p>Rural Economy (RA6)</p> <p><i>‘Planning applications which are submitted in order to diversify the rural economy will be permitted where they:</i></p> <ul style="list-style-type: none"> <i>• ensure that the development is of a scale which would be commensurate with its location and setting;</i> <i>• do not cause unacceptable adverse impacts to the amenity of nearby residents by virtue of design and mass, noise, dust, lighting and smell;</i> <i>• do not generate traffic movements that cannot safely be accommodated within the local road network;</i>

	<ul style="list-style-type: none"> • <i>and do not undermine the achievement of water quality targets in accordance with Policies SD3 and SD4.’(p115).</i>
5.3.61	<p>Sustainable water management, wastewater and river water quality</p> <p><i>‘it is imperative that proposals for growth do not adversely affect river water quality’ (p159).</i></p> <p><i>‘Septic tanks and other activities such as agricultural practices form more diffuse sources of potential pollution.’ (p160).</i></p>

Neighbourhood development plans (NDPs)

NDPs were introduced by the 2011 Localism Act. The stated aim was to devolve more decision-making to local communities. Herefordshire is one of the local authorities with the highest number of NDPs in the UK. As at May 2020 113 parish and town council areas had started the process (which is quite onerous and takes several years) and 72 plans had reached the stage of being officially adopted (pale blue in Figure A6.1). This covers most of the county. In my interviews I explored whether Neighbourhood Development Plans (NDPs) might be another route for local people to prevent more intensive agricultural developments being approved in their locality and help fill the policy vacuum. NDPs have to be in ‘general conformity’ with the Core Strategy for the county, but once adopted, the plans become part of the statutory planning framework.

Shropshire has few NDPs and a low level of awareness about the mechanism.

Several Herefordshire NDPs which do include specific IPU policies have now been approved: Table A6.3 gives an example.

Table A6.3 Almeley Parish Neighbourhood Development Plan 2011-2031, (2019)

Para	Key policies
ALM8	<p><i>General purpose agricultural buildings requiring planning permission, intensive livestock units and associated structures will only be permitted where:</i></p> <p><i>a) they do not intrude unacceptably into the landscape or adversely affect important views or landscape character.</i></p> <p><i>b) any traffic generated can be accommodated safely upon the local highway network.</i></p> <p><i>c) for proposals involving intensive livestock units and/or associated earth walled storage compounds or lagoons, it is clearly demonstrated that there will be no adverse effects upon residential amenity.</i></p> <p><i>d) there are no other potentially polluting effects from traffic, noise or smell upon local amenity. (p33).</i></p>

There are also related policies on manure waste management

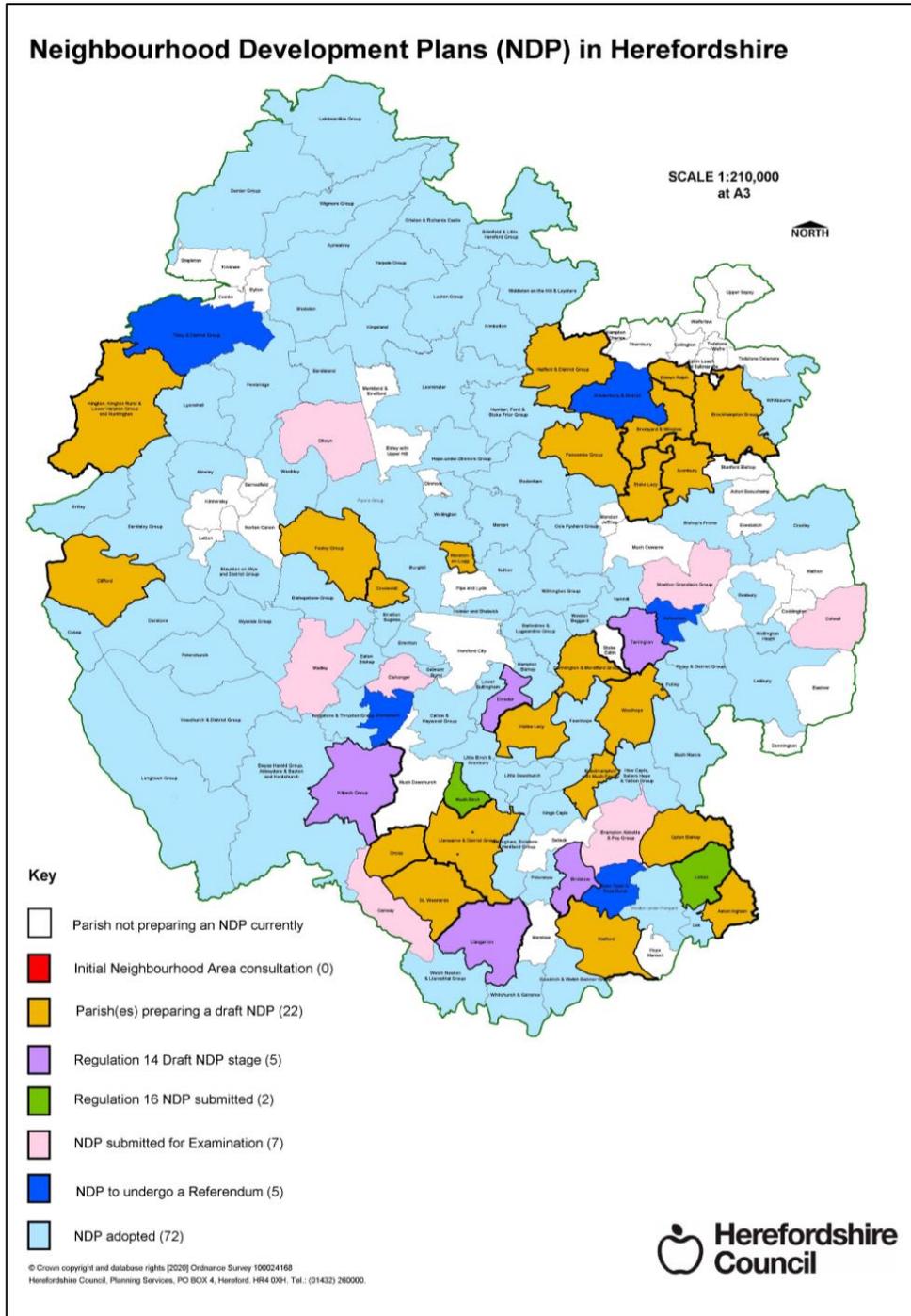


Figure A6.1 Herefordshire Neighbourhood Development Plans 2020²¹¹

Appendix 7 Future trends and influences

The following table links to the discussion in section 10.3. It briefly notes a range of factors which may influence UK IPU development from 2020 onwards.

Table A7.1 Future potential influences on IPU contestations

Key influences	Potential impacts
Industry trends	For example processors may continue to increase the number of ‘crops’ a year through breeding chickens which mature even faster. In contrast if demand grows for ‘slow grow’ chicken, as it has in the Netherlands (Saatkamp <i>et al.</i> 2019), there would be fewer crops and possibly the need for additional IPUs would thereby increase.
Technological developments	Precision livestock farming technologies will increasingly automate processes and may make it possible to raise animals in ever larger volumes (Stevenson 2016). This might encourage some existing farmers to expand their units while older sheds may become obsolete.
Industry regulatory shifts	For example several interviewees mentioned that the practice of crop thinning might be banned, meaning fewer birds could be grown in one crop, again increasing the need for more IPUs. There has also been speculation that regulations may be relaxed in the UK after Brexit, although current policy discussions include improving the environment for birds (DEFRA 2020).
Trade agreements	Brexit may lead to increased imports of chicken from abroad which might decrease demand for UK grown chicken. The Agriculture Bill currently going through Parliament will be key here.
Farm subsidy shifts	The new post Brexit subsidy regime is still being worked out. Poultry is not currently subsidised and may not be much affected, but other types of farming may become more attractive for farmers and subsidies on renewable energy will continue to play an important role.
Environment, Food and Farming policy	The UK 25 year Environment Plan (HM Government 2018) proposed ensuring ‘net environmental gain’ from development, not only in biodiversity as currently but also in water and air quality and recreation. If this is taken forward and if (a big if) agricultural developments are not exempted, then this may impact on the design and viability of IPU developments. The plan also referenced moving towards more effective application of the ‘polluter pays’ principle, although that phrase is absent from more recent farming policy updates (DEFRA 2020). The National Food Strategy (Dimbleby 2020) highlights the cost of agricultural externalities. Part 2 setting out recommended actions will be published in 2021.
Environmental regulation changes	There have been recent proposals to weaken environmental laws post Brexit. For example the Head of the Environment Agency suggested amending the European Water Framework Directive after Brexit so that England’s rivers could more easily meet river water quality standards (Laville 2020).

Key influences	Potential impacts
Market demand	Chicken consumption has continued to rise but may be peaking in the UK with the increased interest in vegan and vegetarian diets. Consumption in the rest of the world continues to rise particularly with the substitution of chicken for pork in SE Asian markets due to the global swine fever epidemic (Brockotter 2019). Some bodies are proposing fiscal measures such as a tax on intensively reared meat (CIWF 2020) which would raise prices, suppress demand and encourage alternative sources.
Disruption and disease	The Covid-19 pandemic has highlighted how the food system is vulnerable to major disruptions. An NFU officer was quoted as saying UK poultry production was down 7-10% during the pandemic and that they didn't expect production to recover for 2-3 years (Rayner 2020). There is also the risk of the poultry industry being a direct causation of a similar flu pandemic.
National planning policy	There have been fears that national planning policies will be relaxed in order to boost the post Covid-19 economy through making it easier to gain permission for business developments in the countryside (Helm 2020). The Planning White Paper (MHCLG 2020) says little about agriculture and industry but appears to do away with much of the development planning system in England.
Local planning policies	As more neighbourhood development plans are adopted it is possible that those with ILU policies begin to gain some purchase in preventing more IPU developments.
Core strategies	These plans are undergoing partial review in the next few years in Herefordshire and Shropshire and there may be pressure for more specific policies on ILUs or for Supplementary Planning Guidance to be published. The Shropshire Draft Plan (Shropshire Council 2020), currently out for consultation, however still only references agriculture occasionally and makes no reference to any form of intensive farming.
Collaborative objection	It is possible that the localised groups of objectors around the area or nationally may begin to collaborate more effectively. This research identified the beginnings of this but it is challenging to operationalise and sustain.
Farming lobby	The ability of the farming lobby and agricultural hegemony to exert power may shift and possibly weaken over time. This may depend upon how they adapt to the significant changes in the policy and market environment.
Further campaigning	High-profile campaigns may successfully raise issues about intensive meat up the public agenda and affect demand.
Alternative farming options	While agroecology, regenerative and organic farming and other low intensity agriculture is gaining ground it is from a tiny base. It is possible that alternative livestock farming options become more popular or receive more support to make them more viable.
Increasing polarisation	Sustainable intensification and precision livestock farming are also likely to continue to grow (De Clercq et al. 2018). Thus a possible scenario is a polarisation between large hi-tech precision and intensive

Key influences	Potential impacts
	farms and much smaller low-tech regenerative farming, some of which may be sub-commercial (Butt 2019) but may be increasingly subsidised through the new public goods for public services Environmental Land Management scheme. Whether these forms of farming can flourish in close proximity and also complement local sustainable food economies are questions which remain to be answered.

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